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Asstt./Associate Professor

SUBJECT SPECIALIST

Guide

EDUCATIONAL SERVICES OF 67 YEARS AUTHORITY IN PUBLICATION

FOR BIOLOGY

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LECTURER
SUBJECT SPECIALIST
Recruitment Test Guide
BIOLOGY

Salient Features:

- PPSC Selection Procedure
- Syllabus & Distribution of Marks
- General Instructions (Written Test / Interview)
- Formula to Calculate Academic Marks in PPSC
- Equivalence of Qualifications for the Lecturers
- Guideline for the Post of Lecturer-2020
- Important Instructions for the Candidates-2020
- How to Solve MCQs Correctly
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(80 Marks)

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(20 Marks)
With Expected Questions For Coming Exams.

****

Selection Procedure

PUNJAB PUBLIC SERVICE COMMISSION, LAHORE

ADVERTISEMENT NO.24/2020

PUNJAB HIGHER EDUCATION DEPARTMENT

LECTURER (FEMALE) (BS-17) ON REGULAR BASIS

CASE NO.	SUBJECT	OPEN MERIT POSTS	MINORITY QUOTA	SPECIAL PERSON QUOTA	TOTAL POSTS
01-RB/2020	ARABIC	13	0	0	13
02-RB/2020	BIOLOGY	47	2	1	50
03-RB/2020	BOTANY	15	0	0	15
04-RB/2020	CHEMISTRY	92	5	3	100
05-RB/2020	COMMERCE	15	0	0	15
06-RB/2020	COMPUTER SCIENCE	56	3	1	60
07-RB/2020	ECONOMICS	65	3	2	70
08-RB/2020	EDUCATION	74	4	2	80
09-RB/2020	ENGLISH	184	10	6	200
10-RB/2020	FINE ARTS	6	0	0	6
11-RB/2020	GEOGRAPHY	19	1	0	20
12-RB/2020	HISTORY	24	1	0	25
13-RB/2020	HOME ECONOMICS	70	3	2	75
14-RB/2020	ISLAMIAT	78	0	2	80
15-RB/2020	JOURNALISM	6	0	0	6
16-RB/2020	LIBRARY SCIENCE	15	0	0	15
17-RB/2020	MATHEMATICS	74	4	2	80
18-RB/2020	PAK STUDY	10	0	0	10
19-RB/2020	PERSIAN	10	0	0	10
20-RB/2020	PHILOSOPHY	3	0	0	3
21-RB/2020	PHYSICAL EDUCATION	92	5	3	100
22-RB/2020	PHYSICS	74	4	2	80
23-RB/2020	POLITICAL SCIENCE	47	2	1	50
24-RB/2020	PSYCHOLOGY	56	3	1	60
25-RB/2020	PUNJABI	20	0	0	20
26-RB/2020	SARAIKI	7	0	0	7
27-RB/2020	SOCIAL WORK	10	0	0	10
28-RB/2020	SOCIOLOGY	19	1	0	20
29-RB/2020	STATISTICS	47	2	1	50
30-RB/2020	URDU	84	4	2	90
31-RB/2020	ZOOLOGY	15	0	0	15
	Total	1347	57	31	1435

LECTURER (MALE) (BS-17) ON REGULAR BASIS

CASE NO.	SUBJECT	OPEN MERIT POSTS	MINORITY QUOTA	SPECIAL PERSON QUOTA	TOTAL POSTS
32-RB/2020	ARABIC	8	0	0	8
33-RB/2020	BIOLOGY	19	1	0	20
34-RB/2020	BOTANY	8	0	0	8
35-RB/2020	CHEMISTRY	84	4	2	90
36-RB/2020	COMMERCE	29	1	0	30
37-RB/2020	COMPUTER SCIENCE	37	2	1	40
38-RB/2020	ECONOMICS	47	2	1	50
39-RB/2020	EDUCATION	37	2	1	40
40-RB/2020	ENGLISH	121	6	3	130
41-RB/2020	GEOGRAPHY	18	0	0	18
42-RB/2020	HISTORY	24	1	0	25
43-RB/2020	ISLAMIAT	49	0	1	50
44-RB/2020	JOURNALISM	5	0	0	5
45-RB/2020	LIBRARY SCIENCE	5	0	0	5
46-RB/2020	MATHEMATICS	92	5	3	100
47-RB/2020	PAK STUDY	7	0	0	7
48-RB/2020	PERSIAN	5	0	0	5
49-RB/2020	PHILOSOPHY	3	0	0	3
50-RB/2020	PHYSICAL EDUCATION	47	2	1	50
51-RB/2020	PHYSICS	70	3	2	75
52-RB/2020	POLITICAL SCIENCE	29	1	0	30
53-RB/2020	PSYCHOLOGY	19	1	0	20
54-RB/2020	PUNJABI	10	0	0	10
55-RB/2020	SARAIKI	5	0	0	5
56-RB/2020	SOCIAL WORK	5	0	0	5
57-RB/2020	SOCIOLOGY	15	0	0	15
58-RB/2020	STATISTICS	56	3	1	60
59-RB/2020	URDU	92	5	3	100
60-RB/2020	ZOOLOGY	12	0	0	12
	Total	958	39	19	1016

MINIMUM QUALIFICATION / EXPERIENCE

MASTER'S DEGREE (AT LEAST 2ND DIVISION) IN THE RELEVANT SUBJECT OR EQUIVALENT QUALIFICATION, PROVIDED THAT FOR THE SUBJECT OF ENGLISH M.A. 3RD DIVISION WITH DIPLOMA IN ENGLISH FROM ALLAMA IQBAL OPEN UNIVERSITY WILL ALSO BE ELIGIBLE.

NOTE:-

In case a candidate claims that his/her qualification is equivalent to the prescribed qualification, he/she will be required to submit equivalence of his/her qualification issued by the Competent Authority at the time of interview. If a candidate fails to submit Equivalence Certificate issued by the Competent Authority at the time of interview his/her candidature shall be cancelled.

AGE

FEMALE

21 to 28 + 08 Years General age relaxation in upper age limit for FEMALE Candidates = 36 Years as per Govt. of Punjab, S&GAD Notification No. SOR-I (S&GAD) 9-36/81 dated 21-05-2012.

MALE

21 to 28 + 05 Years General age relaxation in upper age limit for MALE Candidates = 33 Years as per Govt. of Punjab, S&GAD Notification No. SOR-I (S&GAD) 9-36/81 dated 21-05-2012.

GENDER, DOMICILE & PLACE OF POSTING

GENDER:
Male & Female

DOMICILE:
Punjab

PLACE OF POSTING:
Anywhere in the Punjab

SYLLABUS FOR WRITTEN EXAMINATION/ TEST (IF HELD)

One paper of MCQ type written test of 100 marks and 90 minutes duration. Syllabus is as under:-

i) Qualification related questions (80%)

ii) Questions related to General Knowledge (20%)

IMPORTANT NOTE

Please read the "General Instructions" regarding Application Fee, Written Test, Interview on PPSC website www.ppsc.gop.pk before applying online.

CLOSING DATE FOR APPLICATIONS: 8th September 2020

MUHAMMAD NAWAZ KHALID ARBI
SECRETARY
UAN NO. 042-111-988-722 **website: www.ppsc.gop.pk**

Syllabus & Distribution of Marks:

Total MCQs = 100 **Time : 90 minutes**

Subject Based Test = 80 % **General Ability Test = 20%**

One Paper of MCQ type written test of 100 marks of 90 minutes duration comprising questions relating to Qualification of the Post and General Knowledge incuding Pakistan Studies, Current Affairs, Islamic Studies, Geography, Baisc Mathematics, English, Urdu, Everyday Science and Basic Computer Studies.

GENERAL INSTRUCTIONS (WRITTEN TEST/INTERVIEW)

1. **To appear in test/interview only Original Valid CNIC issued by NADRA will be accepted. No other identification document will be acceptable.**
2. Applicants are advised to read all terms and conditions/ instructions of the Advertisement as well as **"Important/General Instructions to Candidates" given on PPSC website** carefully in order to submit their Online Applications complete in all respects. The onus/ responsibility of correctness of the data given in the On-line Application Form will rest squarely on the candidates.
3. Applicants are required to submit **"On-line Application Form" by the Closing Date which is 08-09-2020 up to 12:00 AM (Midnight).** Applicants should fill in the On-line Application Form carefully in the light of the Guidelines and Instructions mentioned in the Advertisement for the said post and **"Important/General Instructions to Candidates".**
4. Editing options, to correct any data in the On-line Application Form, will be available to the candidates till the Closing Date of submission of Online Applications.
5. Negative marking shall be done and 0.25 mark shall be deducted for each incorrect answer in all Objective (MCQ) papers.
6. For all posts to be filled through written test followed by interview or interview alone, the number of chances shall be restricted to three. However, if a candidate qualifies the interview but cannot be recommended for appointment due to shortage of vacancies, his chance shall not be considered as availed whereas chance of a candidate who does not qualify the written test or interview shall be considered as availed. For the post of Lecturer in Education Department, a candidate who is applicant for more than one subject, shall be allowed three chances in each subject for which he/she is a candidate in accordance with above laid down policy.
7. In case, a candidate claims experience of private firm / entity, he / she must bring proof at the time of interview that the firm / entity is registered with SECP, Registrar of Firms or any other Regulatory Authority, failing which his / her application shall be rejected.
8. The candidates will ensure that after applying for a particular post they will immediately apply for Departmental Permission Certificate/NOC in their concerned Department(s) and provide the Departmental Permission Certificate/NOC at the time of interview (if called).
9. The candidates just after applying for a particular post advertised by PPSC will ensure that they have obtained/applied for registration in PEC/PNC/PMDC/PVMC or other relevant body for Registration Certificate before the Closing Date and provide the same at the time of interview (if called).
10. The candidates will ensure that they will provide marks obtained / total marks or percentage certificate of all degrees at the time of interview. CGPA is not acceptable.
11. It is mandatory for Applicants to **deposit Rs.600/-** under Head:"C02101- ORGANIZATIONS OF STATE-TEST FEE REALIZED BY THE PUNJAB PUBLIC SERVICE COMMISSION", in any Branch of State Bank of Pakistan or National Bank of Pakistan or Government Treasury on or before the Closing Date of submission of applications
    - **In case, the requisition of any post is withdrawn by the Administrative Department after receipt of applications by the Commission, the candidates of that particular post can use Paid Treasury Challan of the withdrawn post against any other post (Once), advertised by the Commission within the next One Year.**
    - **Special Persons are not required to deposit application fee.**
    - **Applicants residing outside Pakistan, but having Domicile of the Punjab will deposit the fee at the Pakistani Embassy of residing country in the currency of that country equivalent to the amount of Application/ Test Fee prescribed for the post.**
    - **No Bank Draft or Pay Order or Cheque or any such instrument will be accepted as fee by the Commission.**
12. **PPSC's Helplines: Lahore:** 042-99202762, 99200161, 99200162, **Rawalpindi:** 051-5158095, **Faisalabad:** 041-9330713, **Sargodha:** 048-3259710, **Multan:** 061-9330354, **Bahawalpur:** 062-2881182, **D.G. Khan:** 064-9260410

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کورونا وائرس

ماسک کا استعمال صرف کھانسی یا فلو میں مبتلا افراد ڈاکٹر کی ہدایت پر کریں۔

FORMULA TO CALCULATE ACADEMIC MARKS IN PPSC

PERCENTAGE OF MARKS OBTAINED (SEMESTER SYSTEM)	PERCENTAGE OF MARKS OBTAINED (ANNUAL SYSTEM)	4-EXAMS					3-EXAMS				2-EXAMS			1-EXAM	
		MATRIC/ O-LEVEL	FA/FSc/ A-Level	BA/ BSc.	MA/ MSc.	TOTAL	MATRIC/ O-LEVEL	FA/FSc/ A-Level	BA/ BSc.	TOTAL	MATRIC/ O-LEVEL	FA/FSc/ A-Level	TOTAL	MATRIC/ O-LEVEL	TOTAL
90-100	80 & ABOVE	5	7	11	17	40	9	12	19	40	15	25	40	40	40
80-89	75-79	5	7	10	16	38	9	11	18	38	14	24	38	28	28
75-79	70-74	5	6	10	15	36	8	11	17	36	13	23	36	36	36
70-74	65-69	4	6	10	14	34	8	10	16	34	12	22	34	34	34
65-69	60-64	4	6	9	14	33	7	10	16	33	11	22	33	33	33
60-64	55-59	3	5	9	13	30	6	9	15	30	10	20	30	30	30
55-59	50-54	3	5	9	11	28	6	9	13	28	9	19	28	28	28
50-54	45-49	3	5	8	10	26	5	8	13	26	8	18	26	26	26
45-49	40-44	3	5	8	9	25	5	8	12	25	8	17	25	25	25
44 & BELOW	39 & BELOW	3	5	7	9	24	5	8	11	24	7	17	24	24	24

Note: In a case a candidate has appeared in five exams, his/her last four examinations will be marked. No marks for BEd or M.Ed

Note: Qualifying marks for written test (MCQs) and interview:

(A) at least 40% marks in written test to qualify for interview.

(B) at least 50% marks in interview to clear interview.

In final merit, only 50% of written marks are taken.

EQUIVALENCE OF QUALIFICATIONS FOR THE POSTS OF LECTURERS (MALE & FEMALE) IN THE EDUCATION DEPARTMENT

SR.NO.	NAME OF THE SUBJECT	REQUISITE QUALIFICATION / EQUIVALENCE DEGREES
1	Arabic	2nd Class Master's Degree in Arabic Ashahdat-ul-Alimiyyah Fil Uloomil Arabiyyah Wal Islamiyyah
2	Civics	2nd Class Master's Degree in Civics Pol. Science.
3	Islamiat	2nd Class Master's Degree in Islamiat Islamic Studies Islamic Culture & Religion Ashahdat-ul-Alimiyyah Fil Uloomil Arabiyyah Wal Islamiyyah B.A. (Hons.) Usul-ud-Din
4	Biology	2nd Class Master's Degree in Biology Botny or Zoology with B.Sc. in both will be acceptable MicroBiology and Molecular Genetics Marine Biology Freshwater Biology and Fisheries Genetics M.Sc. Biology (Plant Sciences) M.Sc. Biology (Animal Sciences) M.Sc. Botany BS Botany M.Sc. Zoology BS Zoology BS / B.Sc. (Hons.) Biotechnology BS / B.Sc. (Hons.) Biochemistry BS (Hons.) in Environmental Science B.Sc. (Hons.) Bioinformatics
5	Botany	2nd Class Master's Degree in Botany Entomology Plant Breeding & Genetics Mycology & Plant Pathology. M.Sc. Biology (Plant Sciences)
6	Zoology	2nd Class Master's Degree in Zoology Entomology Plant Breeding & Genetics Mycology & Plant Pathology M.Sc. Biology (Animal Sciences)
7	Chemistry	2nd Class Master's Degree in Chemistry Applied Chemistry Bio-Chemistry M.Sc. (Industrial Chemistry)
8	Computer Science	2nd Class Master's Degree in MS (CS) M.Sc. Logic & Computer Science MCS MIT (Master's degree in Information Technology) M.Sc. Telecom MIS M.Sc. Software Engineering B.Sc. (Hons.) in Computer Science B.Sc. (Hons.) in Software Engineering B.Sc. (Hons.) in Information Systems
9	Economics	2nd Class Master's Degree in Economics M.Sc. Economics Business Economics M.Sc. Economics & Finance B.Sc. (Hons.) Agricultural & Resource Economics
10	Education	2nd Class Master's Degree in M.A. Education M.Ed. MBE

SR.NO.	NAME OF THE SUBJECT	REQUISITE QUALIFICATION / EQUIVALENCE DEGREES
		MTE M.A. ELTL M.A. ECE M.S.Ed M.A. Educational Assessment & Research
11	Commerce	2nd Class Master's Degree in Commerce M. Com. M.A. Finance M. S. Accounting & Finance M.S. Banking & Finance MBA Marketing MBA Finance
12	Geology	2nd Class Master's Degree in Geology M.Sc. Environmental Science M.Sc. Earth Science M.Sc. Seismology.
13	Home Economics	2nd Class Master's Degree in M.A. Home Economics M.Sc. Home Economics.
14	Journalism/Mass Communication	2nd Class Master's Degree in M.A. Development Journalism.
15	Pakistan Studies	2nd Class Master's Degree in Pakistan Studies History Political Science M.A. International Relations
16	Political Science	2nd Class Master's Degree in Political Science M.Sc. Political Studies. M.A. International Relations. M.A. Diplomacy & Strategic Studies Master in Politics and International Relations Master in Defense and Diplomatic Studies
17	Psychology	2nd Class Master's Degree in Psychology M.Sc. Applied Psychology M.Sc. Behavioral Science BS (Hons) Clinical Psychology
18	Physics	2nd Class Master's Degree in Physics M.Sc. Computational Physics
19	Physical Education	2nd Class Master's Degree in Physical Education M.A. Health & Physical Education M.Sc. Physical Education M.S.c Sports Science
20	Social Work	2nd Class Master's Degree in Social Work M.A. Women Studies M.A. Gender Studies M.A Population Studies M.A. Rural Sociology
21	Sociology	2nd Class Master's Degree in Sociology Rural Sociology M.Sc. Anthropology M.A. Sociology & Anthropology M.A. Women Studies M.A. Gender Studies M.A. Population Studies
22	Statistics	2nd Class Master's Degree in Statistics M.Sc. Operational Research.
23	Urdu	2nd Class Master's Degree in Urdu M.A. Iqbaliat / Iqbal Studies

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Guideline for the Post of Lecturer
لیکچرار کی پوسٹ کیلئے گائیڈ لائن

لیکچرار کی بھرتی کیلئے درخواست دینے والے امیدوارن کی راہنمائی کیلئے چند ضروری معلومات اور ہدایات درج ذیل ہیں:

Department (محکمہ): HED (Higher Education Department) ہائر ایجوکیشن ڈیپارٹمنٹ

Scale (سکیل): (BS-17)

Eligibility (قابلیت): MA, M.Sc or BS in relevant subject (ایم اے، ایم ایس سی یا متعلقہ مضمون میں بی ایس)

Age (عمر): 22-28 (5 years relaxation for males and 8-years for females)

مرد امیدواران کے عمر کی حد میں 5 سال اور خواتین کے لیے 8 سال کی رعایت

Procedure to Apply (اپلائی کرنے کا طریقہ کار):

1. See Advertisement in daily Newspapers or Visit to Punjab Public Service Commission. (روزنامہ اخبار یا PPSC کی ویب سائٹ www.ppsc.gop.pk پر اشتہار دیکھیں)
2. Deposit Rs. 600/- Challan in the prescribed bank. -/600 روپے کا چالان متعلقہ بنک میں جمع کروائیں۔
3. Apply online through PPSC website. PPSC کی ویب سائٹ پر آن لائن درخواست فارم جمع کروائیں۔
4. Select examination center i.e. Lahore, Rawalpindi, Multan etc. (امتحان مرکز لاہور، راولپنڈی، ملتان وغیرہ کا انتخاب کریں)

Selection Criteria (in any subject) کسی بھی مضمون میں انتخاب کا معیار:

Written MCQs Test (تحریری کثیر الانتخابی سوالات کا ٹیسٹ) = 100 Marks

(In final merit list, it will be half i.e.50) (فائنل میرٹ لسٹ میں اس کے آدھے نمبر ہو جائیں گے)

Interview (انٹرویو): = 100 Marks **Academic (تعلیمی):** = 40 marks

Higher Qualification (اعلیٰ تعلیم): M.Phil, PhD = 10 Marks

Total Marks for final merit (حتمی میرٹ کے لیے کل نمبر) = 200

Syllabus (نصاب)

Qualification Based MCQs (تعلیمی بنیاد پر کثیر الانتخابی سوالات) = 80 Marks

Main Subject in which candidate did his/her BS or Master degree.

(جس مضمون کے لیے اپلائی کیا ہے اور جس میں امیدوار نے بی ایس یا ماسٹر کی ڈگری حاصل کی ہے)

General Ability (جنرل قابلیت): (20Marks)

(Basic English (بنیادی انگریزی), Current Affairs (حالات حاضرہ), General Knowledge (واقفیت عامہ), Pakistan Studies (مطالعہ پاکستان), Islamiat (اسلامیات), Basic Mathematics (ریاضی), Everyday Science (روزمرہ سائنس)

2 to 3 MCQs from each topic (ہر عنوان سے 2 یا 3 سوالات)

Total Marks = 80 + 20 = 100

عام طور پر سابقہ پرچہ جات میں سے سوالات لئے جاتے ہیں۔ اس کے علاوہ انٹرمیڈیٹ، گریجویشن اور ماسٹر لیول کے نصاب میں سے MCQs لیے جاتے ہیں۔

Test Preparation (ٹیسٹ کی تیاری):

Interest, Determination and Hard work is required (دلچسپی، لگن اور سخت محنت کی ضرورت ہے)

روزانہ پڑھنے کا شیڈول بنالیں۔ میٹرک، انٹرمیڈیٹ، گریجویشن اور ماسٹر لیول کی کتب سے تیاری کریں۔ **Simple** (سادہ) سے **Complex** شکل کی جانب جائیں۔ اہم نکات کو **Highlight** کرلیں۔ علیحدہ رجسٹر پر نوٹس بنائیں۔ ماڈل پیپرز حل کریں۔ اپنی نصابی کتب سے استفادہ کریں۔ 100 فیصد یقینی کامیابی کے لیے درج ذیل کتب کا مطالعہ کریں:

1. Dogar's Unique **Lecturer Guides** (تمام مضامین کی الگ الگ کتب دستیاب ہیں)
2. Dogar's Unique **Model / Sample Papers** (تمام مضامین کے الگ الگ پیپرز دستیاب ہیں)
3. Dogar's Unique **PPSC One-Paper MCQs**
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پنجاب پبلک سروس کمیشن

اُمیدواروں کے لیے ضروری ہدایات

براہِ مہربانی اپنا آن لائن درخواست فارم جمع کروانے سے پہلے کمیشن کا اشتہار اور مندرجہ ذیل ہدایات غور سے پڑھیں۔

اشتہار

1۔ اُمیدواروں کو ہدایت کی جاتی ہے کہ وہ ہر لحاظ سے مکمل آن لائن درخواستیں جمع کروانے کے لیے اشتہار میں دی گئی تمام شرائط و ضوابط اور عمومی ہدایات غور سے پڑھیں۔ آن لائن درخواست میں دیے گئے کوائف کی درستگی کی تمام تر ذمہ داری اُمیدوار پر ہوگی۔

فیس

2۔ اُمیدواروں کے لیے ضروری ہے کہ وہ اشتہار میں بیان کی گئی مطلوبہ فیس: "سی 02101 – سٹیٹ آرگنائزیشنز پنجاب پبلک سروس کمیشن کی جانب سے وصول کردہ امتحانی فیس" کی مد میں سٹیٹ بینک آف پاکستان یا نیشنل بینک آف پاکستان یا سرکاری خزانے میں درخواستوں کی وصولی کی آخری تاریخ سے پہلے جمع کروائیں۔

الف۔ رسید نمبر اُمیدواروں کے آن لائن درخواست فارم میں درج کیا جائے گا۔

ب۔ اصل رسید انٹرویو/زبانی امتحان کے وقت پیش کی جائے گی اور جمع کروائی جائے گی اور ایسا نہ کرنے کی صورت میں اُمیدواروں کو انٹرویو/زبانی امتحان دینے کی اجازت نہیں دی جائے گی۔ اصل رسید پی پی ایس سی اپنے پاس ریکارڈ کے لیے رکھ لے گا۔

ج۔ **کمیشن بینک ڈرافٹ یا پے آرڈر یا چیک یا کسی کو ئی دستاویز فیس کے طور پر قبول نہیں کرے گا۔**

د۔ پنجاب کا ڈومیسائل رکھنے والے بیرونِ ملک رہائش پذیر اُمیدوار آسامی کے لیے تجویز کی گئی درخواست/امتحانی فیس کے مساوی رقم اُس ملک کی کرنسی میں پاکستانی سفارت خانے میں جمع کروائیں گے۔

ذ۔ جسمانی معذور اُمیدواروں کو درخواست/امتحان/ٹیسٹ فیس جمع کروانے کی ضرورت نہیں۔

آن لائن درخواست فارم جمع کروانے کا طریقِ کار

3۔ درخواست گزاروں کے لیے ضروری ہے کہ وہ "آن لائن درخواست فارم" اشتہار میں درج آخری تاریخ تک جمع کروائیں۔ اُمیدوار آن لائن فارم کو مذکورہ آسامی کے اشتہار میں درج رہنما اصولوں اور ہدایات کی روشنی میں احتیاط سے پُر کریں۔ کوائف کی درستی کے لیے ترمیم کی سہولت آن لائن درخواست فارم جمع کروانے کی آخری تاریخ تک موجود رہے گی۔ اُمیدواروں کو تاکید کی جاتی ہے کہ آن لائن درخواست جمع کرواتے وقت صرف اپنا ذاتی ای میل ایڈریس اور ذاتی موبائل نمبر ہی دیں۔

4۔ درخواستیں جمع کروانے کے لئے دی گئی آخری تاریخ تک تاریخ پیدائش میں درستگی کی اجازت ہے۔ اُمیدوار ان حسبِ ضرورت درخواستیں جمع کروانے کی آخری تاریخ تک اپنی تاریخ پیدائش کو آن لائن درخواست میں درست کر سکتے ہیں۔

کمیشن آن لائن درخواستوں کے علاوہ دیگر درخواستیں قبول نہیں کرے گا۔

5۔ درخواستوں کی وصولی کے لیے مقرر کردہ آخری تاریخ کے بعد اُمیدواروں کو آن لائن درخواست دینے کی اجازت نہ ہوگی۔

6۔ اُمیدواروں کے لیے ضروری ہے کہ وہ اس بات کو یقینی بنائیں کہ:

الف۔ ویب سے تیار کردہ درخواست فارم کا کوئی کالم خالی نہیں چھوڑا گیا۔

ب۔ بنیادی سکیل- 18 تک کی آسامیوں کے لیے کمیشن کو آن لائن درخواست کی طبع شدہ کاپی (Hard Copy) جمع کروانے کی ضرورت نہیں ہوگی۔

ج۔ بنیادی سکیل- 19 اور اوپر کی آسامیوں کے لیے جہاں انٹرویو سے قبل جانچ پڑتال ضروری ہے، آن لائن درخواست کی طبع شدہ کاپی کو تمام متعلقہ دستاویزات کی نقول کے ہمراہ متعلقہ اشتہار میں دی گئی ہدایات کے مطابق جمع کروایا جائے۔

د۔ کسی وجہ سے کوئی درخواست مسترد ہونے کی صورت میں عرضداشت، اگر کوئی ہو، **"سیکرٹری، پنجاب پبلک سروس کمیشن"، ایل ڈی اے پلازہ، ایجرٹن روڈ نزد ایوانِ اقبال، لاہور** کو مسترد نامہ/آسامی کے لیے دیے گئے اشتہار/اشتہارات میں دی گئی ہدایات کے مطابق بھیجی جائے گی۔

ذ۔ کسی بھی مرحلے پر اُمیدوار کی جانب سے اس کے آن لائن درخواست فارم میں فراہم کی گئی معلومات کے غلط یا جھوٹا ثابت ہونے کی صورت میں اسے نااہل قرار دے دیا جائے گا اور قواعد کے تحت کارروائی کی جائے گی۔

اہلیت

میڈیکل فٹنس سرٹیفکیٹ

7۔ متعلقہ ضلعی ہیڈ کوارٹر ہسپتال یا سروسز ہسپتال، لاہور کے میڈیکل سپرنٹنڈنٹ کی جانب سے جاری کیا گیا میڈیکل سرٹیفکیٹ ضوابط/پالیسی فیصلوں کے تحت قابلِ قبول ہوگا۔ تاہم، آسامی کے لیے دیے گئے اشتہار میں درج آخری تاریخ سے قبل تین ماہ کے اندر جاری کیا گیا میڈیکل فٹنس سرٹیفکیٹ اس شرط کے تحت قابلِ قبول ہوگا کہ اُمیدوار اُس آسامی کے لیے مجوزہ جسمانی معیار (Physical Standard) کے تمام تقاضوں پر پورا اترتا ہے جس کے لیے اُمیدوار نے درخواست دی ہے۔ مجاز اتھارٹی یعنی ضلعی ہیڈ کوارٹر ہسپتال یا سروسز ہسپتال کے میڈیکل سپرنٹنڈنٹ کا جاری کردہ میڈیکل فٹنس سرٹیفکیٹ آن لائن درخواستوں کی وصولی کی آخری تاریخ کے بعد قابلِ قبول نہیں ہوگا۔"

8۔ آسامی کے لیے اُمیدواروں کی اہلیت کا تعین درج ذیل کی بنیاد پر کیا جائے گا:-

الف۔ قواعدِ ملازمت/اشتہار میں تجویز کی گئی قابلیت/تجربہ۔

ب۔ حکومت یا کمیشن کی جانب سے وقتاً فوقتاً جاری کی گئی ہدایات۔

ج۔ اُمیدواروں کی عمر، تعلیمی قابلیت، تجربہ اور دیگر کوائف وغیرہ کا شمار اس آسامی کے لیے مقرر کی گئی آخری تاریخ تک کیا جائے گا۔

د۔ **مزید واضح کیا جاتا ہے کہ پنجاب پبلک سروس کمیشن کو متعلقہ قواعدِ ملازمت/اشتہار میں تجویز کی گئی اہلیت کی شرائط میں ترمیم کرنے کا کوئی اختیار نہیں ہے۔**

قابلیت

9۔ اشتہار اور متعلقہ قواعدِ ملازمت میں درج قابلیت کمیشن کے لیے قابلِ قبول ہوگا اور اس کے سوا کسی بھی قابلیت کی بنیاد پر اُمیدوار کو آسامی کے لیے اہل قرار نہیں دیا جائے گا:-

الف۔ **غیر ملکی ڈگریوں/ڈپلوموں کی قبولیت۔** کمیشن صرف انہی غیر ملکی یونیورسٹیوں کی ڈگریاں/سرٹیفکیٹ/ڈپلومے قبول کرے گا جو ہائر ایجوکیشن کمیشن (ایچ ای سی)، پاکستان میڈیکل اینڈ ڈینٹل کونسل (پی ایم ڈی سی)، پاکستان انجینئرنگ کونسل (پی ای سی)، پاکستان نرسنگ کونسل، انٹربورڈ کمیٹی آف چیئرمین (آئی بی سی سی) یا کسی دیگر مجاز ایجنسی/اتھارٹی کی تسلیم شدہ ہیں۔

ب۔ **مساوی قابلیت کی قبولیت** ہائر ایجوکیشن کمیشن (ایچ ای سی)، پاکستان میڈیکل اینڈ ڈینٹل کونسل (پی ایم ڈی سی) پاکستان انجینئرنگ کونسل (پی ای سی)، پاکستان نرسنگ کونسل، انٹر بورڈ کمیٹی آف چیئرمین (آئی بی سی سی) یا کسی دیگر مجاز کمیٹی/اتھارٹی اور مساوی قابلیت کے تعین کی کمیٹی (کیو ای ڈی سی) تسلیم شدہ اور انتظامی محکمے سے باضابطہ طور پر منظور شدہ تعلیمی قابلیت، کمیشن کی جانب سے حتمی طور پر قبول کی جائے گی۔

نوٹ: اگر امیدوار دعویٰ کرتا ہے کہ اس کی قابلیت مجوزہ قابلیت کے مساوی ہے، تو اس کے لیے ضروری ہوگا کہ وہ انٹرویو کے وقت یا جب کمیشن طلب کرے، مجاز اتھارٹی کی جاری کردہ مساوی قابلیت کی دستاویز جمع کروائے۔ اگر کوئی امیدوار انٹرویو کے وقت یا جب کمیشن طلب کرے، مجاز اتھارٹی کا جاری کردہ مساوی قابلیت کا سرٹیفکیٹ جمع کروانے میں ناکام رہتا ہے تو اس کی امیدواری حیثیت منسوخ کر دی جائے گی۔

عمر کا شمار

10۔ تحریری امتحان کی بنیاد پر کی جانے والی بھرتی کی صورت میں امیدوار کی عمر اس سال کی یکم جنوری سے شمار کی جائے گی جس میں امتحان کا انعقاد کیا جاتا ہے اور دیگر تمام صورتوں میں عمر کا شمار درخواستوں کی وصولی کے لیے مقرر کردہ آخری تاریخ تک کیا جائے گا۔

11۔ درخواستوں کی وصولی کی مشتہر کردہ آخری تاریخ یا انٹرویو/مقابلے کے امتحانات کے سال یکم جنوری کو امیدوار کی عمر میں اس کی پیدائش کا دن شامل کرنے کے بعد اس کے کم عمر یا زائد العمر ہونے کی صورت میں اسے نااہل سمجھا جائے گا، خواہ ایسا ایک ہی دن کے فرق سے کیوں نہ ہو۔ ایسا اس بنا پر کیا گیا ہے کہ یکم جنوری کو پیدا ہونے والا بچہ اسی سال، 31 دسمبر کو ایک سال کا ہو جائے گا۔ اگلے سال یکم جنوری کو اس کی عمر ایک سال اور ایک دن ہو جائے گی۔

i) امیدوار کی عمر شمار کرنے کی مثال

آخری تاریخ پر عمر شمار کیے جانے کی صورت میں:

اگر امیدوار کی تاریخ پیدائش 15 اگست، 1970ء ہے اور پی پی ایس سی آفس میں درخواستوں کی وصولی کی آخری تاریخ 7 فروری، 1998 ہے تو عمر مندرجہ ذیل طریقے سے شمار کی جائے گی:

		دن	مہینہ	سال
• آخری تاریخ	-	07	02	1998
• امیدوار کی تاریخ پیدائش	-	15	08	1970
آخری تاریخ کو عمر		1+23	05	27

(27 سال، 05 مہینے اور 24 دن)

ii) امتحان کے مجوزہ انعقاد کے سال یکم جنوری کو عمر شمار کیے جانے کی صورت میں:

اگر عمر کی بالائی حد 28 سال اور امیدوار کی تاریخ پیدائش یکم جنوری، 1988 ہے اور پی پی ایس سی آفس میں درخواستوں کی وصولی کی آخری تاریخ/امیدواروں کی عمر شمار کرنے کی تاریخ یکم جنوری، 2016 ہے، تو عمر مندرجہ ذیل طریقے سے شمار کی جائے گی:

		دن	مہینہ	سال
• آخری تاریخ/عمر شمار کرنے کی تاریخ	-	01	01	2016
• امیدوار کی تاریخ پیدائش	-	01	01	1988
آخری تاریخ کو عمر		1+00	00	28

(28 سال، 00 مہینے اور 01 دن)

12۔ امیدوار کی عمر اس کے سیکنڈری سکول سرٹیفکیٹ (میٹرک) پر درج تاریخ پیدائش کے مطابق شمار کی جائے گی۔ اگر امیدوار نے سیکنڈری سکول سرٹیفکیٹ کے مساوی سینئر کیمبرج/او-لیول جیسا کوئی امتحان دیا ہو اور اس امتحان کے سرٹیفکیٹ پر امیدوار کی تاریخ پیدائش درج نہ ہو تو امیدوار پر لازم ہوگا کہ وہ مندرجہ ذیل دستاویزات پیش کرے؛

(الف) سکول چھوڑنے کا سرٹیفکیٹ جس پر اس کی تاریخ پیدائش درج ہے؛ یا

(ب) نیشنل ڈیٹا بیس اینڈ رجسٹریشن اتھارٹی (نادرا) کا جاری کردہ اصل اور موثر کمپیوٹرائزڈ قومی شناختی کارڈ (سی این آئی سی)؛ یا

(ج) متعلقہ مقامی کونسل اتھارٹی کی جانب سے باضابطہ طور پر جاری کردہ پیدائش کا سرٹیفکیٹ۔

13۔ امیدوار کو عمر کی بالائی حد میں چھوٹ/رعایت قانون، قاعدے اور حکومت کی پالیسی کے مطابق دی جائے گی۔

14۔ آسامیوں کی مشتہر کردہ تعداد میں اضافی آسامیاں شامل کیے جانے کی صورت میں، امیدوار کی عمر مندرجہ ذیل طریقے کے مطابق شمار کی جائے گی:-

الف۔ اصل اشتہار کے جواب میں درخواست دینے والے امیدواروں کی صورت میں ان کی عمر شمار کرنے کی تاریخ مذکورہ اشتہار میں دی گئی آخری تاریخ ہوگی۔

ب۔ **انتخابی/مقابلے کے امتحان میں شرکت کرنے والے امیدوار کے سوا، جنھوں نے بعد میں دیے گئے (اصل اشتہار میں دی گئی** آسامیوں کی تعداد میں اضافہ کرنے والے) اشتہار کے جواب میں درخواست دی تھی، ان کے لیے یہ تاریخ (جس تاریخ تک ان کی عمر شمار کی جاتی ہے) بعد میں دیے گئے اشتہار میں درج آخری تاریخ ہوگی۔ **تاہم، انتخابی/مقابلے کے امتحان کے امیدواروں کی صورت میں، عمر اس سال کی یکم جنوری تک شمار کی جائے گی جس میں امتحان کا انعقاد تجویز کیا گیا ہے۔**

ج۔ ایسے امیدوار جو اصل اشتہار کی آخری تاریخ پر عمر کم ہونے کی وجہ سے درخواست نہیں دے سکے، وہ بعد میں دیے گئے اشتہار میں درج آخری تاریخ تک مطلوبہ عمر کو پہنچنے پر درخواست دینے کے اہل ہو جائیں گے۔

عمر میں رعایت

15۔ **پنجاب سول ملازمین کی بھرتی (عمر کی بالائی حد میں رعایت) قواعد، 1976 کے تحت عمر کی بالائی حد میں دی جانے والی رعایت درج ذیل ہے:-**

الف۔ کسی بھی قاعدے کے تحت تقرری کی غرض سے عمر کی بالائی حد کے مقاصد کے لیے دفاعی افواج کے سابقہ افسران/عملے، دفاعی افواج میں سرانجام دی گئی خدمات کا مکمل عرصہ ان کی عمر سے منہا کر دیا جائے گا جو 10 سال تک کی زیادہ سے زیادہ حد سے مشروط ہوگا۔

ب۔ **حکومتِ پنجاب کے تحت پہلے سے بطور سرکاری ملازم کام کرنے والے امیدوار کی صورت میں کسی بھی قاعدہ کا ملازمت میں مجوزہ عمر کی بالائی حد کے مقاصد کی غرض سے اس آسامی کے لیے جس کا وہ امیدوار ہے اس کی مسلسل ملازمت کا عرصہ اس کی کل عمر سے منہا کر دیا جائے گا۔**

تاہم انتخابی مقابلے کے امتحان کی بنیادوں پر پنجاب پبلک سروس کمیشن کی سفارشات پر پُر کی جانے والی کسی آسامی پر بھرتی کے لیے عمر کی بالائی حد 35 سال سے زائد نہیں ہوگی۔

ج۔ پنجاب سر ازمین کی بھرتی (عمر کی بالائی حد میں رعایت) قواعد، 1976 کے قاعدہ 2(iii) میں بیان کیے گئے معذور افراد کی صورت ٹ ی آسامی پر تقرری کے لیے ملازمت/بھرتی کے قواعد میں تجویز کی گئی عمر کی بالائی حد میں 10 سال کا اضافہ کر دیا جائے گا۔

د۔ وفاقی حکومت یا وفاقی حکومت کے نیم سرکاری اور خود مختار اداروں یا صوبائی حکومت کے خود مختار اداروں اور مقامی اداروں کے ملازمین ایسی تنظیموں میں اپنی ملازمت کی مدت کے لیے عمر میں رعایت کے حق دار نہیں ہیں۔

اضافی نمبروں کا مطالبہ

16۔ اگر کوئی درخواست گزار دورانِ ملازمت فوت / معذور ہونے والے سول ملازم کا بیٹا / بیٹی ہونے کی بنا پر 10 اضافی نمبروں تک کا مطالبہ کرتا ہے تو اسے مندرجہ ذیل دستاویزات جمع کروانا ہوں گی:۔

الف۔ متعلقہ کارپوریشن / میونسپلٹی سے والد یا والدہ، جو بھی صورت ہو، کی وفات کا سرٹیفکیٹ۔

ب۔ ایسا سرٹیفکیٹ جس میں معذور یا متوفی سول ملازم کا نام اور عہدہ درج ہو اور جسے اس محکمہ کی مجاز اتھارٹی نے جاری کیا ہو جہاں وہ ملازم تھا۔

ج۔ اُمیدوار کا بیانِ حلفی کہ وہ بے روزگار ہے اور اس نے نہ تو پہلے کبھی اضافی نمبروں کی رعایت لی ہے اور نہ ہی آئندہ یہ رعایت حاصل کرے گا / گی۔

د۔ اُمیدوار کے دیگر بھائیوں اور بہنوں کا بیانِ حلفی جس میں حلفاً یہ اقرار کیا گیا ہو کہ وہ اُمیدوار کے حق میں اپنے 10 اضافی نمبروں کے حق سے دست بردار ہوتے ہیں اور انھوں نے پہلے کبھی یہ رعایت حاصل نہیں کی اور نہ ہی آئندہ اس کا مطالبہ کریں گے۔

ذ۔ نادرا کا جاری کردہ نسب نامہ جس میں اہلِ خانہ کی تفصیل درج ہو۔

محکمانہ اجازت نامہ

17۔ اُمیدوار کے سرکاری ملازم ہونے کی صورت میں، متعلقہ محکمہ کی مجاز اتھارٹی کی جانب سے باضابطہ طور پر دستخط شدہ اور مہر شدہ محکمانہ اجازت نامہ (فارم پبلک سروس کمیشن کی ویب سائٹ www.ppsc.gop.pk پر دستیاب ہے) انٹرویو کے وقت جمع کروانا ضروری ہے۔

ڈومیسائل کی شرائط

18۔ اُمیدواروں کے لیے ڈومیسائل کے حوالے سے مندرجہ ذیل شرائط پوری کرنا ضروری ہے:۔

- اُمیدوار کا ڈومیسائل سرٹیفکیٹ، درخواست وصول ہونے کی آخری تاریخ کو یا اس سے قبل صوبہ پنجاب کے متعلقہ ضلع سے جاری کردہ ہو۔ تاہم اُمیدوار کے آخری تاریخ سے قبل ڈومیسائل کے لیے درخواست جمع کروادی ہے اور اس حوالے سے دستاویزی ثبوت فراہم کر دیا ہے تو آخری تاریخ کے بعد جاری ہونے والا ڈومیسائل بھی قابلِ قبول ہوگا۔

الف۔ اُمیدوار کی جانب سے پیش کیا جانے والا اور جمع کروایا جانے والا سرٹیفکیٹ اسی ضلع سے ہونا چاہیے جو اس نے اپنی آن لائن درخواست کے متعلقہ کالم میں درج کیا ہے، بصورتِ دیگر درخواست مسترد کر دی جائے گی۔

ب۔ شادی شدہ خاتون اُمیدوار اپنے شوہر کے ڈومیسائل کے ضلع کا انتخاب کر سکتی ہے بشرطیکہ وہ اپنے سابقہ ڈومیسائل سرٹیفکیٹ سے دستبردار ہو چکی ہو اور ایسی صورت میں وہ اپنی شادی کے ثبوت کے ہمراہ اپنے شوہر کا ڈومیسائل سرٹیفکیٹ پیش کرے گی۔ مزید شرط یہ ہے کہ مذکورہ اُمیدوار کا سابقہ ڈومیسائل سرٹیفکیٹ اس اُمیدوار کی جانب سے مستقبل میں ڈومیسائل کے کسی دعویٰ کے لیے منسوخ متصور ہوگا۔

ج۔ آزاد جموں و کشمیر کے اُمیدوار جو آزاد جموں و کشمیر کے مستقل رہائشی ہیں لیکن پنجاب کا ڈومیسائل بھی رکھتے ہیں، انھیں پنجاب کے متعلقہ ضلع کے ڈومیسائل کی بنیاد پر زیرِ غور لایا جائے گا۔

تجربہ کا شمار

19۔ امیدواروں کا تجربہ شمار کرنے کے لیے مندرجہ ذیل معیار اپنایا جائے گا:-

الف۔ اسامی کے لیے اہلیت کی غرض سے درکار تجربہ کے تعین کے لیے امیدوار کو اپنے دعویٰ کی حمایت میں دستاویزی ثبوت پیش کرنا ہو گا۔

ب۔ سرکاری ملازمت کا تجربہ صرف اسی صورت میں قبول کیا جائے گا اگر سرٹیفکیٹ تقرر کرنے والی اس متعلقہ مجاز اتھارٹی/شخص کی جانب سے جاری کیا گیا ہو۔

ج۔ اگر کوئی امیدوار پرائیوٹ فرم/ادارے میں تجربہ رکھنے کا دعویدار ہو تو اسے انٹرویو کے وقت اس بات کا ثبوت پیش کرنا ہو گا کہ پرائیوٹ فرم/ادارہ سیکیورٹی اینڈ ایکسچینج کمیشن آف پاکستان (ایس ای سی پی)، رجسٹرار آف فرمز یا کسی دیگر ریگولیٹری اتھارٹی سے رجسٹرڈ ہے بصورت دیگر امیدوار کی درخواست مسترد کر دی جائیگی۔

د۔ سرکاری شعبے میں یا نجی شعبے کے منظور شدہ طبی ادارہ میں ہاؤس جاب کا تجربہ عملی تجربہ شمار کیا جائے گا۔

ذ۔ ایف۔سی۔پی۔ایس/ایم۔ایس/ایف۔آر۔سی۔ایس/ایم۔ڈی میں طبی تربیت کی مدت یا بیرونِ ملک تعلیم کے دوران امریکن بورڈ کے ڈپلومیٹ/فیلوشپ کا تجربہ متعلقہ شعبہ کے لیے ہی شمار کیا جائے گا۔

ر۔ **متعلقہ شعبہ میں صرف وہی خصوصی/پیشہ ورانہ تجربہ شمار کیا جائے گا جو سرکاری شعبہ میں یا نجی شعبہ کے منظور شدہ اداروں میں کام کے دوران حاصل کیا گیا ہے۔**

ز۔ کنٹریکٹ، موجودہ چارج، قائم مقام چارج اور ایڈہاک تقرری کے حوالے سے تقرر کرنے والی اتھارٹی کی جانب سے قواعد کے تحت جاری کردہ تجربہ کا سرٹیفکیٹ قبول کیا جائے گا۔

ژ۔ نجی اداروں کا تجربہ اسی صورت میں قبول کیا جائے گا اگر وہ ادارہ ایس ای سی پی، فرمز کے رجسٹرار یا کسی دیگر ریگولیٹری اتھارٹی سے رجسٹر شدہ ہے۔

س۔ **اگر اہلیت کے لیے تجربہ لازمی شرط ہو تو اعزازی حیثیت میں حاصل کیا گیا تجربہ شمار نہیں کیا جائے گا سوائے اس کے کہ مجاز اتھارٹی کی جانب سے اس ضمن میں نوٹیفکیشن جاری کیا گیا ہو۔**

ش۔ عمومی مہارت (General Specialty) کا تجربہ کسی اسامی کے لیے مطلوبہ خصوصی مہارت (Specific Specialty) سے متعلقہ نہیں سمجھا جائے گا۔

ص۔ جہاں اسامی پر اہلیت کے قواعدِ ملازمت میں کم سے کم تعلیمی قابلیت کے ساتھ تجربہ کو بطور لازمی شرط تجویز کیا گیا ہے۔ ایسی صورتوں میں تجربہ کا محض وہ خاص دورانیہ شمار کیا جائے گا جو امیدوار کو مجوزہ کم سے کم تعلیمی قابلیت کے حصول کے بعد حاصل ہے۔ تاہم اگر قواعدِ ملازمت میں یہ درج ہو کہ مجوزہ تعلیمی قابلیت سے "پہلے" یا "بعد" کا تجربہ شمار کیا جائے گا، ایسی صورت/صورتوں میں تجربہ ملازمت کے متعلقہ قاعدہ/قواعد کے مطابق شمار کیا جائے گا۔

مثال

پنجاب کے محکمۂ تعلیم میں اسسٹنٹ پروفیسر کی اسامی کے لیے، ایم اے/ایم ایس سی کا امتحان پاس کرنے کے بعد کا کچھ تدریسی تجربہ اہلیت کی لازمی شرط ہے۔ ایسی صورت میں کمیشن امیدوار کا ایم اے/ایم ایس سی کی مجوزہ تعلیمی قابلیت حاصل کرنے کے بعد کا مخصوص تجربہ ہی شمار کرے گا۔

نوٹ: معزز سپریم کورٹ آف پاکستان نے بھی سول پٹیشن نمبر 924-ایل/2014 بعنوان پنجاب پبلک سروس کمیشن بنام مسمات نصیرہ سعید پر مورخہ 27 دسمبر، 2016 کو اپنے جاری کیے گئے فیصلے میں مندرجہ بالا پالیسی فیصلے کو برقرار رکھا ہے۔

تحقیقی تجربہ کا شمار

20۔ تحقیقی تجربے سے مراد اس شعبہ مہارت میں تحقیق کرنے پر صرف کیا گیا عرصہ ہے:-

الف۔ ایم فل/پی ایچ ڈی پروگرام کے حصے کے طور پر صرف کیا گیا عرصہ تحقیقی تجربہ کے طور پر شمار کیا جائے گا جو ایم فل کے لیے زیادہ سے زیادہ دو سال اور پی ایچ ڈی کے لیے چار سال تک ہوگا۔

ب۔ امیدوار کا سرکاری یا منظور شدہ تحقیقی ادارے میں بطور ریسرچ اسسٹنٹ/ایسوسی ایٹ/آفیسر حاصل کردہ تحقیقی تجربہ، ایسے تجربہ کے طور پر قبول کیا جائے گا۔

تحقیقی مقالہ جات۔

21۔ درج ذیل کو یقینی بنایا جائے گا:-

الف۔ امیدوار کے لیے ضروری ہوگا کہ وہ، جہاں ایسا درکار ہو، شائع شدہ تحقیقی مقالہ جات کی دو نقول ہائر ایجوکیشن کمیشن کے تسلیم شدہ غیر ملکی جریدوں کی فہرست کے ہمراہ درخواست جمع کروانے کی آخری تاریخ کے بعد تین دن کے اندر جمع کروائے۔

ب۔ ہائر ایجوکیشن کمیشن (ایچ ای سی) کے تسلیم شدہ جریدہ یا ایچ ای سی کی تسلیم شدہ غیر ملکی یونیورسٹی کے جریدہ میں شائع ہونے والے تحقیقی مقالہ جات مزید جانچ کیے بغیر قبول کر لیے جائیں گے۔

ج۔ کمیشن کسی امیدوار کے ایسے تحقیقی مقالہ جات قبول نہیں کرے گا جو مشتہر کی گئی آسامی کے لیے درخواستوں کی وصولی کی آخری تاریخ کے بعد کسی جریدے میں شائع ہوئے ہیں۔

د۔ ریویو آرٹیکل، کیس سٹڈیز، تراجم، بریفس، کانفرنسوں میں پریزنٹیشن وغیرہ پیشہ ورانہ تحقیقی مقالہ جات کے طور پر قابل قبول نہ ہوں گے۔

ذ۔ اگر قواعد/اشتہار میں شرط رکھی گئی ہے کہ تحقیقی مقالہ جات صرف اصل (Principal) مقالہ نگار کے تحریر کردہ ہوں تو تحقیقی مقالہ جات کے مقالہ نگاروں کی فہرست میں دیے گئے سب سے پہلے نام کو اصل مقالہ نگار سمجھا جائے گا۔

ماہرین کی رجسٹریشن

22۔ ماہرین کی رجسٹریشن کے لیے مندرجہ ذیل معیار اپنایا جائے گا:-

الف۔ میڈیکل آفیسر/وومن میڈیکل آفیسر/ڈینٹل سرجن وغیرہ کی آسامیوں کے لیے درخواست دینے والے امیدوار پی ایم ڈی سی سے کروائی گئی مکمل میڈیکل رجسٹریشن جمع کروائیں گے جس میں ان کی میڈیکل کی تمام تر تعلیمی قابلیت درج ہوگی۔

ب۔ انجینئر/ورکی انجینئر، پاکستان انجینئرنگ کونسل ایکٹ، 1976 کے تحت پیشہ ور انجینئر کے طور پر رجسٹریشن کا سرٹیفکیٹ جمع کروائیں گے۔

ج۔ ماہرین تعمیرات اور ٹاؤن پلانرز، پاکستان کونسل آف آرکیٹیکٹس اینڈ ٹاؤن پلانرز ایکٹ، 1976 کے تحت رجسٹریشن کا سرٹیفکیٹ جمع کروائیں گے۔

د۔ قانون سے متعلقہ آسامیوں جیسا کہ اسسٹنٹ ڈسٹرکٹ پبلک پراسیکیوٹر اور ڈپٹی ڈسٹرکٹ اٹارنی اور ایسی ہی آسامیوں کے امیدوار متعلقہ بار کونسلوں سے رجسٹریشن کا سرٹیفکیٹ جمع کروائیں گے۔

ذ۔ اسی طرح نرسوں کے لیے پاکستان نرسنگ کونسل سے رجسٹر ہونا ضروری ہوگا۔

تحریری ٹیسٹ اور انٹرویو

23۔ اُمیدواروں کو تحریری امتحان/ٹیسٹ (جب بھی منعقد کیا جائے) میں عبوری طور پر (Provisionally) بیٹھنے کی اجازت دی جائے گی۔ تحریری امتحان/ٹیسٹ میں کامیاب ہونے والے اُمیدواروں کی درخواستوں اور دستاویزات کی تفصیلی جانچ انٹرویو کے وقت کی جائے گی۔ اگر کوئی اُمیدوار قانون یا قواعد کے تحت نااہل ہو جاتا ہے تو اس کے تحریری امتحان/ٹیسٹ میں شرکت کرنے اور اسے پاس کر لینے کے باوجود اس کی اُمیدواری حیثیت منسوخ کر دی جائے گی۔

24۔ اُمیدواروں کو انٹرویو کے لیے عبوری طور پر طلب کیا جائے گا۔ انٹرویو کے دن اُمیدواروں کی درخواستوں اور دستاویزات کی تفصیلی جانچ پڑتال، اگر کوئی اُمیدوار قواعد کے تحت کسی بھی حوالے سے نااہل ہو جاتا ہے تو اس کی اُمیدواری حیثیت مسترد کر دی جائے گی۔

25۔ پریشانی سے بچنے کے لیے اُمیدواروں کو ان کے اپنے مفاد میں ہدایت کی جاتی ہے کہ وہ درخواست دینے سے پہلے درخواستوں کی وصولی کی آخری تاریخ سے قبل اِس امر کو یقینی بنائیں کہ وہ مشتہر کیے گئے سلیکشن کے معیار اور آسامی سے متعلقہ دیگر قواعد پر پورا اترتے ہیں۔

تحریری امتحانات/ٹیسٹ

26۔ کمیشن کا امتحانی نظام دو طرح کا ہے:-

الف۔ **تحریری امتحان۔** اگر حکومتِ پنجاب یا کمیشن لازمی تحریری امتحان تجویز کرے تو ایسا امتحان **"تحریری امتحان"** کہلائے گا۔

ب۔ **تحریری ٹیسٹ۔** **"تحریری ٹیسٹ"** سے مراد کمیشن کی جانب سے لیا جانے والا ایک پرچہ پر مشتمل تحریری ٹیسٹ (انشائیہ یا معروضی یا دونوں) ہے۔

ج۔ **تحریری امتحان/ٹیسٹ کی اقسام اور مارکنگ**

(1) تحریری ٹیسٹ کا پرچہ تفصیلی (Descriptive)/انشائیہ طرز (Subjective Type) یا کثیر الانتخابی (Multiple Choice)، معروضی طرز (MCQs) یا دونوں پر مشتمل ہو سکتا ہے۔ نصاب اور تفصیلات پی پی ایس سی کی ویب سائٹ پر دستیاب ہیں۔

(2) کثیر الانتخابی/معروضی/ایم سی کیوز۔ پیپر میں منفی مارکنگ کی جائے گی اور ہر غلط جواب کے لیے 0.25 نمبر کاٹے جائیں گے۔

(3) ایسی آسامی کے لیے درخواست دینے والے اُمیدواروں سے تحریری ٹیسٹ لیا جا سکتا ہے جس کے لیے لازمی تحریری امتحان نہ رکھا گیا ہو۔ تحریری ٹیسٹ لینے یا نہ لینے کا اختیار مکمل طور پر کمیشن کو حاصل ہو گا۔

د۔ **تحریری امتحان/ٹیسٹ کے لیے اہلیت کی شرائط**

(1) اُمیدوار کے لیے ہر انشائیہ پرچہ میں 40 فی صد نمبر لینا ضروری ہے (0.50 یا زائد نمبروں کا عدد اگلا مکمل عدد {round off} تصور کیا جائے گا)۔

(2) ایم سی کیو/معروضی پرچہ پاس کرنے کے لیے 40 فی صد نمبر درکار ہوں گے۔

(3) تحریری امتحان کی صورت میں اُمیدوار کو انٹرویو کا اہل ہونے کے لیے مجموعی طور پر 50 فی صد نمبر حاصل کرنا ہوں گے۔

ذ۔ **تحریری امتحان/تحریری ٹیسٹ میں اُمیدوار کا داخلہ** اُمیدواروں کو ان کی اپنی ذمہ داری پر ان کی درخواستوں کی جانچ کیے بغیر عبوری طور پر تحریری امتحان/تحریری ٹیسٹ میں داخلے کی اجازت دی جائے گی جو انٹرویو کے وقت مطلوبہ دستاویزات کی جانچ کے بعد آسامی کے لیے اہل ہونے سے مشروط ہو گی۔

ذ۔ **تحریری امتحان/ٹیسٹ کے لیے داخلہ نامہ {ایڈمیشن لیٹر}** تحریری امتحانات/تحریری ٹیسٹوں کے داخلہ نامے اجتماعی طور پر کمیشن کی ویب سائٹ پر آپ لوڈ کر دیے جاتے ہیں۔ کسی بھی اُمیدوار کو انفرادی طور پر داخلہ نامہ جاری نہیں کیا جائے گا۔

ر۔ **تحریری امتحان/ٹیسٹ کے وقت اصل مؤثر کمپیوٹرائزڈ قومی شناختی کارڈ پیش کرنا**

اُمیدوار کی جانب سے تحریری امتحان/ٹیسٹ دینے کے لیے مؤثر قومی شناختی کارڈ (سی این آئی سی) پیش کرنا لازمی شرط ہے۔ تاہم کمپیوٹرائزڈ شناختی کارڈ کی میعاد ختم ہو جانے یا گم ہو جانے کی صورت میں **سنٹر انچارج کے اطمینان کے مطابق اصل مؤثر پاسپورٹ یا سروس کارڈ یا کوئی دیگر مؤثر/مستند اصل دستاویز پیش کرنے کی صورت میں** سنٹر کا انچارج افسر اس اُمیدوار کو عبوری طور پر تحریری امتحان/ٹیسٹ دینے کی اجازت دے گا۔ مزید شرط یہ ہے کہ سنٹر انچارج اُمیدواروں سے اِس ضمن میں اقرار نامہ لے گا کہ وہ انٹرویو کے وقت اصل مؤثر سی این آئی سی پیش کریں گے اور ایسا نہ کرنے کی صورت میں ان کی اُمیدواری حیثیت منسوخ کر دی جائے گی۔ سنٹر انچارج اس اقرار نامہ کو اُمیدوار کی حاضری شیٹ سے لف کرے گا۔

ز۔ **انٹرویو کے وقت اصل مؤثر کمپیوٹرائزڈ شناختی کارڈ پیش کرنا**

اگر کوئی اُمیدوار انٹرویو کے وقت اپنا اصل کمپیوٹرائزڈ قومی شناختی کارڈ (سی این آئی سی) پیش نہیں کرتا اور متبادل مؤثر دستاویزات مثلاً پاسپورٹ/اصل ڈومیسائل/ڈگری/سرٹیفکیٹ جن پر اُمیدوار کی تصویر ہو کے ذریعے اپنی شناخت کراتا ہے تو اس کا عبوری انٹرویو کر لیا جائے گا۔ بشرطیکہ وہ ذاتی طور پر سات یوم کے اندر اپنا اصل کمپیوٹرائزڈ قومی شناختی کارڈ انٹرویو کرنے والی مجلس کے سربراہ رکن کے روبرو ذاتی طور پر پیش کرے۔ ناکامی کی صورت میں اس کی درخواست مسترد کر دی جائے گی۔ تاہم اگر اُمیدوار کے پاس زائد المیعاد کمپیوٹرائزڈ قومی شناختی کارڈ (سی این آئی سی) ہو تو اس کا انٹرویو عبوری طور پر لے لیا جائے گا لیکن اگر وہ مقررہ وقت کے اندر، جو سات ایام کار سے زائد نہ ہو گا، اپنا اصل مؤثر کمپیوٹرائزڈ شناختی کارڈ پیش نہیں کرتا/کرتی تو اُسے مسترد کر دیا جائے گا۔

ژ۔ **درخواست فیس جمع کروانا/آن لائن درخواست جمع کروانا**

اگر اُمیدوار کسی مخصوص آسامی کے لیے درخواست فیس جمع کروائے لیکن اپنی آن لائن درخواست غلطی سے کسی اور آسامی کے لیے جمع کروا دے جس کے لیے اس نے درخواست فیس جمع نہیں کروائی تو چیئرمین کی خصوصی منظوری سے اس کی درخواست پر اسی آسامی کے لیے غور کیا جا سکتا ہے جس کے لیے اس نے درخواست فیس جمع کروائی ہے۔ تاہم، ایک مخصوص آسامی کے لیے جمع کروائی گئی درخواست فیس کو کمیشن کی جانب سے مشتہر کی گئی کسی دیگر آسامی کے لیے تسلیم نہیں کیا جائے گا۔

س۔ **ایم سی کیو کی جوابی کاپی پر پیپر کوڈ درج کرنا**

اُمیدواروں کے لیے ضروری ہے کہ وہ جوابی کاپی میں مقررہ جگہ پر پیپر کوڈ احتیاط سے درج اور پُر کریں۔ ایسا نہ کرنے کی صورت میں ان کی جوابی کاپی منسوخ کر دی جائے گی۔

ش۔ **تحریری ٹیسٹ/امتحان کے سوال کی درستی پر اعتراض**

اگر کسی سوال یا سوالات کی درستی کے حوالے سے کسی اُمیدوار کو کوئی اعتراض یا اعتراضات ہوں تو اُسے تحریری ٹیسٹ/امتحان کے دوران یا تحریری ٹیسٹ/امتحان کے بعد اسی روز تحریری طور پر **پی پی ایس سی** کے نوٹس میں لایا جا سکتا ہے۔ اس کے بعد کسی سوال یا سوالات کے سقم پر کوئی اعتراض زیرِ غور نہیں لایا جائے گا۔

ت: اُمیدوار اپنا لکھنے کا سامان جیسا کہ پوائنٹر/پنسل، پین/روشنائی اپنے ہمراہ لائیں۔ صرف سیاہ یا نیلی روشنائی کے استعمال کی اجازت ہے۔

رائٹر اور ریڈر کی فراہمی

27۔ کمیشن معذور امیدواروں کو تحریری امتحان/ٹیسٹ کے دوران معاون فراہم کرنے کے لیے موزوں نظام کار رکھتا ہے:-

الف۔ اگر معذور امیدوار اپنے تحریری امتحان/ٹیسٹ سے کم از کم 3 روز قبل کمیشن کو درخواست کرے تو اسے کمیشن کی جانب سے رائٹر/ریڈر فراہم کیا جائے گا۔

ب۔ رائٹر کی تعلیمی قابلیت اس اسامی کے لیے تجویز کردہ قابلیت سے ایک درجہ کم ہوگی جس کے لیے تحریری امتحان یا تحریری ٹیسٹ منعقد کیا جا رہا ہے۔

ج۔ کمیشن، تحریری امتحان/ٹیسٹ کے روز رائٹر/ریڈر کے لیے کی جانے والی درخواست قبول نہیں کرے گا۔

د۔ امیدواروں کو کمیشن کی پیشگی اجازت کے بغیر تحریری امتحان/ٹیسٹ کے لیے ان کا اپنا رائٹر/ریڈر لانے کی اجازت نہیں ہے۔

انٹرویو کے لیے امیدواروں کو شارٹ لسٹ کرنے کا طریق کار

28۔ انٹرویو کے لیے امیدواروں کی شارٹ لسٹنگ مندرجہ ذیل بنیادوں پر کی جائے گی:

الف۔ امیدواروں کا تعلیمی ریکارڈ

یا

ب۔ کمیشن کے منعقد کردہ تحریری ٹیسٹ میں حاصل کردہ نمبر

یا

ج۔ مندرجہ بالا (اے) اور (بی) دونوں کی بنیاد پر۔

تمام صورتوں (ماسوائے انتظامی/مقابلے کے امتحان) میں انٹرویو کے لیے بلائے جانے والے امیدواروں کی تعداد شمار کرنے کا فارمولا

29۔ انٹرویو کے لیے بلائے جانے والے امیدواروں کی تعداد باضابطہ مطالبہ {Requisition} میں درج اسامیوں کی تعداد پر منحصر ہوگی۔ ایک اسامی کے لیے پانچ (05) امیدواروں کو انٹرویو کے لیے بلایا جائے گا۔ انٹرویو کے لیے بلائے گئے تمام امیدواروں کے انٹرویو پاس نہ کرنے کی صورت میں چیئرمین کی پیشگی اجازت سے میرٹ لسٹ میں موجود اگلے امیدواروں کو مقررہ تناسب کے مطابق انٹرویو کے لیے بلایا جائے گا۔ تاہم چیئرمین معاملے کی نوعیت کے مطابق ہر ایک اسامی کے لیے بلائے جانے والے امیدواروں کی تعداد میں اضافہ کر سکتا ہے۔

30۔ مندرجہ بالا طریق کار خواتین، معذوروں اور اقلیتوں کے کوٹے پر انٹرویو کے لیے بلائے جانے والے امیدواروں پر بھی لاگو ہوگا۔

برابری کی صورت میں

31۔ "برابری کی صورت" میں شارٹ لسٹنگ مندرجہ ذیل طریق کار کے مطابق کی جاتی ہے:-

الف۔ صرف تحریری ٹیسٹ کی صورت میں برابری کے کیس۔ تحریری ٹیسٹ میں مساوی نمبر حاصل کرنے والے امیدواروں کو امیدواروں/اسامیوں کے تناسب یعنی 1:5 کے تناسب سے بالاتر ہو کر انٹرویو کے لیے بلایا جا سکتا ہے۔

ب۔ صرف تعلیمی قابلیت کی بنیاد پر برابری کے کیس۔ تعلیمی ریکارڈ کی بنیاد پر مساوی نمبر حاصل کرنے والے امیدواروں کو امیدواروں/اسامیوں کے تناسب یعنی 1:5 کے تناسب سے بالاتر ہو کر انٹرویو کے لیے بلایا جا سکتا ہے۔

آسامیوں کی تعداد میں اضافہ یا کمی

32۔ مجاز اتھارٹی کی جانب سے پی پی ایس سی ضوابط کی دفعات اور پالیسی فیصلوں کے تحت آسامیوں کی تعداد میں اضافہ یا کمی کرنے کی صورت میں، اخبارات میں نیا اشتہار یا تصحیح نامہ شائع کروایا جائے گا۔

نفسیاتی جانچ

33۔ تحریری امتحان پاس کر لینے والے امیدوار کو نفسیاتی جانچ کے لیے بلایا جائے گا۔

انٹرویو کا انعقاد

34۔ **انٹرویو کے لیے اہلیت کی شرائط۔** صرف انہی امیدواروں کو انٹرویو کے لیے بلایا جائے گا جو تحریری امتحان یا تحریری ٹیسٹ پاس کر چکے ہوں یا تعلیمی قابلیت کی بنیاد پر انٹرویو کے لیے شارٹ لسٹ کیے گئے ہوں یا کمیشن کے تحریری امتحان / تحریری ٹیسٹ / تعلیمی قابلیت کی بنیاد پر شارٹ لسٹنگ نہ کرنے کے فیصلے کی صورت میں تمام اہل امیدواروں کو انٹرویو کے لیے بلایا جائے گا۔ انٹرویو پاس کرنے کے لیے امیدوار کو انٹرویو میں 50 فی صد نمبر حاصل کرنا ہوں گے۔

انٹرویو لیٹر

35۔ درج ذیل امور سرانجام دیے جائیں گے:-

الف۔ مذکورہ آسامیوں کے لیے انٹرویو کا شیڈول کمیشن کی ویب سائٹ پر آپ لوڈ کیا جائے گا۔

ب۔ **امیدوار اپنے انٹرویو لیٹر اور انٹرویو کی تاریخ، وقت اور جگہ سے متعلقہ معلومات پی پی ایس سی کی ویب سائٹ سے ڈاؤن لوڈ کر سکتے ہیں۔**

ج۔ امیدواروں سے مراسلت صرف برقی ذرائع یعنی بذریعہ ایس ایم ایس، ای میل اور ویب سائٹ کی جائے گی۔ کسی بھی امیدوار کو انفرادی طور پر انٹرویو کی تاریخ سے مطلع نہیں کیا جائے گا۔

د۔ امیدواروں کو ہدایت کی جاتی ہے کہ وہ کسی مخصوص کیس نمبر کے حوالے سے کسی بھی طرح کی معلومات / اپ ڈیٹ حاصل کرنے کے لیے کمیشن کی ویب سائٹ www.ppsc.gop.pk کو باقاعدگی سے ملاحظہ کریں۔

ذ۔ کمیشن کی جانب سے مطلوبہ دستاویزات کی نقول کا مطالبہ کیے جانے کی صورت میں امیدوار وہ نقول کوریئر یا رجسٹرڈ ڈاک کے ذریعے پی پی ایس سی، ایل ڈی اے پلازہ، انکم ٹیکس روڈ نزد ایوانِ اقبال، لاہور پر ارسال کر سکتے ہیں۔

ذ۔ کوئی مشکل پیش آنے کی صورت میں معاونت / وضاحت کے لیے امیدوار پی پی ایس سی آفس کی ہیلپ لائن پر رابطہ کر سکتے ہیں۔

اصل دستاویزات پیش کرنا

36۔ تعلیمی نمبر صرف انٹرویو کے وقت امیدوار کی جانب سے پیش کی گئی / جمع کروائی گئی اصل دستاویزات، سرٹیفکیٹس، ڈپلوموں یا ڈگریوں کی بنیاد پر ہی دیے جائیں گے۔ تاہم اگر اس وقت تک بورڈ / یونیورسٹی کی جانب سے ان مقاصد کے لیے اصل سرٹیفکیٹ، ڈپلوما یا ڈگری جاری نہ کی گئی ہو تو کمیشن، بورڈ آف انٹرمیڈیٹ اینڈ سیکنڈری ایجوکیشن یا یونیورسٹی کے کنٹرولر امتحانات کا جاری کردہ عبوری سرٹیفکیٹ قبول کرے گا۔

37۔ ڈگریوں / ڈپلوموں / سرٹیفکیٹوں پر طالب علم کو دیے گئے نمبر درج نہ ہونے اور امیدوار کے ایسی ڈگریوں / ڈپلوموں / سرٹیفکیٹوں کے حوالے سے نمبروں کی تفصیل کا سرٹیفکیٹ پیش کرنے میں ناکام رہنے کی صورت میں، کمیشن ایسا امتحان پاس کرنے کے لیے تجویز کردہ نمبروں کی کم سے کم شرح فی صد کے مطابق نمبر دے گا۔ مثال کے طور پر اگر نمبروں کی تفصیل کا سرٹیفکیٹ پیش نہیں کیا جاتا / جمع نہیں کروایا جاتا تو مندرجہ ذیل معیار کے مطابق تجویز کی گئی نمبروں کی کم سے کم قابلِ قبول شرح فی صد کے مطابق نمبر دیے جائیں گے:-

الف۔ ایم بی بی ایس/بی ڈی ایس پروفیشنل امتحانات کے لیے کم سے کم نمبر 50 فی صد ہیں۔ ایسوسی ایٹ ممبر آف انسٹی ٹیوٹ آف انجینئرز (اے ایم آئی ای) پر بھی اسی اصول کا اطلاق ہوتا ہے۔

ب۔ بی ایس سی (زراعت)/ایم ایس سی (زراعت) کے لیے کم سے کم نمبر 40 فی صد ہیں۔

ج۔ ایس ایس سی، ایچ ایس ایس سی، بی اے/بی ایس سی یا ایم اے/ایم ایس سی کے لیے کم سے کم نمبر 33 فی صد ہیں۔

د۔ شارٹ لسٹنگ اور انٹرویو/وائیوا کا تعلیمی میرٹ شمار کرنے کے لیے (اے) کی صورت میں 50 فی صد (بی) کی صورت میں 40 فی صد اور (سی) کی صورت میں 33 فی صد نمبر ہوں گے۔

مواقع کی تعداد

38۔ تحریری ٹیسٹ/تحریری امتحان/انٹرویو دینے والے امیدوار کو ہر مخصوص تحریری ٹیسٹ/تحریری امتحان/انٹرویو کے لیے اس تحریری ٹیسٹ/تحریری امتحان/انٹرویو کے لیے درجہ بند کی گئی آسامیوں کی قسم یا زمرہ سے قطع نظر تین مواقع فراہم کیے جائیں گے، ماسوائے محکمۂ تعلیم میں لیکچراروں کی آسامیاں، جہاں کسی امیدوار کے ایک سے زائد آسامی کے لیے درخواست دینے کی صورت میں اسے ہر اس مضمون کے لیے تین مواقع دیے جائیں گے جس کے لیے وہ امیدوار ہے۔

امیدواروں کو امتحان/ٹیسٹ کی تاریخ، وقت اور جگہ سے مطلع کرنے کا طریق کار اور اس کے بعد پی پی ایس سی کا اقدام

39۔ امیدوار کو تحریری امتحان/ٹیسٹ کی تاریخ، وقت اور مقام سے مطلع کرنے کا طریق کار مندرجہ ذیل ہے:-

الف۔ امیدواروں سے مراسلت صرف برقی ذرائع یعنی بذریعہ ایس ایم ایس، ای میل اور ویب سائٹ کی جائے گی۔ کسی بھی امیدوار کو انفرادی طور پر امتحان/ٹیسٹ کی تاریخ سے مطلع نہیں کیا جائے گا۔

ب۔ تحریری امتحان/ٹیسٹ کا متوقع شیڈول تحریری امتحان/ٹیسٹ سے ترجیحاً 7 روز قبل کمیشن کی جانب سے ویب سائٹ پر جاری کر دیا جاتا ہے۔

ج۔ تحریری امتحان/ٹیسٹ کے اصل شیڈول کے حوالے سے امیدواروں کو اجتماعی طور پر تحریری امتحان/ٹیسٹ کی تاریخ، وقت اور جگہ سے مطلع کرنے کے لیے ای میل اور ایس ایم ایس تحریری امتحان/ٹیسٹ سے ترجیحاً 5 روز قبل بھیجا جاتا ہے جس میں پی پی ایس سی کی ویب سائٹ سے اپنی رول نمبر سلپ ڈاؤن لوڈ کرنے کی ہدایات درج ہوتی ہیں۔ اسے ویب سائٹ پر بھی جاری کیا جاتا ہے۔

د۔ تحریری امتحان/ٹیسٹ کی اصل تاریخ سے تین دن قبل امیدواروں کو تحریری امتحان/ٹیسٹ کی تاریخ، وقت اور جگہ کے بارے میں یاددہانی کے لیے ایس ایم ایس اور ای میل کی شکل میں ایک یاددہانی مراسلہ بھیجا جاتا ہے اور پی پی ایس سی کی ویب سائٹ پر فلیش پیغام جاری کیا جاتا ہے جس میں پی پی ایس سی کی ویب سائٹ سے اپنی رول نمبر سلپ ڈاؤن لوڈ کرنے (اگر پہلے ڈاؤن لوڈ نہ کی گئی ہو) کی ہدایات درج ہوتی ہیں۔

ذ۔ اگر امیدوار کو ویب سائٹ، ایس ایم ایس اور ای میل کے ذریعے اس کے تحریری امتحان/ٹیسٹ کے بارے میں کوئی اطلاع موصول نہ ہو تو وہ تحریری امتحان/ٹیسٹ کی مقررہ تاریخ سے کم از کم 3 روز قبل پی پی ایس سی کے یو اے این نمبر (042-111-988-722)، پی پی ایس سی آفس کے فون نمبر (99202761-62) سے اپنے سٹیٹس کی تصدیق کر سکتا/سکتی ہے۔

40۔ تحریری امتحان/ٹیسٹ میں پاس ہونے والے تمام امیدواروں کو مبارک باد کی ای میل بھیجی جاتی ہے جس میں انھیں عمل درآمد کے لیے چند ہدایات دی جاتی ہیں۔

الف۔ مبارک باد کی ای میل کے 2 روز بعد مندرجہ ذیل ایس ایم ایس اور ای میل تمام امیدواروں کو بھیجی جاتی ہے:-

آپ کو ہدایت کی جاتی ہے کہ اپنی ای میل میں درج دستاویزات کی نقول کا ایک سیٹ ـــــــ تک جمع کروائیں، ایسا نہ کرنے کی صورت میں آپ کو انٹرویو کے لیے نہیں بلایا جائے گا۔

ب۔ دستاویزات جمع کروانے کے لیے مقررہ تاریخ سے تین روز قبل، امیدواروں کو ایس ایم ایس/ای میل کے ذریعے مندرجہ ذیل یاددہانی مراسلہ بھیجا جاتا ہے:

آپ کو یاددہانی کروائی جاتی ہے کہ مطلوبہ دستاویزات کی نقول کا ایک سیٹ، جیسا کہ آپ کو قبل ازیں ویب سائٹ، ایس ایم ایس اور ای میل کے ذریعے مطلع کیا گیا ہے، ـــــــ تک لازماً ارسال کردیں، ایسا نہ کرنے کی صورت میں آپ کی درخواست مسترد متصور ہوگی۔

ج۔ تحریری امتحان/ٹیسٹ کی تاریخ سے ایک روز قبل امیدواروں کو مطلع کرنے کے لیے ویب سائٹ الرٹ جاری کیا جاتا ہے۔

امیدواروں کو انٹرویو کی تاریخ، وقت اور جگہ سے مطلع کرنے کا طریق کار

41۔ **تحریری ٹیسٹ کے بغیر انٹرویو کا انعقاد۔** درخواست موصول ہونے کی آخری تاریخ کے بعد دو دن کے اندر اور انٹرویو کے انعقاد کے فیصلے کے بعد، چاہے وہ فیصلہ درخواستوں کی جانچ پڑتال سے قبل یا جانچ پڑتال کے بعد یا صرف تعلیمی ریکارڈ کی بنیاد پر امیدواروں کی شارٹ لسٹنگ کے ذریعے کیا جائے، امیدواروں کو ویب سائٹ، ای میل اور ایس ایم ایس کے ذریعے درج ذیل ہدایات جاری کی جاتی ہیں:-

الف۔ تمام امیدواروں کو ای میل اور ایس ایم ایس بھیجا جاتا ہے جس میں امیدواروں کو اپنی دستاویزات کی نقول کا ایک سیٹ پیغام ملنے کے 7 روز کے اندر یا ـــــــ تک لازماً جمع کروانے کی ہدایت کی جاتی ہے۔

ب۔ دستاویزات جمع کروانے کی مقررہ تاریخ سے تین روز قبل امیدواروں کو ویب سائٹ، ای میل اور ایس ایم ایس کے ذریعے ایک یاددہانی مراسلہ بھیجا جاتا ہے جس میں انھیں ہدایت کی جاتی ہے کہ وہ مطلوبہ دستاویزات کی نقول کا ایک سیٹ، جیسا کہ قبل ازیں ویب سائٹ، ایس ایم ایس اور ای میل کے ذریعے انھیں مطلع کیا گیا ہے، ـــــــ تک لازماً ارسال کردیں، ایسا نہ کرنے کی صورت میں ان کی درخواست مسترد متصور ہوگی اور بعدازاں کوئی عرضداشت زیرِ غور نہیں کی جائے گی۔

امتحان/ٹیسٹ کے بعد انٹرویو کا انعقاد

42۔ درج ذیل کو یقینی بنایا جائے گا:-

الف۔ انٹرویو سے کم از کم 7 روز قبل متوقع انٹرویو شیڈول پی پی ایس سی کی ویب سائٹ پر جاری کیا جاتا ہے۔

ب۔ انٹرویو کی مقررہ تاریخوں سے کم از کم 6 روز قبل امیدواروں کو پی پی ایس سی کی ویب سائٹ سے اپنا انٹرویو لیٹر ڈاؤن لوڈ کرنے کی ہدایات کے ساتھ ای میل اور ایس ایم ایس بھیجا جاتا ہے جس میں انھیں انٹرویو کی تاریخ، وقت اور جگہ سے مطلع کیا جاتا ہے۔

ج۔ اگر امیدوار کو کسی وجہ سے انٹرویو کی مقررہ تاریخ سے 3 روز قبل تک ویب سائٹ، ایس ایم ایس اور ای میل کے ذریعے اپنے انٹرویو کے بارے میں اطلاع موصول نہ ہو تو وہ پی پی ایس سی کی ویب سائٹ، یو اے این نمبر (-988-111-042 722)، پی پی ایس سی آفس کے فون نمبر (62-99202761) سے اپنے سٹیٹس کی تصدیق کرسکتا/سکتی ہے۔

د۔ انٹرویو کی اصل تاریخ سے دو روز قبل امیدواروں کو انٹرویو کی تاریخ، وقت اور جگہ کے بارے میں یاددہانی کے لیے ایس ایم ایس اور ای میل کی شکل میں ایک یاددہانی مراسلہ بھیجا جاتا ہے اور پی پی ایس سی کی ویب سائٹ پر فلیش پیغام جاری کیا جاتا ہے جس میں پی پی ایس سی کی ویب سائٹ سے اپنا انٹرویو لیٹر ڈاؤن لوڈ کرنے (اگر پہلے ڈاؤن لوڈ نہ کیا گیا ہو) کی ہدایات درج ہوتی ہیں۔

ذ۔ انٹرویو شیڈول سے ایک روز قبل امیدواروں کی اطلاع کے لیے ویب سائٹ الرٹ جاری کیا جاتا ہے۔

ذ۔ اگر کسی امیدوار کو کسی وجہ سے اطلاع موصول نہ ہو یا ہنگامی حالات ہوں تو وہ اپنی شکایات کے ازالے کے لیے فون نمبر 99202761 -62 پر پی پی ایس سی کے سیکرٹری سے رابطہ کر سکتا/سکتی ہے۔

میرٹ لسٹ

43۔ **میرٹ لسٹ کا موثر رہنا۔** متبادل امیدواروں کی سفارش کے لیے میرٹ لسٹ پہلی سفارش کے اجرا کی تاریخ سے صرف بارہ ماہ تک یا کمیشن کو اسی آسامی کے لیے اگلے باضابطہ مطالبہ (Requisition) کی تاریخ تک، جو بھی پہلے ہو، موثر رہتی ہے تاہم موثر رہنے کے عرصے کے دوران متبادل امیدواروں کے لیے درخواست موصول ہونے لیکن کسی وجہ سے میرٹ لسٹ جاری نہ ہو پانے کی صورت میں چیئرمین اپنی صوابدید پر ایسی درخواستیں نمٹانے کے لیے میرٹ لسٹ کے موثر رہنے کے دورانیے میں توسیع کر سکتا ہے۔

44۔ **سفارش کردہ امیدواروں کا متبادل۔** اگر متعلقہ محکمہ میرٹ لسٹ کے موثر رہنے کے عرصہ کے دوران درخواست کرے تو پی پی ایس سی موجودہ میرٹ لسٹ میں سے متبادل امیدوار فراہم کرے گا، اگر سفارش کردہ امیدوار:

الف۔ کسی بھی وجہ سے آسامی کو جوائن کرنے میں ناکام رہا ہے؛ یا

ب۔ جوائن کرنے کے بعد اپنا استعفیٰ پیش کر دے؛ یا

ج۔ کسی وجہ سے محکمے کی جانب سے برطرف کر دیا گیا ہے؛ یا

د۔ طبی طور پر نااہل قرار دے دیا گیا ہے؛ یا

ذ۔ تقرر کرنے والی اتھارٹی اسے پنجاب سول ملازمین (تقرری اور شرائطِ ملازمت) قواعد، 1974 کے قاعدہ 21-اے(2) کے تحت تقرر نامہ {Appointment Letter} جاری کرنے سے انکار کر دے۔

سفارش واپس لینا

45۔ کمیشن قانون کے تحت کسی بھی وقت منتخب کردہ امیدوار کی سفارش واپس لینے کا مجاز ہے اگر وہ بعد ازاں کسی وجہ سے اس آسامی کے لیے نااہل پایا گیا/گئی ہو۔

نقل کرنے/ہدایات کی خلاف ورزی کرنے یا جھوٹی معلومات فراہم کرنے پر امیدواروں کے خلاف کارروائی

46۔ امیدوار کو پی پی ایس سی کی جانب سے کسی آسامی کے لیے منعقد کیے گئے یا منعقد کیے جانے والے کسی تحریری امتحان/ٹیسٹ یا انٹرویو کے لیے نااہل قرار دیا جا سکتا ہے یا روک دیا جا سکتا ہے اگر وہ نقل کرنے/وقتاً فوقتاً جاری کردہ ہدایات کی خلاف ورزی کرنے یا کمیشن کو جھوٹی معلومات فراہم کرنے کا قصوروار پایا گیا/گئی ہو۔

متفرق

47۔ **درخواست نمبر گم ہو جانے کی صورت میں کیسے تلاش کیا جائے۔**

الف۔ اگر آپ سے آپ کا درخواست نمبر گم ہو جائے تو آپ اسے پی پی ایس سی کی ویب سائٹ کا مندرجہ ذیل لنک استعمال کر کے حاصل کر سکتے ہیں۔

http://www.ppsc.gop.pk/UsersReg/CheckApplicationNo.aspx

ب۔ مندرجہ بالا یو آر ایل کھولیں اور اپنا شناختی کارڈ نمبر درج کریں اور "Find Application Number" کے بٹن پر کلک کریں۔ آپ کا درخواست نمبر ان تمام آسامیوں سمیت جدول کی شکل میں سامنے آ جائے گا جن کے لیے آپ پی پی ایس سی میں درخواست دے چکے ہیں۔ آپ اپنا مطلوبہ نمبر یہاں سے حاصل کر سکتے ہیں۔

ج۔ یہ درخواست نمبر مندرجہ ذیل مقاصد کے لیے درکار ہے:-

(1) درخواست میں ترمیم کرنے کے لیے (آن لائن درخواست دینے کے بعد)

(2) سنگل پیپر ڈی ایم سی حاصل کرنے کے لیے۔ انٹرویو کے بعد

(3) ایم سی کیوز۔ پیپر کا ڈی ایم سی حاصل کرنے کے لیے۔ انٹرویو کے بعد

48۔ کسی بھی طرح کی معلومات/شکایات کے لیے براہِ مہربانی یو اے این نمبر (042-111-988-772)، پی پی ایس سی آفس فون نمبر 99202761-62 پر رابطہ کریں۔ کسی وجہ سے کالز نہ ملنے کی صورت میں اُمیدوار مندرجہ ذیل ای میل ایڈریس پر ای میل کے ذریعے کمیشن سے رابطہ کر سکتے ہیں:-

نمبر شمار	موضوع متعلق بہ	دفتری ای میل ایڈریس
1	عام معلومات	ppsc@punjab.gov.pk
2	تکنیکی معلومات	dir.it@ppsc.gop.pk
3	بھرتی سے متعلق معلومات	dda@ppsc.gop.pk ddb@ppsc.gop.pk ddc@ppsc.gop.pk ddd@ppsc.gop.pk dde@ppsc.gop.pk ddf@ppsc.gop.pk ddg@ppsc.gop.pk ddh@ppsc.gop.pk ddj@ppsc.gop.pk ddk@ppsc.gop.pk ddm@ppsc.gop.pk
4	تحریری امتحان/ٹیسٹ سے متعلق معلومات	deputy.secy@ppsc.gop.pk
5	خاتون اُمیدواران	dir.monitoring@ppsc.gop.pk

موبائل نمبر کی تبدیلی

49۔ اگر کوئی اُمیدوار آن لائن درخواست میں پہلے سے دیا گیا موبائل نمبر تبدیل کرتا ہے تو وہ دستخط شدہ درخواست اصل اور مؤثر شناختی کارڈ کی ایک نقل، نئے موبائل نمبر، درخواست نمبر اور اسامی کے نام (جس کے لیے درخواست دی گئی ہے) کے ہمراہ بذریعہ ڈاک ارسال کرے گا/گی۔ درخواست سیکرٹری، پی پی ایس سی کے نام بھیجی جائے گی۔ پی پی ایس سی کو اطلاع دیے بغیر تبدیل کیے گئے موبائل نمبر کی صورت میں کمیشن اُمیدوار کو کسی بھی قسم کی اطلاع دینے کا ذمہ دار نہ ہوگا۔

تحریری امتحان/ٹیسٹ کے مراکز میں مندرجہ ذیل آلات لے جانے کی اجازت نہ ہوگی:-

50۔ پی پی ایس سی درج ذیل کی ہرگز اجازت نہیں دے گا:-

الف۔ اُمیدواروں کو کمرۂ امتحان میں اور انٹرویو کی جگہ پر موبائل فون یا ایسے آلات لے جانے کی اجازت نہ ہوگی۔

ب۔ اگر کوئی اُمیدوار امتحانی مرکز میں موبائل فون یا ایسے آلات استعمال کرتا ہوا پایا جائے تو سپروائزر کی جانب سے اس کے موبائل فون یا آلے کے ساتھ ساتھ اس کا پرچہ بھی ضبط کر لیا جائے گا اور ڈیوٹی پر موجود پی پی ایس سی کے رکن کے حوالے کر دیا جائے گا۔

ج۔ اگر موبائل فون یا ایسے آلہ کے ڈیٹا سے نقل کیا جانا ثابت ہو جائے تو پی پی ایس سی کا رکن/مقام کا انچارج، مرکز کے سپروائزر کو نقل کرنے والے اُمیدوار کے خلاف ایف آئی آر درج کروانے کی ہدایت کرے گا اور پی پی ایس سی اُسے پی پی ایس سی ضوابط/پالیسی فیصلوں کے مطابق سزا دینے کے لیے کارروائی بھی کرے گا۔

انتباہ

براہِ مہربانی کسی بھی ایسے شخص سے رابطہ نہ رکھیں جو آپ کو پنجاب پبلک سروس کمیشن کے ذریعے ملازمت دلوانے کی پیشکش کرے کیونکہ پی پی ایس سی کا سسٹم اس قسم کی خلاف ورزی/رعایت کی اجازت نہیں دیتا۔ اپنی قابلیت پر اعتماد کریں اور اللہ (سبحانہ وتعالیٰ) پر بھروسہ رکھیں۔ اگر کوئی مشکوک شخص تحریری امتحان/ٹیسٹ یا انٹرویو میں کوئی ناجائز رعایت فراہم کرنے کے لیے رابطہ کرے تو براہِ مہربانی کمیشن کے مندرجہ ذیل معزز اراکین سے فوری طور پر رابطہ کریں:-

1۔ امتیاز احمد خان، رکن پی پی ایس سی، (ای میل:member17@ppsc.gop.pk، فون:042-99202756)

2۔ امجد جاوید سلیمی، رکن پی پی ایس سی، (ای میل:member6@ppsc.gop.pk، فون:042-99202751)

آپ کا نام صیغۂ راز میں رکھا جائے گا اور آپ سے کوئی تعصب نہیں برتا جائے گا۔

نوٹ: اُردو میں دی ہوئی ہدایات میں کسی قسم کے ابہام یا کمی بیشی کی صورت میں انگریزی میں دی ہوئی ہدایات ملاحظہ کریں۔ انگریزی ہدایات حتمی تصور کی جائیں گی۔

دستاویز کا اختتام

سیکرٹری

پنجاب پبلک سروس کمیشن-لاہور

یو اے این : 042-111-988-722

How to Solve Multiple Choice Questions (MCQs) Correctly:

The following mentioned are the few multiple choice test tricks and strategies on how to pass a multiple choice test without studying.

1. Deterring conventional wisdom: Many individuals who take up objective type questions have the habit of guessing the middle option as the answer if they do not know. They also avoid answers which show none, all, always and never. This conventional wisdom will never help throughout the exam and so ignoring conventional wisdom is vital for answering a multiple choice answer.

2. Abolishing incorrect ones: For answering a multiple choice question, it is a fact that the multiple options are formatted in a tough manner. All the options seems to be right in some aspect and so the test taker can pick out the wrong answers first and then choose the right answer.

3. True or false test: Read the question carefully and if you're muddled by looking at the options, give each option a true or false test. Cross out the false answers and by this way the most appropriate answer can be found out.

4. Handling all of the above: In a multiple choice question when there is an option as "all of the above" be careful in answering such type of question. Check to see if more than two options are right, if so the choice can be opted.

5. Check the sentence: When your question ends with 'a', 'an' or 'the', then the answer should start appropriate to the article and hence correct answer can be chosen appropriately. Though this does not stand true for all questions, but can help for few which has articles in it . Few questions in English can be handled this way for picking the right option.

6. Longest options: In the midst of many questions when you find options with variable size of answers, pick the longest answer. It is a fact that the question designers cannot format very short answers.

7. Patterns and similarities: When there are options with many variables and so, look out for the options and its patterns and similarities. Pick choices which have the same patterns and leave out the outliners so that the nearest or right answer is picked.

8. Middle order: The middle order option is something which should be chosen, for example if the options are 100,150, 200, and 250 then choosing 150 or 200 can be the right choice. In such cases mostly, right answers are lesser than the maximum and higher than the lowest.

9. First impression: Always remember that the first impression is the best one. Once you have read the question, pick the right answer immediately. As you keep on reading the options there is a chance to choose the wrong option.

10. Chary (Careful, Cautious) reading and understanding: Test takers should make sure to read the question carefully though it is a timed test. Many individuals waste time without reading the question, hence it is important to read the question carefully and understand what is required.

11. Practicing: Practising well for exam is one way to score maximum. Past test papers, practice exams or study guides can give you an idea on how to answer MCQs.

12. Planning time: In order to use time appropriately, answer the questions for which you know the answers. For ones which you have a doubt, leave the doubtful question and skip over, at the end again read out the questions which you have not answered and complete the question paper. By this way your confidence is elevated and you also find more time for hard questions.

13. Focusing on keywords: The keywords in the question are to be identified and underlined which helps to narrow down the meaning. By this way the right option will match each and every part of the stem of the question. For the same paying attention to qualifiers, superlatives, negatives are important.

14. Pick the answer first: Once the question is read, formulate the answer in your mind rather than looking into the options. Once you have formulated the answers, look into the options and you can find the answer you formed.

15. Trust instincts: You may have opted for first option based on your first impression, you can also change the answer if you think another response is right. A concrete reasoning is mandatory to make any changes and not just feeling.

16. Number games never work all the time: Playing the odd doesn't work out all the time and so playing with such type of methods can be avoided. Guess work and game play with multiple type questions can be avoided as they do not work well all the time.

17. Learn from mistakes: It is always a good idea to learn from your mistakes. Once the paper is returned back to you, review the answers and find out the reason for the mistakes taken place. Reason out if it is the question pattern or study material which has made you to pick an incorrect answer. By this way mistakes in future can be avoided.

18. Answers hid in questions: A complete reading of the question paper is one way to find out few answers, this is because for some questions answers are found in the question itself. The questions may have a link and answers within it too.

19. Eliminate grammatically wrong answers: It is a good way to eliminate grammatically wrong answers in a multiple choice question. The answers would never make sense and hence grammatically wrong answers can be avoided.

20. Opposites can be the right answer: In a multiple choice paper, if two options are complete opposites then there is a chance that one of them might be the answer. It is actually a trick used by the professors to check the knowledge of the students in the subject.

21. Single word in many options: There are many questions where one word appears in more than one options. The answer must be one of those choices which have the same word. In this context eliminate the odd one and choose from the similar options.

22. Unrelated answers: Once the question is read the options would have answers related to the question, if there are answers which are unrelated to the question then they can be eliminated as wrong answer.

23. Proper preparation: It is true that multiple choice questions concentrate on minute details in the subject which cannot be retained in mind effectively. Preparing at an early stage is what a multiple choice exam requires. Frequent review and early preparations are ways to hack the multiple choice exercises instead of tricks and guess work.

24. Schduling: It is mandatory for intense preparation for any multiple choice paper, it would be advisable to pay attention to terms and concepts, observations, ideas and lot more. These tips are important as this would be the ones which most commonly appear in the exams. You can also make lists and tables of important ideas or events which makes learning easier.

25. Do not guess all the time: Almost all students guess most of the time for a multiple choice answers but guessing would not be apt for negative marking questions. Avoid guess work for negative marking questions as they may lower your final total.

Conclusion: These are a few hints which can be followed for answering multiple choice questionnaire, but these tips are not complete100% true to yield successful results. These are a few tricks to handle the questions. They work for some situations but not completely for all exams, all time and all scenarios. Prior preparations and training are mandatory aspects for any multiple choice exams. The skill to tackle a multiple choice test paper is mandatory and hence good preparation on the subject along with these techniques is required to win over such exams. Test takers and students can run through these tips with proper preparation and hack their multiple choice exams in the right manner rather than believing in guess work.

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MCQs Test Taking Tips & Strategies

Some useful tips and strategies to solve the MCQs are given below:

Read the entire question: Read a multi-choice question in its entirety before glancing over the answer options. Students often think they know what a question is asking before reading it and jump straight to the most logical answer. This is a big mistake and can cost you dearly on multiple-choice exams. Read each question thoroughly before reviewing answer options.

Answer it in your mind first: After reading a question, answer it in your mind before reviewing the answer options. This will help prevent you from talking yourself out of the correct answer.

Eliminate wrong answers: Eliminate answer options which you're 100 percent sure are incorrect before selecting the answer you believe is correct. Even when you believe you know the right answer, first eliminating those answers you know are incorrect will ensure your answer choice is the correct choice.

Use the process of elimination: Using the process of elimination, cross out all the answers you know are incorrect, then focus on the remaining answers. Not only does this strategy save time, it greatly increases your likelihood of selecting the correct answer.

Select the best answer: It's important to select the *best* answer to the question being asked, not just an answer the seems correct. Often many answers will seem correct, but there is typically a best answer to the question that your professors is looking for.

Read every answer option: Read every answer option prior to choosing a final answer. This may seem like a no brainer to some, but it is a common mistake students make. As we pointed out in the previous section, there is usually a *best* answer to every multiple-choice question. If you quickly assume you know the correct answer, without first reading every answer option, you may end up not selecting the *best* answer.

Answer the questions you know first: If you're having difficulty answering a question, move on and come back to tackle it once you've answered all the questions you know. Sometimes answer easier question first can offer you insight into answering more challenging questions.

Make an educated guess: If it will not count against your score, make an educated guess for any question you're unsure about. (Note: On some standardized tests incorrect answers are penalized. For example, a correct answer may be worth 2 points, an unanswered question 0 points, and an incorrect answer -1 points. On these tests, you can still make an educated guess, but only when you're able to eliminate at least one or two incorrect answers.)

Pay attention to these words: Pay particularly close attention to the words *not*, *sometimes*, *always*, and *never*. An answer that includes *always* must be irrefutable. If you can find a single counterexample, then the answer is not correct. The same holds true for the word *never*. If an answer option includes *never* a single counterexample will indicate the answer is not the correct.

It's usually best to stick with your first choice--but not always: It is best to stick with the answer you first chose after reading the question. It is usually counterproductive to constantly second guess yourself and change your answer. However, this doesn't mean your first answer choice is necessarily the correct answer choice. While multiple choice tests aren't usually intentionally designed to trick or confuse students, they are designed test students' knowledge and ability. To this end, the answer options provided will often include the *the most common wrong answer* among the choices or answers that seem logical but are ultimately incorrect, or the *best* answer.

"All of the above" and "None of the above": When you encounter "All of the above" and "None of the above" answer choices, do not select "All of the above" if you are pretty sure any one of the answers provided is incorrect. The same applies for "None of the above" if you are confident that at least one of the answer choices is true.

When there are seemingly two correct answers: When two answers are correct in a multiple choice question with an "All of the above" option, then it's probably the correct choice.

Place your bet on the positive option: In most cases, a positive option is probably true if there is also a negative one.

The more information... the better: More often than not, the correct answer usually contains more information than the other options. This is good to know if you must guess.

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Important Instructions for Solving MCQs Paper

1. Answer each question on the corresponding answer sheet provided. Please read carefully the important instructions printed red ink on the front page of the answer book.
2. Answers are to be given against the relevant question number. But if you miss the correct serial number of sequence of the questions, you are writing all your answers in the wrong columns which will give you no credit, try to be careful.
3. A short limited time is given for each question. You have to be quick in solving them. You should be accurate too, only quickness won't pay. If you are confused over certain question, leave it, don't waste your time over it. Proceed further without any hesitation.

Instructions for Computerized Answer Sheet

1. First of all, the roll number and your first name have to be filled out. You must write your name and roll number in block letters.
2. Every question contains four or five choices in the form of A, B, C, D, and E. Only one out of them is correct. Your answer sheet has five boxes A B C D and E for each question. Select the correct answer and blacken box of the corresponding letter completely and darkly. For example:

What is the total area of the world?

(A) 2.55 billion years (B) **4.55 billion years**✓
(C) 6.55 billion years (D) 8.55 billion years

The correct answer is **B**, so shade the answer in this manner.

A	**B**	C	D

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Information about Punjab Higher Education Department

Overview - What HED Does:

Higher Education Department, (HED) is responsible for education, learning and related services for students, as well as Faculty/ teaching & non-teaching staff, serving in Public and Private Institutions in the province of Punjab. Its aim is to achieve a highly educated society; where educational opportunities are equally available for all young people in Pakistan, no matter what their social, ethnic, and cultural background or family circumstances are.

Our Vision:

To promote development of an enlightened and prospering Punjab by reinforcing knowledge economy along with a focus on equitable and quality learning. The realization of the higher education department's vision of "enlightened and prospering Punjab by reinforcing knowledge economy" rests on the shift from access to quality which is evident from the key initiatives it has taken in recent past.

Our Mission:

Improving quality of teaching, research and innovation, enhancing creativity and entrepreneurship and promoting equity, access, social cohesion and responsible citizenship.

Our Priorities:

- Establish Knowledge Park Lahore (KPL)
- Establish Bio Park/Science Research Park at Provincial Metropolis
- Organize International Education Expo (2014)
- Arrange Book Fair 2014
- Revise and Reform the Educational Curriculum as E-text
- Faculty Development Programme
- Celebration of Anti-Corruption Week
- Reduce Bureaucratic Monopoly and Improve Accountability
- Train and Develop the Professionals/ Faculty who work with students.
- Improve Quality Assurance Services (QAS) for college students
- Make HED as citizen centric Organization
- Assure prompt Capacity Building/ Provision of Missing Facilities in institutions.

Who We Are:

We are a Ministerial Department with a strong network of field offices to ensure compliance of Executive decisions. Currently HED operates through a network of one field headquarter, i.e., Directorate of Public Instructions Colleges Punjab, 09 Divisional Directorates, 37 District Directorates managing more than 750 colleges in Punjab.

Moreover, nine Boards of Intermediate and Secondary Education (BISE) for examination purposes, each at divisional headquarters are, working under the umbrella of HED. In addition to that more than 50 Public/ Private Sector Universities and 26 autonomous institutions are also operating under the supervision of HED.

History:

In 1947, the Directorate of Public Instructions, was the highest office of Education Department, under the supervision of Chief Secretary, Punjab . However, the Education Department under the administration of Secretary Education started functioning in West Pakistan province in 1955.

Higher Education Department is relatively a new department bifurcated from School Education Department of Government of the Punjab in 2008. In recent years, a renewed surge has been witnessed towards education reforms and development at national as well as provincial level.

Higher Education Department is relatively a new department separated from the Education Department of Government of the Punjab.

Objectives:

The basic aim of HED is not only to cater the educational needs of the target population i.e. the students, but also broaden their vision and mental horizon in order to equip them to deal better with the academic and economic challenges of the modern world.

The realization of the higher education department's vision of "enlightened and prospering Punjab by reinforcing knowledge economy" rests on the shift from access to quality, and for realization of this vision the department has outlined following objectives:

Improve Quality of Higher Education

- Increase number of skilled faculty
- Enhance quality of assessment system
- Increase market relevance of higher education programs

Expand Access

- Increase in number of students enrolled at college/university level

Enhance Equity

- Create opportunities for all income groups, social classes and genders
- Introduce a financial aid (loan) scheme in HEIs

- Increase number of need-based scholarships
- Create special opportunities for remote areas

Strengthen Governance and Management

- Raise students' commitment to higher education
- To Improve Infrastructure and Resource Provision

Functions:

The department of Higher Education Punjab has administrative and financial control of the multi-tier Higher Education sector in the Punjab. It manages 517 colleges with general as well as specific programs in 37 districts of the province. It also supervises 09 Boards of Intermediate and Secondary Education, 17 Public Sector Universities and 26 Autonomous Educational Professional Institutions of Higher Education, Commerce Colleges.

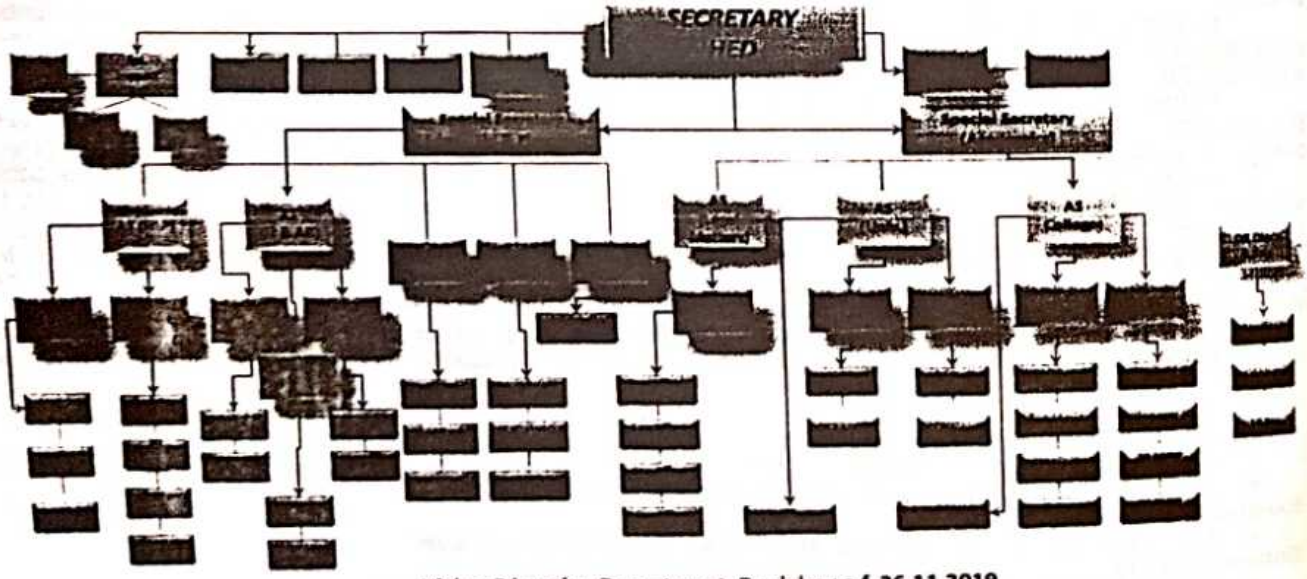
The mandate of HED as identified in the Rules of Business 1974 is as follows:

- College Education General. (Post-Matric to Post Graduate Level)
- Universities and University Education excluding Agricultural University, Faisalabad
- Co-ordination of schemes for higher studies abroad
- Grant of scholarships
- Promotion of scientific research
- Organization of all Public Libraries including Municipal and other Libraries and to keep liaison with Universities, Colleges and Special Libraries for improving the standard of research and scholarship and further development of library science
- Ancient manuscripts and historical records
- Promotion of Sports
- Service matters except those entrusted to Services General Administration & Information Department
- Purchase of stores and capital goods for the Department
- Improvement of scientific, technological and professional education

Our Message

- I am extremely delighted to welcome you to the website of Higher Education Department. These pages are being introduced to assist you in acquiring the basic and the necessary information about the department. We assure you, that we will keep on improving and updating this information, as and when required, and will try to give response on your time to time queries.
- The Higher Education Department is performing and delivering, within the meager resources available, covering a diversified network of activities based on promoting the cause of Higher Education. It is linked with other provinces and the Federal Government to further enhance the said cause. This is a gigantic task, sometimes leading to the generation of the multifarious nature of problems which requires resetting the objectives according to the dynamic environment. We are hopeful that with the promotion of higher education and research, we will be in a position to resolve our National Issues vis a vis their linkage with the International horizon.

Organogram:



Higher Education Department, Punjab w.e.f. 26.11.2019

Attached Department:

Directorate of Public Instruction Colleges (Punjab) is a an attached department that performs a coordinating role between the secretariat and the district education office, and an augmenting role in policy formulation, administrative as well as financial matters.

DPI is assisted by an Additional DPI, and four directors [Planning, Academic, Administration (M) Administration (F)].

Key functions performed by the DPI Colleges can be listed as following:

- Implement government policies, directions and orders
- To assess the needs and requirements of the colleges and provision of funds, staff and buildings
- To assist the government in formulating policies in respect of academics, financial and administrative matters
- To act as coordinator between the government and other agencies including the Director /District Education Officers Colleges
- Maintenance of the career record of teaching staff of colleges(BPS 17, 18, 19 &20) and preparation of their promotion
- Administer inter, degree and post-graduate colleges
- Arrangements for teacher training
- Registration of private colleges
- Conduct of inquiries
- Settlement of audit paras
- Technical and administrative inspection of colleges
- Inter-district transfers of teaching and non-teaching staff up to BPS 19
- Sanction of Leave up to maximum of 365 days up to BPS 20, except ex-Pakistan leave

Divisional Directorates & Deputy Director Colleges

Higher Education sector has been administratively reconfigured by Divisional Directorates. The province is divided in 09 divisional directorates, with Director Colleges performing a supervisory role in the constituent districts. The key role of the DE Colleges is to maintain a liaison between field and administrative offices.

Deputy Director Colleges

The office was originally introduced under the LGO 2001 and key functions of the office included:

- Implement government policies
- Distribute budgetary grants to Colleges
- Prepare feasibility reports for up gradation of colleges and introduction of new subjects
- Prepare ADP schemes
- To maintain career records of the teaching and non-teaching staff up to BPS 17 within the district
- To award scholarships to eligible students
- To decide pension issues of employees up to BPS 18
- Appoint staff up to BPS 15 within the district
- Transfer teaching/non teaching staff up to BPS 19 within the district
- Monitor student affairs
- Promotion, move-over, selection grade issue of non-teaching staff up to BPS 15
- Sanction of leave not exceeding 90 days except study leave and ex-Pakistan leave up to BPS 19
- Issuance of NOC for passport Sanction of GP fund advance up to BPS 20
- Grant of relaxation (up to 5 years) in upper age limit for admission
- Grant of relaxation (up to 3 years) in upper age limit for recruitment (BPS 1 to BPS 15)

Rules & Regulations

Governing Laws

Educational Institutions

- Ali Institute of Education Lahore Act, 2010
- Forman Christian College Act, 2004
- Global Institute Lahore Act, 2011
- Hindu Gains of Learning Act, 1930
- Imperial College of Business Studies Lahore Ordinance, 2002
- Institute of Management Ssciences Lahore Ordinance, 2002
- Institute of Southern Punjab Multan Act, 2010
- Lahore School of Economics Act, 1997
- National College of Business Administration & Economics Lahore Ordinance, 2002
- Privately Managed Schools and Colleges (Taking over) Regulation, 1972
- Punjab Economic Research Institute Ordinance, 1980

- Punjab Government Educational and Training Institutions Ordinance, 1960
- Punjab Kinnaird College for Women Lahore Ordinance, 2002
- Punjab Private Colleges (Management and Control) Ordinance, 1970
- Punjaab Private Educational Institutions (Promotion and Regulation) Ordinance, 1984
- Superior College Lahore Act, 2004
- Sports (Development and Control) Ordinance, 1962

Universities

- Women University Multan Act, 2010
- Uiversity of Sargodha Ordinance, 2002
- University of Wah Act, 2009
- University of the Punjab Act, 1973
- University of South Asia Lahore Act, 2005
- University of Management and Technology Lahore Act, 2004
- University of Lahore Ordinance, 2002
- University of Gujrat Act, 2004
- University of Faisalabad Ordinance, 2002
- University of Engineering and Technolgy Taxila Act, 1994
- University of Engineering and Technology Lahore Act, 1974
- University of Education Lahore Ordinance, 2002
- University of Central Punjab Lahore Ordinance, 2002
- Qarshi University Muridke Act, 2011
- Punjab Universities Removal of Undesirable Government Servants Ordinance, 1962
- Punjab Universities and Boards of Intermediate and Secondary Educaation Malpractices Act, 1950
- Minhaj University Lahore Act, 2005
- Lahore Leads University Act, 2011
- Lahore College for Women University ordinance, 2002
- Islamia University of Bahawalpur Act, 1975
- Information Techchnology University of the Punjab Act, 2012
- HITEC University of Taxila Act, 2009
- Hajvery University Lahore Ordinance, 2002
- Government Sadiq College Women University Bahawalpur Act, 2012
- Government College Women University Sialkot Act, 2012
- Government College Women University Faisalabad Act, 2012
- Governmnet College University Lahore Ordinance, 2002
- Government College University Faisalabad Ordinance, 2002
- Gift Uuniversity Gujranwala Act, 2004
- Ghazi University Dera Ghazi Khan Act, 2012
- Fatima Jinnah Women University Rawalpindi Ordinance, 1999
- Beaconhouse National University Lahore Act, 2005
- Bahauddin Zakariya University Act, 1975

Education Boards

- The Punjab Information Technology Board Ordinance, 1999
- The Punjab Boards of Intermediate and Secondary Education Act, 1976
- The Punjab Textbook Board Ordinance, 1962
- Punjab Universities and Boards of Intermediate and Secondary Education Malpracticies Act, 1950
- The Punjab Boards of Technical Education Ordinance, 1962

Others

- PEEDA Act
- The Punjab Civil Servants Act 1974
- The Punjab Private Educational Institutional (Promotion and Regulation) Ordinance, 1984.
- The Punjab Examination Commission Act 2010
- The Punjab Departmental Inquiries (Powers) Act, 1958

Rules

- Business Rules
- Civil Service Pension Rules
- Paternity Leave Rules

Policies

- Transfer Policy 2013
- Regularization of all Contract Employees March 2013
- Leave Encashment Punjab Employees-Sep-2013

Legislative Background

- Legislative Background

FULLY SOLVED MODEL PAPER-2020

Paper Code
A

PUBLIC SERVICE COMMISSION

WRITTEN TEST FOR RECRUITMENT TO THE POST OF

LECTURER BIOLOGY (BS-17)

IN THE PUNJAB HIGHER EDUCATION DEPARTMENT

ROLL NO.

TIME ALLOWED: TWO HOURS **MAXIMUM MARKS: 100**

INSTRUCTIONS

1. Write your allotted Roll No. in the top right corner of **QUESTION PAPER** and in the specified place of **ANSWER SHEET.**
2. Write **PAPER CODE** on your **ANSWER SHEET** carefully.
3. Read **QUESTION PAPER** carefully and mark your answer on the **ANSWER SHEET**.
4. Each question has four options. Fill only one box that you think in the correct answer. Each question caries 1 mark.
5. Instructions for filling box have been given on the Answer Sheet. Read them carefully before you attempting **Question Paper**.
6. Read the instructions for filling your **ROLL NO.** and marking your answer on the **ANSWER SHEET** before starting to answer.
7. Sign the **Answer Sheet** in the box provided at the bottom corner.
8. Return both **Question Paper** and **Answer Sheet,** to the Staff, at the end of the test.

Signature of the Candidate

☛ Every question contain four choices in the form of A, B, C and D. Only one out of them is correct. Your answer sheet has four boxes A B C and D for each question. Select the correct answer and blacken box of the corresponding letter completely and darkly. For example:

Q. **What is the most important element of effective teaching?**

(A) Sharing (B) Planning (C) Objectively (D) Division of Work

The correct answer is B, so shade the answer in this manner.

Subject Based Questions (80%)

1. Devil's Aprin is the common name of:

(a) *Postelsia* (Phaeophyceae) (b) *Laminaria* (Phaeophyceae)
(c) *Sargassum* (Phaeophyceae) (d) *Chara* (Chlorophyceae)

2. Which nutrients are abundant in algae?

(a) Protein, lipids and fats (b) Starch, minerals and fats
(c) Carbohydrates, inorganic compounds and vitamins (A, C, D, and E) (d) Proteins, minerals and water

3. Which algae are used as fodder for marine as well as domestic animals?

(a) *Chlorella* and *Porphyra* (b) *Sargassum* and *macrocystis*
(c) *Gelidium* and *Gigartima* (d) None of these

4. Since *chlorella* and *synecoccus* grow very quickly so these algae are taken for space travels because these algae are helpful:

(a) To get rid of CO_2 (b) To obtain source of O_2
(c) To get food (d) All these

5. Which algae deplete the O_2 of water and hence animals like fish are killed?

(a) *Microcystis* and *Oscillatoria* (b) *Valonia* and *Acetabularia*
(c) *Chlamydomonas* and *Chara* (d) Both (b) and (c)

6. All options are true about fungi except:

(a) Largest sub-group of thallophyta, eukaryotic organisms, (b) Achlorophyllous, spore-bearing, non-vascular

decomposers

(c) Presence of chlorophyll, starch or oil globules are reserve food, found in light conditions (d) Moisture-loving, heterotrophic, may be parasitic or saprophytic

7. In ascomycetes (*i.e.*, sac fungi), ascospores are produced in small, thin-walled saclike units called:

(a) Cilia (Singular : cillium) (b) Asci (Singular: ascus)
(c) Flascs (d) None of these

8. In sac fungi, asexual reproduction occurs by ..... exogenously produced spores, called ..... on conidiophores.

(a) Motile ; conidia (b) Non-motile; conidia
(c) Vascular; basidium (d) Non-vascular; basidium

9. ..... is characteristic reproduction organ of basidiomycetes (club fungi) where both ..... occur.

(a) Conidium; karyogamy and plasmogamy (b) Conidium; plasmogamy and mitosis
(c) Basidium; karyogamy and mitosis (d) Basidium; karyogamy and meiosis

10. Which is the common name of *hydnum*?

(a) Hedgehog fungi (b) Oyster mushroom
(c) Puff ball (d) Honey mushroom

11. Which factor controls the rate of photosynthesis?

(a) Availability of chlorophyll-a (b) Availability of oxygen
(c) Availability of water (d) Availability of carbon dioxide

12. Inhibition of photosynthesis under increased level of oxygen refers to:

(a) Law of minimum (b) Blackman's law of limiting factor
(c) Warburg's effect (d) Liebig effect

13. What percentage of radiant energy available is utilized by green plants in their photosynthesis?

(a) Only 1% (b) 5%
(c) 10% (d) 25%

14. Rate of photosynthesis is independent of:

(a) Duration of light (b) Quantity of light
(c) Size of leaf (d) Both (a) and (c)

15. Respiration is a:

(a) Cellular process (b) Catabolic process
(c) Anabolic process (d) Both (a) and (b)

16. Which term defines 'ATP'?

(a) "Energy currency" (b) "Power currency"
(c) "Physiological coins" (d) Both (a) and (c)

17. In which processes, ATP is used as a raw material?

(a) In activation of t-RNA (b) In replication and transcription of RNA
(c) In reduction of carbon dioxide during dark reaction of photosynthesis (d) All these

18. Complete the following equation for aerobic respiration:

Glucose + Oxygen ⟶ ?

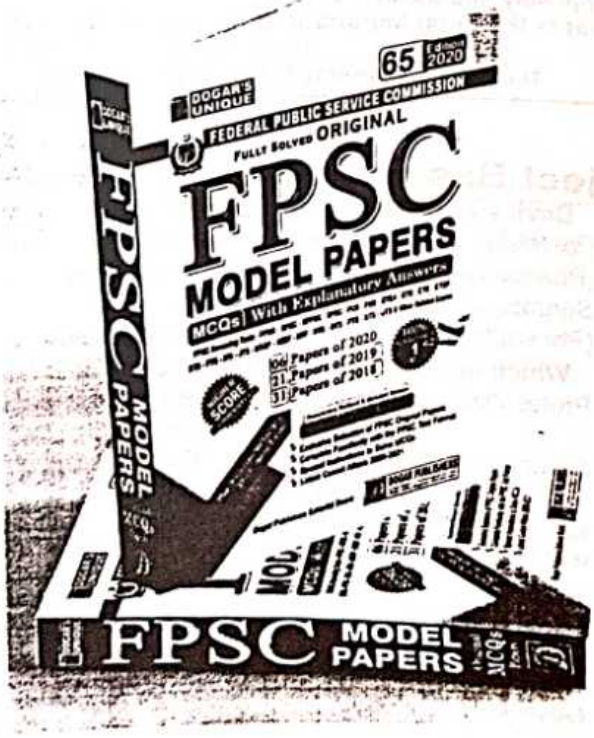
(a) $CO_2 + H_2O + 38$ ATP (b) $CO_2 + 2$ ATP
(c) $H_2O + CO_2 + 38$ ADP (d) $CO_2 + 2$ ADP

19. Anaerobic respiration occurs in the absence of oxygen like:

(a) Combustion (b) Fermentation
(c) Oxidation (d) All these

20. In how many steps glycolysis consists of?

(a) 2 (b) 3
(c) 4 (d) 5



21. Hugo de Vries' theory of mutation:
(a) Does not rule out natural selection theory (b) Opposes natural selection theory
(c) Contradicts Lamarckism (d) Supports Lamarckism

22. 'Modern synthetic theory of evolution' was designated by:
(a) R.A. Fisher (b) J. Huxley
(c) W. Harvey (d) E. Darwin

23. A random change in allele frequencies over the generations is called:
(a) Genetic drift (b) Sewall Wright effect
(c) Bottleneck effect (d) Both (a) and (b)

24. The impact of genetic drift is:
(a) Insignificant on very large populations (b) Significant on small ones
(c) Both (a) and (b) (d) None of these

25. Genetic drift is a binomial sampling error of:
(a) Gene pool (b) Mutation
(c) Crossing over (d) Independent assortment

26. Mutations introduce new genes into a species resulting a change in:
(a) Alleles (b) Gene pool
(c) Gene frequencies (d) Gene migration

27. G.H. Hardy, an English mathematician and Wilhelm Weinberg, a German physician in 1908 established a simple mathematical relationship to the study of:
(a) Gene migration (b) Mutation
(c) Gene frequencies (d) Genetic drift

28. Which theory explains that both mutations and natural selection are responsible for evolution?
(a) Hardy-Weinberg's law (b) Neo-Darwinism
(c) Lamarckism (d) de Vries's Mutation theory

29. The heritable changes in DNA are called:
(a) Mutations (b) Genes
(c) Alleles (d) None of these

30. Select the right option about mutation:
(a) It is infrequent but inevitable for evolution (b) It alone creates new alleles
(c) Majority of mutations are harmful (d) All these

31. The eggs can be classified into three types, which are:
(a) Based on the amount of yolk *viz.;* microlecithal, mesolecithal and macrolecithal (b) Based on the distribution of yolk *viz;* Isolecithal, telolecithal and centrolecithal
(c) Both (a) and (b) (d) None of these

32. Fertilization is a:
(a) Biological process (b) Physico-chemical process
(c) Physical process (d) Chemical process

33. External fertilization occurs in oviparous animals which lay eggs in water. An example of such an organism is:
(a) Elephant (b) Reindeer
(c) Frog (d) All these

34. In ovoviviparous or viviparous animals, internal fertilization occurs. Examples are:
(a) *Echidna* (b) Rabbit and man
(c) Both (a) and (b) (d) None of these

35. Conjugation of two or more male pronuclei with a female pronucleus is an abnormal fertilization. It is called:
(a) Polyandry (b) Polygyny
(c) Polyspermy (d) Androgenesis

36. Which one of the following is the correct sequence for the development of fertilized ovum?
(a) Zygote → morula → blastula → cleavage → gastrula →neurula (b) Zygote → cleavage → morula → blastula → gastrula → neurula →
(c) Zygote → morula → blastula → gastrula → neurula→ cleavage (d) Zygote → neurula → gastrula → blastula → morula → cleavage

37. Frog breeds in rainy season from:
(a) March to May (b) May to August
(c) June to September (d) May to October

38. Spawn is a cluster or mass of eggs laid by a female. A spawn of *Rana tigrina* contains about:
(a) 500-800 eggs (b) 800-1200 eggs
(c) 1000-1500 eggs (d) 3000-4000 eggs

39. The abrupt transition from larval to adult form is called:
(a) Polymorphism (b) Metamorphosis
(c) Parthenogenesis (d) Gastrulation

40. Which system of frog undergoes maximum changes during metamorphosis?
(a) Digestive system (b) Circulatory system
(c) Nervous system (d) Respiratory system

41. A gene whose ..... kills the bearer is known as lethal gene.
(a) Determinate variations (b) Indeterminate variations
(c) Genotypic effect (d) Phenotypic effect

42. Albinism in corn is due to:
(a) Different phenotypes (b) Lethal gene
(c) Different genotypes (d) Mutation

43. Which types of chromosomes determine sex?
(a) Sex chromosomes (b) Autosomes
(c) Both (a) and (b) (d) None of these

44. A human egg contains:
(a) 22 autosomes + 2X chromosomes (b) 22 autosomes + 1Y chromosome
(c) 22 autosomes + 1X chromosome (d) 24 autosomes + 4X chromosomes

45. Which is the correct statement?
(a) The X chromosome is much bigger than the Y chromosome (b) The Y chromosome carries very little genetic information
(c) At fertilization, when the 2X chromosomes come together, offspring are female; when X and Y come together, offspring are male (d) All these

46. The sex-linked traits of humans is:
(a) Haemophilia (b) Colour blindness
(c) Sickle cell aneaemia (d) Both (a) and (b)

47. Who coined the term "gene"?
(a) W. Johannsen (b) Gregor Johann Mendel
(c) H.F. Wilkins (d) Rosalind Franklin

48. Who discovered the nature of the coded instructions in genes?
(a) James Watson (b) Francis Crick
(c) Both (a) and (b) (d) Leeuwenhoek

49. Polygenic inheritance is:
(a) Same genotypes may affect a single phenotype (*i.e.*, the visible character) (b) Many different genotypes may affect a single phenotype
(c) An individual can have no more than two alleles at a given locus (d) Separation of alleles located on the same chromosome occurs

50. "Several sets of alleles may produce a cumulative effect on the same character". It is a case of:
(a) Multiple alleles (b) Crossing over
(c) Autosomal linkage (d) Gene interaction

51. *The cell was discovered by:*
(a) Lamarck (b) Lorenz Oken
(c) Robert Hooke (d) Robert Brown

52. *The cell nucleus was discovered by:*
(a) Virchow (b) Robert Brown
(c) Robert Hooke (d) Schwann

53. *The cell theory was formulated by:*
(a) Schleiden and Weismann (b) Pasteur and Schwann
(c) Schleiden and Shan (d) Schleiden and Schwann

54. *In electron microscope the resolution of microscope ranges between* _____.
(a) 2-6 Angstrom (b) 2-4 Angstrom
(c) 3-6 Angstrom (d) 1-4 Angstrom

55. ***Contraction and relaxation are the characteristics of:***
(a) Muscle cells (b) Nerve cells
(c) Gland cells (d) Tendons

56. ***The photosynthetic cells of green plants are also called:***
(a) Meristematic cells (b) Parenchymatous cells
(c) Sclerenchymatous cells (d) Chlorenchymatous cells

57. ***The surplus food is stored in:***
(a) Chlorenchymatous cells (b) Parenchymatous cells
(c) Photosynthetic cells (d) Meristemetic cells

58. ***Growth and development of plant is the function of:***
(a) Meristematic cells (b) Chlorenchymatous cells
(c) Parenchymatous cells (d) Sclerenchymatous cells

59. ***Omnis cellula-e-cellula was hypothesized by:***
(a) Schleiden (b) Rudolph Virchow
(c) Louis Pasteur (d) Lorenz Oken

60. ***The biggest cell in the world is the egg of:***
(a) Ostrich (b) Kiwi
(c) Turtle (d) Elephant

61. ***60-80% of the chemical component of the cell membrane is the:***
(a) Protein (b) Lipid
(c) Carbohydrate (d) Nucleic acid

62. ***The intake of materials by the animal cells by forming vacuoles is called:***
(a) Pinocytosis (b) Endocytosis
(c) Phagocytosis (d) Mitosis

63. ***The primary cell wall is composed of cellulose and some deposition of pectin and:***
(a) Lignin (b) Silica
(c) Hemicellulose (d) Chitin

64. ***Cellulose molecules are arranged in a:***
(a) Random arrangement (b) Peculiar arrangement
(c) Criss-cross arrangement (d) Straight fibres arrangement

65. ***Prokaryotic cell wall lacks:***
(a) Lignin (b) Cellulose
(c) Hemicellulose (d) All of above

66. ***Prokaryotic cell wall is formed of:***
(a) Murein (b) Peptidoglycan
(c) Polysaccharide plus shorter chains of amino acids (d) All of above

67. ***Fungal cell wall is made up of:***
(a) Cutin (b) Pectin
(c) Chitin (d) Cellulose

68. ***All the living content of a eukaryotic cell is called:***
(a) Protoplasm (b) Nucleoplasm
(c) Cytoplasm (d) Cytosol

69. ***Cytoplasm is a site for certain metabolic processes such as:***
(a) Kreb's cycle (b) Glycolysis
(c) Calvin cycle (d) Glyoxylate cycle

70. ***The free floating cell organelles move about in cytoplasm due to cytoplasmic:***
(a) Oceanic movement (b) Streaming movements
(c) Wavy movements (d) To and fro movements

71. ***The rough surfaced endoplasmic reticulum is involved in the synthesis of:***
(a) Lipids (b) Proteins
(c) Carbohydrates (d) Glycolipids

72. ***Detoxification of harmful drugs is the function of:***
(a) RER (b) SER
(c) Both RER and SER (d) Mitochondria

73. ***SER also helps in metabolism of a number of different types of molecules, particularly:***
(a) Carbohydrates (b) Proteins
(c) Lipids (d) None of above

74. ***Palade was the first person to study the:***
(a) Lysosomes (b) Ribosomes
(c) Polysomes (d) Peroxisomes

75. ***Ribosomes are chemically composed of:***
(a) Only protein (b) Ribonucleoprotein
(c) RNA and protein (d) (b) and (c) are correct

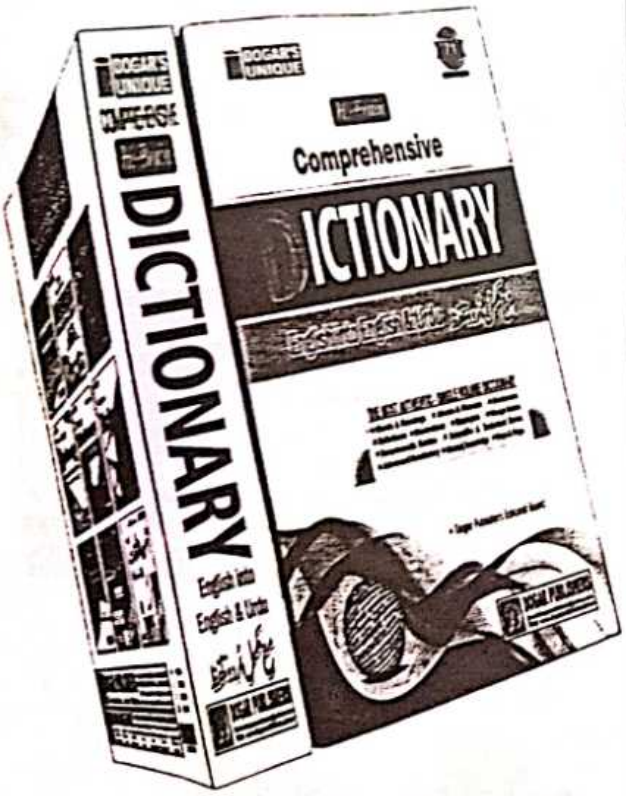
76. *A group of ribosomes attached to mRNA are known as:*
   (a) Centrosome (b) Polysome
   (c) Nucleosome (d) Peroxisome

77. *New ribosomes are assembled in the:*
   (a) Nucleus (b) Cytoplasm
   (c) Nucleolus (d) Endoplasmic reticulum

78. *Golgi apparatus was discovered by Golgi in:*
   (a) 1889 (b) 1896
   (c) 1898 (d) 1888

79. *Which of the following statements about ribosomes is correct?*
   (a) They are chemically composed of DNA and protein.
   (b) They are enclosed in their own membrane.
   (c) They are concentrated in the cisternal space of RER.
   (d) They are attached to the cisternal surface.

80. *Modification of proteins and lipids into glycoproteins and glycolipids occurs in:*
   (a) Golgi apparatus (b) SER
   (c) Chloroplast (d) Mitochondria



Answers

1.	B	2.	C	3.	B	4.	D	5.	A
6.	C	7.	B	8.	B	9.	D	10.	A
11.	D	12.	C	13.	A	14.	D	15.	D
16.	D	17.	D	18.	A	19.	B	20.	A
21.	A	22.	B	23.	D	24.	C	25.	A
26.	C	27.	C	28.	B	29.	A	30.	D
31.	C	32.	B	33.	C	34.	C	35.	A
36.	B	37.	C	38.	D	39.	B	40.	D
41.	D	42.	B	43.	A	44.	C	45.	D
46.	D	47.	A	48.	C	49.	B	50.	D
51.	C	52.	B	53.	D	54.	B	55.	A
56.	D	57.	B	58.	A	59.	B	60.	A
61.	A	62.	C	63.	C	64.	C	65.	D
66.	D	67.	C	68.	A	69.	B	70.	B
71.	B	72.	B	73.	C	74.	B	75.	D
76.	B	77.	C	78.	C	79.	C	80.	A

General Ability Test (20%)

General Knowledge

81. The longest river of Australia is:
(A) Mekong (B) Ob-Irtysh
(C) Oder (D) Darling✓
(E) None of these

82. Which country is called Land of Druk Yul?
(A) New Zealand (B) Nepal✓
(C) Norway (D) Somalia
(E) None of these

Pakistan Studies

83. The Indian Muslims observed 'Day of Deliverance' after the RESIGNATION of Congress Ministries on:
(A) 12 September, 1939
(B) 22 September, 1939
(C) 12 December, 1939
(D) 22 December, 1939✓

84. Chaudhri Rehmat Ali first used the word 'Pakistan' in his pamphlet 'Now or Never' in:
(A) 1933✓ (B) 1935
(C) 1937 (D) 1938

Current Affairs

85. Pakistani Cricketer Yasir Shah has become the fastest bowler to reach 200 wickets in Test Cricket breaking Australi's record set 82 years ago?
(A) Glenn McGrath
(B) Mitchell Starc
(C) Clarrie Grimmett✓
(D) Nathan Lyon

86. According World Bank Report 2018, Trade between Pakistan and South Asia valued at_____ billion?
(A) $ 2 Billion
(B) $ 39.7 Billion
(C) $ 5.1 Billion✓
(D) $ 4 Billion

Islamic Studies

87. 'Zakat' is worked out at the rate:
(A) 2 percent of 7 tola gold or 70 tola silver which remains with an individual for full one year
(B) 2 ½ percent of 7 ½ tola gold or 52 ½ tola silver which remains with an individual for full one year✓
(C) 3 percent of 9 tola gold or 58 tola silver which remains with an individual for full one year
(D) None of these

88. The Holy Prophet (PBUH) made hijrat from Makkah to Madinah in the year:
(A) 610 A.D. (B) 622 A.D.✓
(C) 626 A.D. (D) 632 A.D.

Geography

89. Name the smallest country in Asia:
(a) Maldives ✓ (b) India
(c) China (d) Pakistan

90. "Lake Titicaca" is located in:
(a) Argentina (b) Bolivia
(c) Peru ✓ (d) None of these

Basic Mathematics

91. In one kilometer race, A beats B by 28 meters or 7 seconds. Find out the time taken by A to finish the race.
(A) 4 mins 20 secs
(B) 4 mins 3 secs✓
(C) 3 min 4 secs
(D) 5 mins

92. Imran made a profit of 20 percent in the first year. Next year, he had a loss of 25 percent on the capital he had at the beginning of second year. What was his overall loss?
(A) No loss (B) 12 percent
(C) 10 percent (D) 5 percent✓

English

93. Eminent means:
(A) Hardworking (B) Clever
(C) Famous✓ (D) Ambitious

94. Which word is wrongly spelt in the following set of words?
(A) Gratitude (B) Confusion
(C) Priveous✓ (D) Companion

Everyday Science

95. Pakistan plans to send first Astronaut to space in?
(A) 2020 (B) 2022✓
(C) 2026 (D) 2024

96. Cytology is the:
(A) Study of living cells✓
(B) Study of harmones
(C) Study of seeds
(D) Study of surface tension

Basic Computer Studies

97. What is the largest font size available in the font size tool on formatting toolbar?
(A) 78 (B) 72✓
(C) 75 (D) 68

98. Selecting text means selecting _____.
(A) A word
(B) An entire sentence
(C) Whole document✓
(D) None of these

Urdu

.99 مشہور نظم ''طلوع اسلام'' کے شاعر کون ہیں؟
(A) علامہ اقبال✓ (B) حفیظ جالندھری
(C) مولانا ظفر علی خان (D) الطاف حسین حالی

.100 مندرجہ ذیل الفاظ قواعد کی رو سے کیا ہیں؟
پنکھڑی، پہاڑی، ٹوکری
(A) اسم مفعول (B) اسم ظرف
(C) اسم تصغیر✓ (D) اسم مکبر

SAMPLE MCQ ANSWER SHEET

PUBLIC SERVICE COMMISSION

Name: _____

Father's Name: _____

Post Applied For: _____

C.N.I.C. No: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Exam. Centre: _____

_____ Domicile: _____

INSTRUCTIONS

- Use Black Marker.
- Fill the circle completely
- Make no stray marks.
- Filling or partially filling more than one circle shall be considered a wrong answer.

Example

Right	Wrong
1. Ⓐ Ⓑ ● Ⓓ	1. ● Ⓑ ● Ⓓ
	2. Ⓐ ◐ Ⓒ Ⓓ
	3. Ⓐ Ⓑ ◒ Ⓓ
	4. Ⓐ Ⓑ Ⓒ ●

For Office Use Only

ROLL NUMBER

	-			
①	①	①	①	①
②	②	②	②	②
③	③	③	③	③
④	④	④	④	④
⑤	⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥	⑥
⑦	⑦	⑦		
⑧	⑧	⑧	⑧	
⑨	⑨	⑨	⑨	
⓪	⓪	⓪	⓪	

Mention Paper Code here and fill the relevant circle: ☐

ROLL NUMBER

Paper Code: Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ

1.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	26.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	51.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	76.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	27.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	52.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	77.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	28.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	53.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	78.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	29.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	54.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	79.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
5.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	30.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	55.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	80.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
6.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	31.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	56.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	81.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
7.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	32.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	57.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	82.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	33.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	58.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	83.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
9.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	34.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	59.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	84.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
10.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	35.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	60.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	85.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
11.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	36.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	61.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	86.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
12.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	37.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	62.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	87.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
13.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	38.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	63.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	88.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
14.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	39.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	64.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	89.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
15.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	40.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	65.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	90.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
16.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	41.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	66.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	91.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
17.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	42.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	67.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	92.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
18.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	43.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	68.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	93.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
19.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	44.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	69.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	94.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
20.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	45.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	70.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	95.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
21.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	46.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	71.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	96.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
22.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	47.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	72.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	97.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
23.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	48.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	73.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	98.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
24.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	49.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	74.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	99.	Ⓐ	Ⓑ	Ⓒ	Ⓓ
25.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	50.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	75.	Ⓐ	Ⓑ	Ⓒ	Ⓓ	100.	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Signature of Candidate: _____

Signature of Supervisor: _____

Biology

Post Based Test 80%

INTRODUCTION TO BIOLOGY / MICROBIOLOGY

Multiple Choice Questions (MCQs)

- **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

1. **According to Pasteur which one of the followings is true?**
   (A) Living organisms discriminate between stereoisomers
   (B) Fermentation is a aerobic process
   (C) Living organisms doesn't discriminate between stereoisomers
   (D) Both a and b
2. **"I found floating therin earthly particles, some green streaks, spirally wound serpent-wise, and orderly arranged, the whole circumstance of each of these streaks was about the thickness of a hair on one's head".... These words are of _____.**
   (A) Leeuwenhoek (B) Jenner
   (C) Pasteur (D) Koch
3. **The principle light- trapping pigment molecule in plants, Algae, and cyanobacteria is:**
   (A) Chlorophyll A
   (B) Chlorophyll B
   (C) Porphyrin
   (D) Rhodapsin
4. **During Bio Geo chemical cycle some amount of elemental carbon was utilized by the microorganisms. The phenomenon is called as:**
   (A) Dissimilation
   (B) Immobilization
   (C) Decomposition
   (D) Neutralization
5. **Who demonstrated that open tubes of broth remained free of bacteria when air was free of dust?**
   (A) Abbe Spallanzani
   (B) John Tyndall
   (C) Francisco Redi
   (D) Pasteur
6. **Reverse isolation would be appropriate for:**
   (A) a patient with tuberculosis
   (B) a patient who has had minor surgery
   (C) a patient with glaucoma
   (D) a patient with leukemia
7. **The symptom "general feeling of illness and discomfort" is called:**
   (A) Cystitis
   (B) Malaise
   (C) Anaphylactic shock
   (D) Arthritis
8. **On soybean which of the following forms symbiotism:**
   (A) Azotobacter paspali
   (B) Rhizobium
   (C) Nostoc
   (D) Bradyrhizobium
9. **Who provide the evidence that bacteriophage nucleic acid but not protein enters the host cell during infection?**
   (A) Alfred D.Hershey & Leonard Tatum in 1951
   (B) Alfred D.Hershey & Zindar Lederberg in 1951

(C) Alfred D.Hershey & Martha Chase in 1952
(D) Alfred D.Hershey & Macleod in 1952

10. **Spirulina belongs to _____.**
(A) Xanthophyceae
(B) Cyanophyceae
(C) Rhodophyceae
(D) Pheophyceae

11. **The first antibody to contact invading microorganisms was _____.**
(A) IgG (B) IgM
(C) IgA (D) IgD

12. **The light emitted by luminescent bacteria is mediated by the enzyme _____.**
(A) Coenzyme Q
(B) Luciferase
(C) Lactose dehydrogenase
(D) Carboxylase reductase

13. **Pick out the vector using in human Genome Project _____.**
(A) Phagemid vector
(B) Yeast artificial chromosomes
(C) Cosmid vectors
(D) Yeast episomal plasmids

14. **Salt and sugar preserve foods because they _____.**
(A) Make them acid
(B) Produce a hypotonic environment
(C) Deplete nutrients
(D) Produce a hypertonic environment

15. **In a fluorescent microscope the objective lens is made of:**
(A) Glass (B) Quartz
(C) Polythene (D) None of these

16. **Fixation of atmospheric nitrogen is by means of:**
(A) Biological process
(B) Lightining
(C) Ultraviolet light
(D) All of the above

17. **Which one of the following fungi is the most serious threat in a bone marrow transplant unit?**
(A) Candida albicans
(B) Aspergillus
(C) Blastomyces
(D) Cryptococus

18. **Direct microscopic count can be done with the aid of:**
(A) Neuberg chamber
(B) Anaerobic chamber
(C) Mineral oil
(D) Olive oil

19. **The image obtained in a compound microscope is _____.**
(A) Real
(B) Virtual
(C) Real inverted
(D) Virtual inverted

20. **Enzymes responsible for alcoholic fermentation:**
(A) Ketolase
(B) Zymase
(C) Peroxidase
(D) Oxidase

21. **Which type of spores are produced sexually?**
(A) Conidia
(B) Sporangiospores
(C) Ascospores
(D) None of these

22. **Bacterial transformation was discovered by:**
(A) Ederberg and Tatum
(B) Beadle and Tatum
(C) Griffith
(D) None of these

23. **Father of microbiology is _____.**
(A) Louis Pasteur
(B) Lister
(C) A.V. Leeuwenhock
(D) Robert Koch

24. **The antiseptic method was first demonstrated by _____.**
(A) Lwanowski
(B) Lord Lister
(C) Edward Jenner
(D) Beijerinck

25. **Small pox vaccine was first discovered by _____.**
(A) Robert Koch
(B) Louis Pasteur
(C) Lister
(D) Edward Jenner

26. **The term mutation was coined by _____.**
(A) Pasteur (B)
(C) Hugo Devries (D) Lamark

27. **Compound microscope was discovered by _____.**
(A) Antony von
(B) Pasteur
(C) Johnsen & Hans
(D) None of these

28. **Father of Medical Microbiology is _____.**
(A) Pasteur (B) Jenner
(C) Koch (D) A.L.Hock

29. **Disease that affects many people at different countries is termed as _____.**
(A) Sporadic
(B) Pandemic
(C) Epidemic
(D) Endemic

30. **Prophylaxis of cholera is _____.**
(A) Protected water supply
(B) Environmental sanitation
(C) Immunization with killed vaccines
(D) All of these

31. **In electron microscope, what material is used as an objective lens?**

(A) Magnetic coils
(B) Superfine glass
(C) Aluminium foils
(D) Electrons

32. The main feature of prokaryotic organism is:
(A) Absence of locomotion
(B) Absence of nuclear envelope
(C) Absence of nuclear material
(D) Absence of protein synthesis

33. The stalked particles on the cristae of mitochondria are called _____.
(A) Glyoxysomes
(B) Peroxisomes
(C) Oxysomes
(D) Spherosomes

34. Antiseptic methods were first introduced by _____.
(A) Lord Lister (B) Iwanowski
(C) Beijernick (D) Edward Jenner

35. Kuru disease in Humans is caused by ___.
(A) Bacteria
(B) Viroides
(C) Prions
(D) Mycoplasma

36. A mutation that produces termination codon is _____.
(A) Mis-sense mutation
(B) Neutral mutation
(C) Non-sense mutation
(D) Reverse mutation

37. During conjunction the genetic material will be transferred through:
(A) Cell wall (B) Medium
(C) Pili (D) Capsule

38. Antiseptic surgery was discovered by:
(A) Joseph Lister (B) Ernest Abbe
(C) Pasteur (D) Beijerink

39. Tuberculosis is a/an _____.
(A) Water borne disease
(B) Air borne disease
(C) Food borne disease
(D) Atthropod borne disease

40. Phagocytic phenomenon was discovered by _____.
(A) Louis Pasteur
(B) Alexander Fleming
(C) Metchnikof
(D) Robert Koch

41. Meosomes are also known as:
(A) Mitochondria
(B) Endoplasmic reticulum
(C) Plasmids
(D) Chondroids

42. Hybridoma technique was first discovered by:
(A) Kohler and Milstein
(B) Robert Koch
(C) 'D' Herelle
(D) Land Steiner

43. The minimum number of bacteria required to produce clinical evidence of death in a susceptible animal under standard condition is called _____.
(A) LD50 (B) ID
(C) MLD (D) All of these

44. In Electron Microscope source of electrons is from:
(A) Mercury lamp
(B) Tungsten metal
(C) both a and b
(D) None of these

45. Griffith reported the phenomenon of transformation first in _____.
(A) H. influenza
(B) Bacillus species
(C) Pneumococci
(D) E.coli

46. The resolution power of the compound microscope is _____.
(A) 0.2 micron (B) 0.2 millimeter
(C) 0.2 Angstrom units
(D) 0.2 centimeter

47. The capacity of a given strain of microbial species to produce disease is known as _____.
(A) Pathogen (B) Virulence
(C) Infection (D) None of these

48. Monoclonal antibodies are associated with the name of _____.
(A) Burnet (B) Medwar
(C) Milstein kohler
(D) Owen

49. Lederberg and Tatum described the phenomena of _____.
(A) Conjunction
(B) Transformation
(C) Mutation
(D) Plasmids

50. Hanging drop method for motility study was first introduced by _____.
(A) Robert Koch
(B) Louis Pasteur
(C) Jenner
(D) Leeuwenhock

****

Answers

1.	A	2.	A	3.	A	4.	B	5.	B
6.	A	7.	B	8.	D	9.	C	10.	B
11.	B	12.	C	13.	B	14.	D	15.	C
16.	D	17.	B	18.	A	19.	B	20.	B
21.	C	22.	A	23.	C	24.	B	25.	D
26.	C	27.	C	28.	C	29.	B	30.	B
31.	A	32.	B	33.	B	34.	A	35.	C
36.	C	37.	C	38.	A	39.	B	40.	C
41.	D	42.	A	43.	C	44.	B	45.	C
46.	A	47.	A	48.	B	49.	A	50.	D

INTRODUCTION TO BIOCHEMISTRY

☛ Against each question four answers are given, out of which one is correct. Choose the correct answer.

1. A drug which prevents uric acid synthesis by inhibiting the enzyme xanthine oxidase is:
   (A) Aspirin (B) Allopurinol
   (C) Colchicine (D) Probenecid
2. Which of the following is required for crystallization and storage of the hormone insulin?
   (A) Mn++ (B) Mg++
   (C) Ca++ (D) Zn++
3. Oxidation of which substance in the body yields the most calories:
   (A) Glucose (B) Glycogen
   (C) Protein (D) Lipids
4. Milk is deficient in which vitamins?
   (A) Vitamin C (B) Vitamin A
   (C) Vitamin B2 (D) Vitamin K
5. Milk is deficient of which mineral?
   (A) Phosphorus (B) Sodium
   (C) Iron (D) Potassium
6. Synthesis of prostaglandinsis is inhibited by:
   (A) Aspirin (B) Arsenic
   (C) Fluoride (D) Cyanide
7. HDL is synthesized and secreted from:
   (A) Pancreas (B) Liver
   (C) Kidney (D) Muscle
8. Which are the cholesterol esters that enter cells through the receptor-mediated endocytosis of lipoproteins hydrolyzed?
   (A) Endoplasmin reticulum (B) Lysosomes
   (C) Plasma membrane receptor (D) Mitochondria
9. Which of the following phospholipids is localized to a greater extent in the outer leaflet of the membrane lipid bi-layer?
   (A) Choline phosphoglycerides (B) Ethanolamine phosphoglycerides
   (C) Inositol phosphoglycerides (D) Serine phosphoglycerides
10. All the following processes occur rapidly in the membrane lipid bi-layer except:
   (A) Flexing of fatty acyl chains
   (B) Lateral diffusion of phospholipids
   (C) Transbilayer diffusion of phopholipids
   (D) Rotation of phospholipids around their long axes
11. Which of the following statement is correct about membrane cholesterol?
   (A) The hydroxyl group is located near the centre of the lipid layer
   (B) Most of the cholesterol is in the form of a cholesterol ester
   (C) The steroid nucleus form forms a rigid, planar structure
   (D) The hydrocarbon chain of cholesterol projects into the extracellular fluid
12. Which one is the heaviest particulate component of the cell?
   (A) Nucleus
   (B) Mitochondria
   (C) Cytoplasm
   (D) Golgi apparatus
13. Which one is the largest particulate of the cytoplasm?

(A) Lysosomes (B) Mitochondria
(C) Golgi apparatus (D) Entoplasmic reticulum

14. The degradative processes are categorized under the heading of:
(A) Anabolism (B) Catabolism
(C) Metabolism (D) None of the above

15. The exchange of material takes place:
(A) Only by diffusion (B) Only by active transport
(C) Only by pinocytosis (D) All of these

16. The average pH of Urine is:
(A) 7.0 (B) 6.0
(C) 8.0 (D) 0.0

17. The pH of blood is 7.4 when the ratio between H2CO3 and NaHCO3 is:
(A) 1: 10 (B) 1: 20
(C) 1: 25 (C) 1: 30

18. The phenomenon of osmosis is opposite to that of:
(A) Diffusion (B) Effusion
(C) Affusion (D) Coagulation

19. The surface tension in intestinal lumen between fat droplets and aqueous medium is decreased by:
(A) Bile Salts (B) Bile acids
(C) Con (C) H_2SO_4
(D) Acetic acid

20. Which of the following is located in the mitochondria?
(A) Cytochrome oxidase (B) Succinate dehydrogenase
(C) Dihydrolipoyl dehydrogenase (C) All of these

21. The most active site of protein synthesis is the:
(A) Nucleus (B) Ribosome
(C) Mitochondrion (D) Cell sap

22. The fatty acids can be transported into and out of mitochondria through:
(A) Active transport (B) Facilitated transfer
(C) Non-facilitated transfer (D) None of these

23. Mitochondrial DNA is:
(A) Circular double stranded (B) Circular single stranded
(C) Linear double helix (D) None of these

24. The absorption of intact protein from the gut in the foetal and newborn animals takes place by:
(A) Pinocytosis (B) Passive diffusion
(C) Simple diffusion (D) Active transport

25. The cellular organelles called "suicide bags" are:
(A) Lysosomes (B) Ribosomes
(C) Nucleolus (D) Golgi's bodies

26. From the biological viewpoint, solutions can be grouped into:
(A) Isotonic solution (B) Hypotonic solutions
(C) Hypertonic solution (D) All of these

27. Bulk transport across cell membrane is accomplished by:
(A) Phagocytosis (B) Pinocytosis
(C) Extrusion (D) All of these

28. The ability of the cell membrane to act as a selective barrier depends upon:
(A) The lipid composition of the membrane
(B) The pores which allows small molecules
(C) The special mediated transport systems
(D) All of these

29. Carrier protein can
(A) Transport only one substance
(B) Transport more than one substance

(C) Exchange one substance to another
(D) Perform all of these functions

30. A lipid bi-layer is permeable to:
(A) Urea (B) Fructose
(C) Glucose (D) Potassium

31. The Golgi complex
(A) Synthesizes proteins (B) Produces ATP
(C) Provides a pathway for transporting chemicals (D) Forms glycoproteins

32. The following points about microfilaments are true except:
(A) They form cytoskeleton with microtubules
(B) They provide support and shape
(C) They form intracellular conducting channels
(D) They are involved in muscle cell contraction

33. The following substances are cell inclusions except:
(A) Melanin (B) Glycogen
(C) Lipids (D) Centrosome

34. Fatty acids can be transported into and out of cell membrane by:
(A) Active transport (B) Facilitated transport
(C) Diffusion (D) Osmosis

35. Enzymes catalyzing electron transport are present mainly in the
(A) Ribosomes (B) Endoplasmic reticulum
(C) Lysosomes (D) Inner mitochondrial membrane

36. Mature erythrocytes do not contain:
(A) Glycolytic enzymes (B) HMP shunt enzymes
(C) Pyridine nucleotide (D) ATP

37. In mammalian cells rRNA is produced mainly in the:
(A) Endoplasmic reticulum (B) Ribosome
(C) Nucleolus (D) Nucleus

38. Genetic information of nuclear DNA is transmitted to the site of protein synthesis by:
(A) rRNA (B) mRNA
(C) tRNA (D) Polysomes

39. The power house of the cell is:
(A) Nucleus (B) Cell membrane
(C) Mitochondria (D) Lysosomes

40. The digestive enzymes of cellular compounds are confined to
(A) Lysosomes (B) Ribosomes
(C) Peroxisomes (D) Polysomes

Answers

1.	B	*2.*	D	*3.*	D	*4.*	A	*5.*	C
6.	A	*7.*	B	*8.*	B	*9.*	A	*10.*	C
11.	C	*12.*	A	*13.*	B	*14.*	B	*15.*	D
16.	B	*17.*	B	*18.*	A	*19.*	A	*20.*	D
21.	B	*22.*	B	*23.*	A	*24.*	A	*25.*	A
26.	D	*27.*	D	*28.*	D	*29.*	D	*30.*	A
31.	D	*32.*	C	*33.*	D	*34.*	B	*35.*	D
36.	C	*37.*	C	*38.*	D	*39.*	C	*40.*	A

ORIGIN OF LIFE

- **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. For the origin of life, it was critical:
(a) Carbon (b) Cell
(c) Oxygen (d) Water

Q2. In ancient times, it was believed that maggots arose from:
(a) Damp earth (b) Decaying meat
(c) Putrefied matter (d) Heap of garbage

Q3. Which scientist convinced other scientists that living organisms cannot arise spontaneously from non-living matter?
(a) Louis Pasteur (b) J.B.S. Haldane
(c) Gregor Johann Mendel (d) Charles Darwin

Q4. The reducing atmosphere was conducive to the prebiotic synthesis that led to life's beginnings. Such atmosphere had excess of:
(a) Oxygen (b) Methane
(c) Ammonia (d) Hydrogen

Q5. In the 1930s, Oparin and Haldane proposed a theory when Earth had no free oxygen. This theory is called:
(a) Biotic or biological evolution (b) Non-biotic or biological evolution
(c) Prebiotic or chemical evolution (d) Abiotic or chemical evolution

Q6. In 1953, Miller and Urey did lab experiments to show that under prebiotic atmospheric conditions, organic molecules could be produced. These molecules were:
(a) Amino acids, nucleotides and ATP (b) Proteins, starch and carbohydrates
(c) Nucleic acids, proteins and lipids (d) Glycolipids, glycoproteins and starch

Q7. _____ may have been one of the most important sources of energy for organic synthesis.
(a) Free oxygen, proteins (b) Thunderstorms, volcanic activity
(c) Solar energy, cyanobacteria (d) Chemical reactants, free energy

Q8. According to a hypothesis, life did not originate on the surface of the Earth, but deep beneath the sea in or around:
(a) Dark-sea vents (b) Hydrothermal vents
(c) Biothermal vents (d) Volcanic vents

Q9. Water is the most abundant of all compounds in cells, forming _____ of most living organisms.
(a) 60% to 90% (b) 80% to 90%
(c) 80% to 95% (d) 75% to 95%

Q10. If there would be life on any of the planet, it would be indicated by the:
(a) Presence of H_2O (b) Presence of O_2
(c) Presence of N_2 (d) Presence of O_3

Q11. The second stage in chemical evolution involved the joining of amino acids, nitrogenous bases, and sugars to yield:
(a) Riboflavin and thiamine (b) Proteins and nucleic acids
(c) Amino acids and adenosine triphosphate (ATP) (d) Carbohydrates and lipids

Q12. Synthesis of larger molecules for the origin of life needed:
(a) Normal solutions (b) Dilute solutions
(c) Concentrated solutions (d) Molar solutions

Q13. Which option is true about prebiotic synthesis?
(a) Restricted areas; small amount of reactants; violent weather
(b) Restricted areasl greater amount of reactants; violent weather
(c) Muddy areas; greater amount of oxygen; extreme hot weather
(d) All are true

Q14. It has been suggested as a site for the evolution of biochemical pathways:
(a) Surface of dolomite ($MgCO_3.CaCO_3$)
(b) Surface of cryolite (Na_3AlF_6)
(c) Surface of magnesite ($MgCO_3$)
(d) Surface of iron pyrite (FeS_2)

Q15. Prebiotic molecules might have been concentrated by adsorption on the surface of:
(a) Damp surfaces
(b) Moist rocks
(c) Cyanobacteria
(d) Clay

Q16. In most biological polymerizations, monomers are linked together by the removal of water. This process is known as:
(a) Dehydrogenation
(b) Dehalogenation
(c) Oxidative polymerization
(d) Condensation (dehydration)

Q17. Macromolecules (proteins and nucleic acids) of living systems soon decompose into their constituent monomers in the absence of:
(a) Co-factors and energy supplied by AMP
(b) Enzymes and energy supplied by ATP
(c) Co-enzymes and energy supplied by ADP
(d) Bio-co-factors and energy supplied by ADP

Q18. Dehydration reactions could have occurred without enzymes in primitive Earth conditions by:
(a) Dehalogenation
(b) Cracking
(c) Combustion
(d) Thermal condensation

Q19. Heating a mixture of all 20 amino acids to 180°C produces a good yield of:
(a) Polypeptides
(b) Glycolipids
(c) Starch
(d) Carbohydrates

Q20. The first living organisms were:
(a) Primitive cells
(b) Protocells
(c) Unicellular cells
(d) Simple cells

Q21. To understand the origin of living systems, a troublesome chicken-egg paradox for the scientists was:
(a) Evolution of enzymes without nucleic acids and viceversa
(b) Evolution of proteins and vice-versa
(c) Evolution of nitrogenous bases and vice-versa
(d) Evolution of lipids and vice versa

Q22. In a later stage of evolution, these began to behave as simple genetic systems:
(a) Lipids, proteins and enzymes
(b) Nucleic acids, proteins and enzymes
(c) Nucleic acids (DNA and RNA)
(d) Nucleic acids and proteins

Q23. Startling evidence presented in the 1980s indicates that _____ in some instance has catalytic activity, so it could have been the earliest enzyme.
(a) Polypeptides
(b) ATP
(c) RNA
(d) Glycine

Q24. The earliest self-replicating molecules could have been:
(a) RNA
(b) Valine
(c) Alanine
(d) None of these

Q25. The earliest postulated microorganisms are sometimes called:
(a) Primary algae
(b) Primary fungi
(c) Primary producers
(d) Primary heterotrophs

Q26. Primary heterotrophs were probably anaerobic organisms similar to bacteria of the genus:

(a) Agaricales (b) Escherichia
(c) Clostridium (d) Proteobacteria

Q27. Since no organisms or oxygen gas existed in prebiotic times, organic molecules could accumulate in shaded shallow pools not subjected to ultraviolet solar radiation, forming a:
(a) "Concentrated soup" (b) "Dilute soup"
(c) "Primordial soup" (d) "Dilute solvent"

Q28. Choose the right option:
(a) Water + RNA + Proteins $\xrightarrow{\Delta}$ Microspheres
(b) Water + RNA + Starch $\xrightarrow{\Delta}$ Microspheres
(c) Water + RNA + Glucose $\xrightarrow{\Delta}$ Microspheres
(d) Water + Proteins + Lipids $\xrightarrow{\Delta}$ Microspheres

Q29. As the atmosphere slowly changed from a somewhat reducing to a highly oxidizing one, a new and highly efficient kind of metabolism appeared, which is called:
(a) Aerobic metabolism (b) Enzymatic metabolism
(c) Parabolic metabolism (d) Orthobolic metabolism

Q30. Our atmosphere today is strongly oxidizing. It contains:
(a) 72% N_2, = 3% free oxygen, 10% Ar and 15% Hydrogen
(b) 67% N_2, = 23% free oxygen, 10% Ne and 0.01% CO_2
(c) 78% N_2, = 21% free oxygen, 1% Ar and 0.03% CO_2
(d) 74% N_2, = 2% free oxygen, 18% Ne and 6% CO_2

Q31. Almost all oxygen currently produced comes from:
(a) Algae, fungi and plants (b) Prokaryotic algae, eukaryotic fungi and plants
(c) Bacteria, prokaryotic algae and plants (d) Cyanobacteria, eukaryotic algae and plants

Q32. Reptiles evolved from:
(a) Fishes (b) Placental mammals
(c) Pouched mammals (d) Amphibians

Q33. Reptiles gave rise to:
(a) Fishes (fins) and birds (feathers) (b) Birds (feathers) and mammals (hair)
(c) Amphibians (moist skin) and fishes (fins) (d) Mammals (hair) and birds (feathers)

Q34. Some 5 to 8 million years ago, dryopithecine primates evolved into:
(a) Hominids (humans) (b) Ursus arctos (bear)
(c) Pongids (great apes) (d) Both (a) and (c)

Q35. Which organisms evolved about one billion years ago?
(a) Viruses (b) Unicellular organisms
(c) Multicellular organisms (d) Cyanobacteria and other algae

Q36. The plants that first colonized the land had:
(a) Ample sunlight; rich nutrient soil and a few predators (b) Reducing environment; nitrogen-rich soil and sufficient water
(c) Ample sunlight; rich-nutrient soil and no predators (d) Oxidizing environment; rich-nutrient soil and sufficient water

Q37. Amphibians evolved from:
(a) Crayfishes (b) Lobed fishes
(c) Fighting fishes (d) Hagfishes

Q38. The first organisms originated on Earth was:
(a) Mycoplasma (b) Metaphyta
(c) Protozoa (d) Metazoa

Q39. Prokaryotes obtained nutrients and energy by absorbing organic molecules from the environment and breaking down these molecules:

(a) Aerobically (b) Anaerobically
(c) By absorption (d) By phagocytosis

Q40. From predatory bacteria, these cells were evolved 1.7 billion years ago:
(a) Prokaryotic cells (b) Blue-green algae
(c) Eukaryotic cells (d) Mycoplasma

Q41. Which scientist proposed the "Endosymbiotic hypothesis"?
(a) Zinder and Lederberg (b) Adolf Mayer
(c) August Weismann (d) Lynn Margulis

Q42. Modern humans (homo sapiens) evolved about:
(a) 1,00,000 billion years ago in Asia (b) 1,50,000 years ago in Africa
(c) 2,00,000 million years ago in Africa (d) 5,00,000 million years ago in Asia

Q43. The spark-discharge apparatus to test chemical evolution of life was designed by:
(a) Jacob and Monod (b) Dixon and Jolley
(c) Oparin and Haldane (d) Urey and Miller

Q44. The category of molecules produced by the Miller-Urey experiment was:
(a) Organic monomers (b) Inorganic monomers
(c) Organic polymers (d) Inorganic polymers

Q45. Which compound has very important role in prebiotic evolution?
(a) SO_2 (b) NO
(c) CH_4 (d) SO_3

Q46. Evolution of the DNA → RNA → Protein system was a milestone because the protocell:
(a) Needed energy to grow (b) Could now reproduce
(c) Was a heterotrophic fermented (d) All are correct

Q47. Life originated in the era:
(a) Precambrian (b) Proterozoic
(c) Coenozoic (d) Mesozoic

Q48. According to Chernosynthetic generation theory, the sequence of origin of life may be considered as:
(a) Amino acids, nucleoproteins, chlorophyll (b) Chlorophyll, starch, glycogen
(c) Nucleic acids, amino acids, chlorophyll (d) Chlorophyll, nucleic acids, amino acids

Q49. The oldest fossil cells resemble:
(a) Amoeba (b) Red algae
(c) Heterotrophic bacteria (d) Autotrophic bacteria

Q50. Which of the following planets is supposed to have life?
(a) Mercury (b) Mars
(c) Jupiter (d) Neptune

Answers

1.	D	2.	B	3.	A	4.	D	5.	C
6.	A	7.	B	8.	B	9.	A	10.	A
11.	B	12.	C	13.	B	14.	D	15.	D
16.	D	17.	B	18.	D	19.	A	20.	B
21.	A	22.	C	23.	C	24.	A	25.	D
26.	C	27.	C	28.	D	29.	A	30.	C
31.	D	32.	D	33.	B	34.	D	35.	C
36.	C	37.	B	38.	A	39.	B	40.	C
41.	D	42.	B	43.	D	44.	A	45.	C
46.	B	47.	A	48.	A	49.	C	50.	B

BIOLOGY OF THE CELL

- **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. The study of structure and composition of cell is called:
(A) Taxonomy (B) Cytology
(C) Histology (D) Paleontology

Q2. The term "cell" was coined by an English microscopist:
(A) Altman in 1980 (B) Robert Koch in 1870
(C) Robert Brown in 1743 (D) Robert Hooke in 1665

Q3. Matthias Schleiden (1838) and Theodor Schwann (1839) presented:
(A) Cell theory (B) Organellel theory
(C) Tissue theory (D) All above

Q4. Range of most cells' volume is:
(A) 1 to 1000 μ^{m3} (B) 1 to 1000 mm^3
(C) 1 to 1000 cm^3 (D) None of these

Q5. Animal cells like plant cells have cell membrane, cytoplasm and nucleus except:
(A) Pigments and centrioles (B) Chromoplasts and leucoplasts
(C) Centrioles and centrosome (D) Cell wall and plastids

Q6. All organisms are cellular except:
(A) Cyanobacteria (B) Viruses
(C) Both (a) and (b) (D) Volvox

Q7. Examples of prokaryotes are:
(A) Volvox, virus, blue-green algae (B) Mycoplasma, archaea, cyanobacteria
(C) Virus, bacteria, amoeba (D) All above

Q8. Eukaryotes whose cells contain a true nucleus include:
(A) Metazoa (B) Protozoa
(C) Metaphyta (D) Both (b) and (c)

Q9. In which organism, mitosis or meiosis may occur?
(A) Bacteria (B) Cyanobacteria
(C) Metazoa (D) Mycoplasma

Q10. Read the following statements and identify the correct options given:
I. In prokaryotic cells, nuclear membrane, nucleus, endomembranes, mitochondria, chloroplast and exocytosis and endocytosis are absent.
II. In eukaryotic cells, locomotion is done by single fibril flagellum and multiple chromosomes are present.
III. All eukaryotic cells have peptidoglycan.
(A) I and II are wrong; III is correct (B) I is correct; II and III are wrong
(C) I and II are correct; III is wrong (D) I and III are correct; II is wrong

Q11. The ultrastructure of plasma or cell membrane can be explained by:
(A) Danielli-Davson Model (B) Robertsonian Unit Membrane Concept
(C) Fluid Mosaic Model (D) All above

Q12. The plasma membrane of red blood cells contains approximately:
(A) 56% Glucose, 36% Starch and 8% Lipids (B) 36% Minerals, 25% Amino Acids and 39% Glucose
(C) 24% Glycoprotein, 48% Phospholipids and 28% Starch (D) 52% Protein, 40% Lipids and 8% Carbohydrate

Q13. The different methods of bulk transport across the cell membrane consists of:
(A) Endocytosis and exocytosis (B) Diffusion and Osmosis
(C) Pinocytosis and Phagocytosis (D) Both (a) and (c)

Q14. The transport of ions or molecules against their concentration gradient or electrochemical gradient is called:
(A) Bulk transport (B) Active transport
(C) Passive transport (D) Diffused transport

Q15. A process whereby certain cells and unicellular organisms are capable of ingesting and digesting solid material is called:
(A) Endocytosis (B) Phagocytosis
(C) Pinocytosis (D) Exocytosis

Q16. The functions of endoplasmic reticulum (ER) are:
(A) Synthesis of glycogen, chemical support, exchange of molecules
(B) Storage of lipids, mechanical support, conducting of extracellular impulse
(C) Detoxication, synthesis of protein, exchange of molecules
(D) Conducting intracellular impulse, exchange of ions, protein storage

Q17. The "Powerhouse of cell" is called:
(A) Ribosome (B) Endoplasmic reticulum
(C) Golgi complex (D) Mitochondria

Q18. "Karyology" is the study of:
(A) Mitochondria of cell (B) Cytoplasm of cell
(C) Ribosome of cell (D) Nucleus of cell

Q19. How many cells are estimated to undergo division each second in adult human?
(A) 45 Thousand (B) 12 Lac
(C) 25 Million (D) 28 Billion

Q20. The cell cycle can be divided into two major phases:
(A) Interphase and M-Phase (B) Extraphase and N-Phase
(C) Prephase and Postphase (D) Anaphase and Metaphase

Q21. Which option is true about interphase of cell cycle?
(A) "Invisible Stage"; 2 phases (Amitosis and Mitosis);Shortest period
(B) "Visible Stage"; 4 phases (Prophase, Metaphase, Anaphase and Telophase); Shortest period
(C) "Starting Stage"; 2 phases (Meiosis-I and Meiosis-II); Longest period
(D) "Resting Stage"; 3 phases (G-1, S and G-2); Longest period

Q22. The decision for cell division occurs in:
(A) S-Phase (B) G-2 Phase
(C) G-1 Phase (D) G-0 Phase

Q23. Pick out the correct statements:
I. In mitosis, duplicated chromosomes are separated into two nuclei.
II. A cell is divided into two daughter cells by a process called cytokinesis.
III. Metaphase is the second and longest stage of four phases of mitosis.
IV. Most metabolic activities including transcription and translation are stopped during mitosis.
(A) I and II only (B) I, II and IV only
(C) II and IV only (D) I and III only

Q24. The reversible process of prophase is:
(A) Anaphase (B) Metaphase
(C) Cytokinesis (D) Telophase

Q25. A disease in which the regulation of cell cycle is disrupted is:
(A) SARS (B) Malaria
(C) AIDS (D) Cancer

Q26. A hormone which can induce cell division is:
(A) Cytokinin (B) Colchicine

(C) Diakinesis (D) None of these

Q27. Which option is false about meiosis?

(A) Also called "Reduction Division"; 3 types (Zygotic, Sporic and Gametic)
(B) 2 divisions of nucleus and 1 division of chromosome
(C) The chromosome number doubles and sexual reproduction is possible
(D) Includes 2 successive divisions; Meiosis-I (Hetero typic division) and Meiosis-II (Homotypic division)

Q28. Interkinesis is a short-lived stage between:

(A) Two meiotic divisions (B) Prophase-I and Metaphase-I
(C) Prophase-II and Metaphase-II (D) Two mitotic divisions

Q29. Match list-A and list-B and select the correct answer using the codes:

List-A	List-B
Phase of Meiosis	*Event that occurs*
1. Prophase-I	Formation of spindle fibres
2. Metaphase-I	Arrangement of bivalents forming equatorial plate
3. Anaphase-I	Increase in number of chromosomes

(A) 1 and 3 are incorrect (B) 2 and 3 are correct
(C) 1 and 3 are correct (D) 1 and 2 are correct

Q30. Choose the right option:

(A) $\text{Cell size} \propto \frac{1}{(\text{chromosome number})}$
(B) Cell size $\propto$ (chromosome number)^2
(C) Cell size $\propto$ chromosome number
(D) Cell size $\propto$ (chromosome number)$^{n/2}$

Q31. In plants, cell wall is made up of:

(A) Chitin, protein and galactose
(B) Cellulose, hemicellulose and pectin
(C) Starch, glucose and peptidoglycan
(D) None of these

Q32. A typical cell wall is made up of:

(A) 2 Layers: middle lamella and quaternary wall
(B) 3 Layers: primary wall, secondary wall and tertiary wall
(C) 3 Layers: primary lamella, secondary lamella and tertiary lamella
(D) 4 Layers: middle lamella, primary wall, secondary wall and tertiary wall

Q33. After maceration, it has been found that cell wall consists of:

(A) Fibrils (B) Cellulose
(C) Matrix (D) Both (a) and (c)

Q34. The chemical composition of plasma membrane includes mainly three components:

(A) Salts, starch and glucose
(B) Proteins, lipids and carbohydrates
(C) Minerals, water and sucrose
(D) Lipids, amino acids and water

Q35. The thickness of plasma membrane is generally:

(A) 105 A°
(B) 30 A°
(C) 45 A°
(D) 75 A°

Q36. It provides passage for various substances, into and out of the cell:

(A) Cytoplasm (B) Cell wall
(C) Plasma membrane (D) Protoplasm

Q37. The "non-living reservoir" in a plant cell is called:
(A) Vacuole (B) Cell wall
(C) Plastic (D) Cytoplasm

Q38. Function of vacuole in a plant cell is:
(A) To store water (B) To maintain osmotic relation of cells
(C) To engulf undigested food particles (D) All above

Q39. Life is impossible without:
(A) Cell membrane because it protects the cell (B) Cytoplasm which provides a medium for transportation
(C) Nucleus because it controls the cell functions (D) Protoplasm because it is the living substance of the cell

Q40. The approximate constitution of plant protoplasm is:
(A) 60% H_2O, 15% proteins, 2% DNA and RNA (B) 80% H_2O, 15% carbohydrates, 7% DNA and RNA
(C) 90% H_2O, 20% minerals, 5% DNA and RNA (D) 90% H_2O, 1% fats and minerals, DNA and RNA in traces

Q41. Size of mitochondria varies from:
(A) 3.0 – 5.0 mm in length and 0.2 – 2.0 mm in diameter (B) 3.0 – 5.0 μ in length and 0.2 – 2.0 μ in diameter
(C) 3.0 – 5.0 A° in length and 0.2 – 2.0 A° in diameter (D) 7.0 – 9.0 mm in length and 0.1 – 2.5 mm in diameter

Q42. The inner membrane of mitochondria is folded. These foldings in animal cells are plate-like and called _____. In plants, these foldings are tubular called _____.
(A) Matrices; tubuli (B) Cristae ; microvilli
(C) Tubuli ; microvilli (D) Oxysome; tubules

Q43. The three types of plastids are:
(A) Discoid, reticulate and satellite (B) Chromatophores, chromotids and phaeoplasts
(C) Chloroplasts, leucoplasts and chromoplasts (D) Amyloplasts, proteinoplasts and elaioplasts

Q44. Golgi bodies are present in eukaryotic cells except:
(A) Cell of fungi (B) Mammalian red blood cells
(C) Male gametes of bryophytes and pteridophytes (D) All above

Q45. The main function of Golgi apparatus is:
(A) To synthesize protein and lipids (B) To provide mechanical support
(C) Packaging and storage of materials (D) Translocation of materials by diffusion

Q46. Which statement is true about ribosomes?
(A) These are minute cellular non-membranous particles having an average diameter of 23 nm. (B) These are the powerhouse of cells which provide energy to the cell in the form of ATP.
(C) These are absent in prokaryotic cells and present in eukaryotic cells. (D) These are of two types and each type has a diameter of 150 nm to 250 nm.

Q47. Ribosomes are chemically composed of:
(A) Lipids and proteins (B) Carbohydrates and proteins
(C) Starch and amino acids (D) r-RNA and proteins

Q48. Risobomes are involved in:
(A) Lipid synthesis (B) Protein synthesis
(C) Absorption of amino acids (D) None of these

Q49. All are microbodies except:
(A) Lysosomes and peroxisomes (B) Sphaerosomes and glyoxysomes
(C) Lomasomes (D) Oxysomes

Q50. Centrosome is not present in:
(A) Ferns (B) Red algae
(C) Fungi (D) Gymnosperms

Q51. Centrosome participates in:
(A) Transportation of materials by osmosis (B) Protein synthesis
(C) Absorption of minerals (D) Formation of spindle fibres

Q52. Cilia and flagella are _____ and perform _____.
(A) Contractile organs; translocation (B) Sensory organs; mechanical function
(C) Cellular organs; storage function (D) Cellular projections; extracellular digestion

Q53. Cytoskeleton which is made up of three elements within the cell is associated with:
(A) Cell motility (B) Circulation of cytoplasm
(C) Movement of flagella or cilia (D) Cell stability

Q54. Nucleus contains chromosomes and genes so it is called:
(A) Genetic centre of cell (B) Controlling centre of cell
(C) Mechanical centre of cell (D) Activity centre of cell

Q55. The size of the nucleus is variable, *i.e.*,
(A) 50 – 80 μ (B) 80 – 120 μ
(C) 5 – 30 μ (D) 45 – 92 μ

Q56. Chemically, the nucleus consists of:
(A) Proteins, lipids, DNA, RNA and starch (B) Amino acids, glycogen, starch, DNA and RNA
(C) Cellulose, proteins, DNA and RNA (D) Proteins, phospholipids, DNA and RNA

Q57. Nucleolus and chromatin material are present in:
(A) Nuclear membrane (B) Nucleoplasm
(C) Cytoplasm (D) Chromosomes

Q58. Highest chromosome number in plants is:
(A) 2n = 1448 (B) 2n = 1600
(C) 2n = 1262 (D) 2n = 1356

Q59. The smallest chromosome in size is of:
(A) 0.25 μ observed in fungi and birds (B) 0.45 μ observed in algae and birds
(C) 30 μ observed in some plants like "Trillium" (D) 8 μ observed in all eukaryotic cells

Q60. Depending upon sex and other body characters, the chromosomes in eukaryotes are of two types:
(A) Homosomes and heterosomes (B) Autosomes and idiosomes
(C) Heterosomes and chromosomes (D) None of these

Q61. Choose the most suitable answer:
(A) The size of chromosome can be measured at metaphase during mitosis (B) The shape of chromosome can be determined at anaphase

(C) Structure of chromosome is clearly visible at metaphase (D) All above

Q62. Chromosomes are _____ in nature.
(A) Nucleolipids (B) Nucleoproteins
(C) Non-histones (D) Fibrous

Q63. Diameter of DNA molecule present in chromosome is:
(A) 54 nm (B) 22 nm
(C) 8 nm (D) 2 nm

Q64. Molecular formula of chlorophyll-d is:
(A) $C_{54}H_{70}O_6N_4Mg$ (B) $C_{35}H_{35}O_5N_4Mg$
(C) $C_{55}H_{72}O_5N_4Mg$ (D) $C_{55}H_{70}O_6N_4Mg$

Q65. In "Saccharomyces" (yeast), the type of cell division is:
(A) Amitosis (B) Binary fission
(C) Budding (D) Free cell formation

Q66. As a result of crossing-over in chromosomes, variations are created which have role in the process of "evolution". This is due to:
(A) Budding (B) Mitosis
(C) Meiosis (D) Amitosis

Q67. What is the significance of meiosis?
(A) Reduces the number of chromosomes (B) Responsible for growth
(C) Restores original number of chromosomes (D) Produces genetically identical cells

Q68. Hypothesis regarding the mechanism of enzyme action are:
(A) Lock and Key model (B) Mosaic model
(C) Induced-Fit model (D) Both (a) and (c)

Q69. Enzyme inhibition caused by a product of enzyme-catalysed reaction is:
(A) Competitive inhibition (B) Non-competitive inhibition
(C) Feedback inhibition (D) Metabolic antagonism

Q70. The word "glycolysis" means:
(A) Splitting of glucose (B) Splitting of glycogen
(C) Formation of glucose (D) Absorption of glucose

Answers

1.	B	2.	D	3.	A	4.	A	5.	D
6.	B	7.	B	8.	D	9.	C	10.	B
11.	D	12.	D	13.	D	14.	B	15.	B
16.	C	17.	D	18.	D	19.	C	20.	A
21.	D	22.	C	23.	B	24.	D	25.	D
26.	A	27.	C	28.	A	29.	D	30.	C
31.	B	32.	D	33.	D	34.	B	35.	D
36.	C	37.	A	38.	B	39.	D	40.	D
41.	B	42.	B	43.	C	44.	D	45.	C
46.	A	47.	D	48.	B	49.	D	50.	D
51.	D	52.	B	53.	A	54.	B	55.	C
56.	D	57.	B	58.	C	59.	A	60.	B
61.	D	62.	B	63.	D	64.	A	65.	C
66.	C	67.	C	68.	D	69.	C	70.	A

ANIMAL BIOLOGY (AB)

- **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. Pore -bearing animals are:
(a) *Leucosolenia , Scypha* (b) *Cliona, Obelia*
(c) *Aurelia, Taenia solium* (d) All these

Q2. Who coined the phylum name "Porifera"?
(a) John Ellis (b) Gegenbaur
(c) Robert Edmond Grant (d) Grobben and Gegenbaur

Q3. The study of sponges is called:
(a) Mesozoology (b) Parazoology
(c) Xylology (d) Protistology

Q4. The cavity common to all sponges is ..... lined with flagellated choanocytes or collar cells
(a) Spongocoel (b) Spicules
(c) Scleroblasts (d) Choanocytes

Q5. Sponges have numerous mouthlets called ..... and one exit called .....
(a) Spicule, Spongin (b) Porocyte, Exocyte
(c) Calcoblast, Silicoblast (d) Ostia, Osculum

Q6. Which system helps the sponges in food gathering, respiratory exchange and removal of wastes?
(a) Lymp system (b) Canal system
(c) Respiratory system (d) None of these

Q7. In adult sponges, different types of water transport system (*i.e.* canal system) are:
(a) Asconoid (b) Syconoid
(c) Leuconoid (d) All these

Q8. Which canal system in few sponges is transformed into another canal system from larval stage to adulthood?
(a) Rhagon → Leuconoid (b) Asconoid → Syconoid
(c) Syconoid → Leuconoid (d) Asconoid → Rhagon

Q9. Sponges have skeleton consisting of:
(a) Spicules (b) Spongin fibres
(c) Both (a) and (b) (d) Mesohyl

Q10. Skeleton of sponges is secreted by:
(a) Calcoblasts (b) Silicoblasts
(c) Spongioblasts (d) All these

Q11. No distinct tissues or organs are present in:
(a) Starfish (b) *Spongilla*
(c) *Serpula* (d) *Sepia*

Q12. All are hermaphrodites in:
(a) Phylum Arthropoda (b) Phylum Annelida
(c) Phylum Porifera (d) Phylum Echinodermata

Q13. ..... are internal buds containing archaeocytes, mostly found in freshwater sponges concerned with asexual reproduction.
(a) Gemmules (b) Monoecious
(c) Scleroblast (d) Archaeocytes

Q14. In sponges, sex cells (sperm and ova) arise from undifferentiated:
(a) Choanocytes (b) Archaeocytes
(c) Pinacoderm (d) Choanoderm

Q15. The remarkable power of regeneration is present in:
(a) Solitary sponges (b) Colonial sponges
(c) Freshwater sponges (d) All above

Q16. Classification of sponges is primarily based on:

(a) Habitat (b) Skeleton
(c) Canal system (d) None of these

Q17. Phylum Porifera is divided into:
(a) Two classes: calcispongiae and demospongiae
(b) Two classes: lime sponges and glass sponges
(c) Three classes: calcispongiae, hexactinellida and hyalospongiae
(d) Three classes: calcarea, hyalospongiae and demospongiae

Q18. Another name of the phylum Cnidaria is:
(a) Coelenterata (b) Anthozoa
(c) Scyphozoa (d) None of these

Q19. The body wall in phylum Coelenterata is ..... with these germ layers .....
(a) Riploblastic; exoderm, endoderm and mesoderm
(b) Triploblastic ; ectoderm, endoderm and phyloderm
(c) Polyblastic ; exoderm, ectoderm and mesoderm
(d) Diploblastic ; ectoderm and endoderm

Q20. All aimals belonging to phylum ..... are aquatic
(a) Coelenterata (b) Porifera
(c) Echinodermata (d) All these

Q21. Which member of phylum Coelenterata exhibits polymorphism?
(a) *Hydra* (b) *Obelia*
(c) *Aurelia* (d) *Physalia*

Q22. The most characteristic feature of coelenterates is the presence of:
(a) Statocysts (b) Olfactory pits
(c) Nematocysts (d) Statocysts and nematocysts

Q23. The cells which are mainly concerned with food capture, defence and attachment in coelenterates are:
(a) Nematocysts (b) Ocelli cells
(c) Gastrodermal cells (d) Radial cells

Q24. "Jellyfishes" belong to:
(a) Class Scyphozoa (b) Class Hydrozoa
(c) Class Anthozoa (d) None of these

Q25. In monomorphic forms of phylum Coelenterata, like ....., the polyp reproduces both asexually and sexually, this condition also applies to its class .....
(a) *Obelia* , Scyphozoa (b) Sea wasp, Hydrozoa
(c) *Hydra*, Anthozoa (d) *Hydra*, Scyphozoa

Q26. Stony corals have an ectodermal external skeleton of .....
(a) Silicon (b) Calcium carbonate
(c) Calcium hydroxide (d) Silica

Q27. A coral colony increases in size by ..... along the margin of the colony.
(a) Binary fission of new polyps
(b) Fission new polyps
(c) Budding new polyps
(d) All above options are true which apply according to the habitat of coral colony

Q28. Corals have built a thick stratum of the Earth's crust, they have made coral reefs in the Caribbean Seas and in the Indo-Pacific region from east coast of Africa to the north-eastern coast of ..... Which is known as .....

(a) Brazil, the White Reef (b) Australia, the Great Barrier Reef
(c) Maldives, the Yellow Bear Reef (d) Portugal, the Great Star Reef

Q29. Which coral reef is horseshoe-shaped enclosing a lagoon of water?
(a) Fringing reefs (b) Barrier reefs
(c) Atolls (d) Stony reefs

Q30. Some corals are used as:
(a) Ornaments and Jewellery (b) Food supplements
(c) Building material (d) All these

Q31. Temperature requirements are very precise for Coral reefs as they do not grow at temperatures below ..... and they usually flourish only above .....
(a) 25°C(77°F); 32°C(89.6°F) (b) 18°C(64°F); 22°C(72°F)
(c) 25°C(77°F); 35°C(95°F) (d) 55°C(131°F); 85°C(185°F)

Q32. The rate of growth among living corals is from 5 mm to 20 cm per year, thus a 50m deep reef could be formed in less than .....
(a) 8,000 years (b) 800 years
(c) 80 years (d) 880 years

Q33. The phylum "Platyhelminthes" comprises the:
(a) Roundworms (b) Flatworms
(c) Spindle worms (d) All above

Q34. Body of phylum "Platyhelminthes" consists of:
(a) Ectoderm (b) Endoderm and exoderm
(c) Ectoderm, endoderm and exoderm (d) Ectoderm, mesoderm and endoderm

Q35. In phylum "Platyhelminthes" no body cavity other than digestive tube is present so they are called:
(a) Polyblastic animals (b) Acoelomate
(c) Parasitic worms (d) None of these

Q36. In flatworms, digestive system is incomplete having mouth opening but no:
(a) Eye spot (b) Gut
(c) Anus (d) Symmetry

Q37. Flatworms lack:
(a) Respiratory system (b) Circulatory system
(c) Skeletal system (d) All these

Q38. Which are not parasites among the following flatworms?
(a) *Taenia* and *Echinococcus* (b) *Fasciola* and *Schistosoma*
(c) *Planaria* and *Bipalium* (d) None of these

Q39. *"Fasciola hepatica"* is known as the:
(a) Human blood fluke (b) Sheep liver-fluke
(c) Beef fluke (d) Cattle fluke

Q40. *"Fasciola hepatica"* is a:
(a) Dioecious (b) Hermaphrodite
(c) Monoecious (d) None of these

Q41. The liver of a single sheep may contain more than .....
(a) 5,00,000 eggs (b) 6,00 adult flukes
(c) 200 adult flukes (d) 200 eggs

Q42. Which are the primary and secondary hosts of *"Fasciola hepatica"* ?

(a) Sheep ; Snail (b) Cow ; Man
(c) Sheep ; Man (d) Snail ; Grasshopper

Q43. Which morphological changes occur in the helminthes as a parasitic adaptations?
(a) Flatness of body like a leaf or a ribbon (b) Disappearance of cilia
(c) Absence of sense organs (d) All above

Q44. Most parasites have one or more ..... which act as transmitting agents to new final hosts.
(a) Primary hosts (b) Secondary hosts
(c) Intermediate hosts (d) None of these

Q45. Which statement is true about physiological change in parasites during their parasitic adaptations?
(a) The osmotic pressure of the body fluids of a parasite becomes that of the host (b) Parasites living in blood or tissues have a considerable tolerance to an absence of oxygen
(c) Gut parasites secrete anti-enzymes to neutralize the digestive juices of the host (d) Cestodes stimulate the gut of the host to secrete mucus which forms a protective envelope around the tapeworms

Q46. It may be presumed that the parasite first confines itself to the external surface of the body and is called .....
(a) Ectoparasite (b) Obligatory parasite
(c) Facultative parasite (d) None of these

Q47. The endoparasite:
(a) Lives inside the body of host (b) Lives outside the body of host
(c) Depends entirely for the food on the host (d) Both (a) and (c)

Q48. Parasitism is a:
(a) Secondary mode of host (b) Secondary mode of life
(c) Primary mode of life (d) Recent evolution and arose soon after the differentiation of life began in the world

Q49. Which platyhelminthes are of major economic importance to humans and domesticated animals?
(a) *Dugesia* and *Bipalium* (b) *Fasciola* and *Schistosoma*
(c) *Taenia* and *Echinococcus* (d) Both (b) and (c)

Q50. The phylum "Nemathelminthes" or "Nematoda" comprises the:
(a) Roundworms (b) Flatworms
(c) Flukeworms (d) All these

Q51. Which phylum is pseudocoelomate?
(a) Echinodermata (b) Platyhelminthes
(c) Nematoda (d) None of these

Q52. The most abundant animals on Earth are:
(a) Bugs (b) Roundworms
(c) Flatworms (d) *Planaria*

Q53. Which statement is true?
(a) Good topsoil may contain billions of (b) Good topsoil may contain billions of

nematodes per acre
(c) The effects of nematode infestation on agricultural crops, domestic animals and humans are tremendous
(d) platyhelminthes per acre
(d) Both (a) and (c)

Q54. Which phylum does not have a true coelom body cavity?
(a) Echinodermata (b) Nematoda
(c) Coelenterata (d) None of these

Q55. Which of the following systems are not present in phylum Nematoda?
(a) Nervous and reproductive systems (b) Respiratory and circulatory systems
(c) Digestive and respiratory systems (d) Only nervous system

Q56. The order of parts of digestive system in *Ascaris* is:
(a) Mouth → Pharynx → Intestine → Rectum → Anus (b) Mouth → Pharynx → Intestine → Anus
(c) Mouth → Buccal capsule → Pharynx → Intestine → Rectum→ Anus (d) Mouth → Pharynx → Buccal capsule → Intestine → Rectum → Anus

Q57. Optimum temperature for development of *Ascaris* is:
(a) 32°F (b) 48°F
(c) 74°F (d) 85°F

Q58. Which disease is caused by a nematode?
(a) Diphtheria (b) Leprosy
(c) Smallpox (d) Malaria

Q59. Pinworm of man is found in:
(a) Stomach (b) Oesophagus
(c) Colon and rectum (d) Blood

Q60. Which is a segmented worm?
(a) *Ascaris* (b) *Neries*
(c) *Dugesia* (d) *Taenia*

Q61. The bodies of phylum Annelida are divided into similar regions or segments, externally marked by circular grooves called:
(a) Setae (b) Bristles
(c) Annuli (d) Nephridia

Q62. The brown or clay-colour of earthworm is due to the pigment:
(a) Chromophyrin (b) Porphyrin
(c) Chromophil (d) Porphil

Q63. The number of segments in earthworm is:
(a) 30 - 40 (b) 60 - 80
(c) 100 -120 (d) 140 -180

Q64. Characteristics of "Setae" of earthworm are:
(a) "S"-shaped and yellow in colour. (b) Chitinous and 80-120 per segment
(c) Help in locomotion (d) All these

Q65. One of the oldest use of earthworm is:
(a) As bait for catching fish (b) To make the soil full of minerals
(c) As a medicine for (d) Both (a) and (b)

removing flea on the dog's skin

Q66. As they enrich the soil by nephridial excretion which increases the fertility of soil so they are called as "Friends of Farmers". These are:
(a) Planaria (b) Earthworms
(c) Scorpio (d) None of these

Q67. Suckers of leech are located at:
(a) Anterior and posterior ends of the body (b) Anterior end of the body
(c) Posterior end of the body (d) All over the body

Q68. Leeches do not allow blood clotting of host by an anticoagulant called:
(a) Chromophil (b) Porphil
(c) Hirudin (d) Porphyrin

Q69. The taxon "Ascheminthes" was proposed by:
(a) Grobben (1910) (b) Gegenbaur (1859)
(c) Von Siebold (1845) (d) Burmeister (1938)

Q70. Certain regions in the body of annelids are modified for specialized functions such as feeding, locomotion and reproduction. This specialization of body regions in a metameric animal is termed as:
(a) Metamerism (b) Polymorphism
(c) Tagmatization (d) Modification

Q71. Phylum annelida is classified into:
(a) 3 classes (b) 4 classes
(c) 5 classes (d) 6 classes

Q72. Earthworm belongs to class:
(a) Archiannelida (b) Polychaeta
(c) Oligochaeta (d) Hirudinea

Q73. The phylum "Mollusca" consists of:
(a) Segmented animals (b) Soft-bodied animals
(c) Marine animals (d) Shelled animals

Q74. Phylum Mollusca is the ..... animal phylum in number of species, the first being .....
(a) Fourth largest; Annelida (b) Third largest; Echinodermata
(c) Second largest; Arthropoda (d) Second largest; Echinodermata

Q75. Body cavity of phylum Mollusca is a true coelom which is called:
(a) Schizocoel (b) Enterocoel
(c) Pseudocoel (d) None of these

Q76. How many classes of phylum Mollusca are there?
(a) 5 (b) 7
(c) 9 (d) 11

Q77. Snails and slugs belong to class:
(a) Monoplacophora (b) Aplacophora
(c) Scaphopoda (d) Gastropoda

Q78. Gastropods lack bilateral symmetry unlike other molluscs due to:
(a) Coiling (b) Torsion
(c) Symmetry (d) Both (a) and (b)

Q79. It occurs after coiling of the visceral hump:
(a) Swimming (b) Torsion
(c) Symmetry (d) Both (a) and (c)

Q80. What is the rotation and direction of the visceral hump in Gastropoda?
(a) Counter-clockwise ; 180° (b) Counter-clockwise ; 120°

(c) Clock-wise ; 90° (d) Clock-wise ; 270°

Q81. The harmful molluscs are:
(a) Octopuses and cuttle fishes (b) Snails and limpets
(c) Slugs and shipworms (d) None of these

Q82. Shells of fresh water mussels are used in:
(a) Food industry (b) Pearl button industry
(c) Making jewellery (d) All above

Q83. Shells of oysters are mixed with tar for:
(a) Making furniture (b) Making tunnels
(c) Making roads (d) None of these

Q84. In how many classes is phylum Mollusca divided?
(a) 5 (b) 6
(c) 7 (d) 8

Q85. Bivalva molluscs include:
(a) Clams (b) Mussels and oysters
(c) Scallops (d) All these

Q86. The shape of foot in bivalvia is:
(a) Spindle-shaped (b) Hatchet-shaped
(c) Funnel-shaped (d) Coil-shaped

Q87. Pearl industry was introduced first in 1890 by:
(a) Kokichi Mikimoto in Japan (b) Ian Wilmut in Brazil
(c) Jose Cibelli in Italy (d) Emil von Behring in Australia

Q88. The most specialized molluscs belong to class:
(a) Polyplacophora (b) Aplacophora
(c) Gastropoda (d) Cephalopoda

Q89. Which glands do the squids use for offence and defence?
(a) Jet glands (b) Ink glands
(c) Chemo glands (d) Receptors glands

Q90. Jet propulsion for locomotion is present in:
(a) Cuttle fish (b) Snails
(c) Octopods (d) Both (a) and (c)

Q91. Shipworm *(Teredo)* is a mollusc, so it is not:
(a) Marine (b) Segmented
(c) Without tentacles (d) None of these

Q92. In molluscs, the foot is variously modified for:
(a) Creeping (b) Burrowing
(c) Swimming (d) All these

Q93. ..... is marine cosmopolitan in distribution and is popularly known as "devil fish".
(a) *Sepia* (b) *Octopus*
(c) *Loligo* (d) *Unio*

Q94. The shell of the mollusc, when present, is secreted by:
(a) Siphon (b) Osphradia
(c) Mantle (d) None of these

Q95. A blue-green respiratory pigment "haemocyanin" is found in:
(a) Crustacea (b) Molluscs
(c) Echinodermata (d) Both (a) and (b)

Q96. The metallic ion contained in the blood of mollusca is:
(a) Iron (b) Copper
(c) Nickel (d) Potassium

Q97. Which molluscs are carnivores?

(a) Slugs and and snails (b) Sea mica and tusk shell
(c) Starfish and cuttle fish (d) None of these

Q98. The outstanding success of arthropods is due to the covering of unique:
(a) Chitinous trachea (b) Chitinous amino acids
(c) Chitinous cuticle (d) Fibrous protein

Q99. It is believed that the arthropods formed some time before the ..... (that is, more than about 600 million years ago), because fossils from this time are already clearly pointing in the arthropod direction.
(a) Pre-Cambrian era (b) Cambrian era
(c) Silurian era (d) Palaeozoic era

Q100. The characteristic of phylum Arthropoda is:
(a) Jointed appendages (b) Pseudo coelom
(c) Triploblastic body (d) Both (a) and (c)

Q101. In arthropods, at least one pair of appendages function as:
(a) Jaws (b) Arms
(c) Legs (d) Teeth

Q102. Appendages in arthropods are basically:
(a) Uniramous (b) Biramous
(c) Triramous (d) None of these

Q103. The circulatory system in arthropods is:
(a) Open type (b) Close type
(c) Lymph type (d) Both (b) and (c)

Q104. Which is not found in the body of the arthropods?
(a) Wings (b) Well-developed head
(c) Cilia (d) None of these

Q105. Arthropods have evolved from:
(a) Molluscs (b) Annelids
(c) Echinodermates (d) Platyhelminthes

Q106. Respiration occurs in arthropods:
(a) Through body surface (b) By gills in aquatic forms
(c) Through trachea or book lungs in terrestrial forms (d) All these

Q107. How many sub-phyla of arthropods exist?
(a) 4 (b) 6
(c) 7 (d) 8

Q108. *"Peripatus"* is the most primitive arthropods which belongs to sub-phylum:
(a) Onychophora (b) Trilobitomorpha
(c) Insecta (d) Myriapoda

Q109. Which of the following is an extinct arthropod?
(a) Arachnida (b) *Peripatus*
(c) Trilobites (d) None of these

Q110. Scorpions, spiders, mites and ticks belong to class:
(a) Merostomata (b) Arachnida
(c) Crustacea (d) Myriapoda

Q111. Prawns, lobsters and crabs respire by gills and have respiratory pigment ..... dissolved in .....
(a) Haemoglobin ; plasma (b) Haemoglobin ; amino acid
(c) Haemocyanin ; plasma (d) Haemocyanin ; lipids

Q112. When the respiratory pigment in crustaceans combine with oxygen, it becomes:
(a) Light blue (b) Light orange
(c) Pale yellow (d) Faint green

Q113. The pairs of legs in millipedes are:

(a) 8 to 14 (b) 70 to 100
(c) 700 to 1,000 (d) 10 to 30

Q114. How many pairs of legs per diplosegment are found in millipedes?
(a) 2 (b) 3
(c) 4 (d) 5

Q115. Which part of body is absent in centipedes?
(a) Head (b) Thorax
(c) Trunk (d) None of these

Q116. The number of legs in class Insecta is:
(a) 4 (b) 6
(c) 8 (d) 12

Q117. In class Insecta, the organs of respiration and excretion are:
(a) Tracheae and malpighian tubules (b) Gills and Antennal
(c) Boook gills and glands (d) General body surface and coxal

Q118. Fertilization in arthropods is usually internal and often involves transformation of a larva into an adult. This transformation is called:
(a) Metamorphosis (b) Parthenogenesis
(c) Polymorphosis (d) Orthomorphosis

Q119. Cockroaches are:
(a) Cursorial (running) (b) Nocturnal
(c) Pseudocoel (d) Both (a) and (b)

Q120. The longest segment in the leg of cockroach is:
(a) Coxa (b) Femur
(c) Tibia (d) Tarsus

Q121. A cockroach has two pairs of wings which are:
(a) Meta thoracic and prothoracic (b) Mesothoracic and meta-thoracic
(c) Prothoracic and mesothoracic (d) Prothoracic and post-thoracic

Q122. According to mode of nutrition, cockroach is:
(a) Herbivorous (b) Carnivorous
(c) Insectivorous (d) Omnivorous

Q123. Which organism's heart is neurogenic?
(a) Cockroach (b) Frog
(c) Rabbit (d) Man

Q124. Thigmoreceptor in cockroach which is sensitive to touch is:
(a) Compound eyes (b) Antennae
(c) Anal cerci (d) Maxillary palps

Q125. The stages in the life history of housefly are:
(a) Egg → Larva → Maggot → Adult (b) Egg → Pupa → Larva → Adult
(c) Egg → Maggot → Larva → Adult (d) Egg → Maggot → Pupa → Adult

Q126. Mosquitoes cause the following diseases:
(a) Malaria, Cholera, Typhoid (b) Malaria, Dengue fever, Anthrax
(c) Malaria, Plague, Typhus fever (d) Malaria, Dengue fever, Yellow fever

Q127. Poisonous insects are:
(a) Wasps and silverfishes (b) Honey-bees and

(c) Honey-bees and mosquitoes (d) Butterflies and bedbugs

Q128. Which insects feed on dead bodies and debris of plants and animals?
(a) Termites, Ants (b) Silverfishes, Cockroaches
(c) Honey-bees , Butterflies (d) Both (a) and (b)

Q129. An insect which helps in pollination is:
(a) Ant (b) Honey-bee
(c) Termite (d) Silkworm

Q130. Commercial product "wax" is produced by:
(a) Silk moth (b) Honey-bee
(c) Lac insect (d) None of these

Q131. The means of communication of honey-bees to the other members of the colony is / are:
(a) Colour (b) Dance
(c) Sound (d) Both (b) and (c)

Q132. Rearing of silkworm for commercial production of silk is called:
(a) Apiculture (b) Sericulture
(c) Pisciculture (d) Tissue culture

Q133. "Cantheridine" is a drug which is widely used for the healthy growth of hair. It is obtained from:
(a) Butterfly (b) Lac insect
(c) Cochineal bug (d) Blister beetle

Q134. The larva of butterfly is called:
(a) Maggot (b) Nauplius
(c) Caterpillar (d) Wriggler

Q135. Which one of these is a set of larvae of crustacea?
(a) Grub, Wriggler, Phyllosoma larva (b) Alima larva, Phyllosoma larva, Maggot
(c) Nauplius, Zoea larva, Mysis larva (d) None of these

Q136. "Grub" is the larva of:
(a) Lobster (b) Crab
(c) Beetle (d) Housefly

Q137. Which insect shows no metamorphosis?
(a) Sand fly (b) Silverfish
(c) Grasshopper (d) Fruit fly

Q138. Cockroach, grasshopper, termite and bedbug show:
(a) Complete metamorphosis (b) Incomplete metamorphosis
(c) Gradual metamorphosis (d) No metamorphosis

Q139. Complete metamorphosis is shown by:
(a) Blister beetle (b) Dragonfly
(c) Cockroach and grasshopper (d) Butterfly and honey-bee

Q140. The stored foodstuffs are devastated by:
(a) *Tribolium* and *Tenebrio* (b) *Julus* and *Lucifer*
(c) *Lyeosa* and *astacus* (d) All these

Q141. The physiological process of making a larger cuticle is called:
(a) Molting (b) Metamorphosis
(c) Ecdysis (d) None of these

Q142. In arthropods, the shedding of the cuticle, is called as:
(a) Metamorphosis (b) Molting

(c) Ecdysis (d) Superposition

Q143. Which physiological process in arthropods is hormonally controlled?
(a) Ecdysis (b) Molting
(c) Metamorphosis (d) All these

Q144. Among crustaceans, the feeding habits and adaptations for feeding can shift from one type of feeding to another depending on:
(a) Environment (b) Food availability
(c) Both (a) and (b) (d) Food and water sources

Q145. A complex social life is necessary for perpetuation of the species in the true societies of:
(a) Hymenoptera (honey bees and ants) (b) Lepidoptera and diptera
(c) Isoptera (termites) (d) Both (a) and (c)

Q146. Which society demonstrates polymorphism, or caste differentiation?
(a) Beetles (b) Honey bees and termites
(c) Silk-worms (d) None of these

Q147. The honeybees exhibit a type of dance to communicate the location of food. This is known as:
(a) Waggle dance (b) Tap dance
(c) Round dance and waggle dance (d) Drone dance

Q148. If all water reservoirs (ponds, lakes, etc.) get dry, chances of dissemination of which one of these parasites are minimized?
(a) *Plasmodium* (b) *Ascaris*
(c) *Taenia* (d) *Entamoeba*

Q149. From which stage of silkworm is silk obtained?
(a) Egg (b) Pupa
(c) Adult (d) Larva

Q150. Which one of the following is not correctly matched?
(a) Leaf insect _____ Famous for mimicry (b) Butterfly and moth _____ Complete metamorphosis
(c) Grasshoppers and locusts _____ Phytophagous and gregarious (d) Housefly and mosquito _____ Three winged insects

Q151. Who coined the term "Echinodermata"?
(a) Frey and Leuckart (b) Jacob Klein
(c) De Blainville (d) Von Siebold

Q152. Which set among the following represents the characteristics of echinoderms?
(a) Smooth skin, bilateral symmetry (b) Spiny skin, radial symmetry
(c) Slippery skin, no symmetry (d) Hard skin, bilateral symmetry

Q153. The phylum with no freshwater form is:
(a) Echinodermata (b) Arthropoda
(c) Porifera (d) Chordata

Q154. The nature of exoskeleton in Echinodermata is:
(a) Cartilaginous (b) Silicious
(c) Chitinous (d) Calcareous

Q155. In spite of being heartless, brainless and headless but from the evolutionary point of view, echinoderms have been placed on the top of the invertebrate phyla because of:
(a) Presence of enterocoel (b) Strong nervous system
(c) Regeneration power (d) All above

Q156. In which of the following water vascular system is present?

(a) Porifera only (b) Echinodermata only
(c) Both (a) and (b) (d) Annelida only

Q157. One feature exclusive to Echinoderms is:
(a) Bilateral symmetry (b) Radial symmetry
(c) Water vascular system (d) Reproductive system

Q158. Choose the correct statement:
(a) All annelids have setae (b) All molluscs have external or internal shell
(c) All echinoderms have water vascular system (*i.e.*, ambulacral system). (d) All are correct

Q159. In Echinodermata, tube feet are related with:
(a) Ambulacral system (b) Reproductive system
(c) Respiratory system (d) Both (a) and (c)

Q160. Brachiolaria larva is found in the life history of:
(a) Echinoidea (b) Asteroidea
(c) Holothuroidea (d) Crinoidea

Q161. In which class of Echinodermata, bipinnaria larva is found?
(a) Ophiuroidea (b) Crinoidea
(c) Asteroidea (d) Echinoidea

Q162. The water vascular system is a unique organ system that functions in:
(a) Locomotion (b) Feeding and respiration
(c) Excretion (d) All these

Q163. Which two phyla arose from common ancestor?
(a) Echinoderms and hemichordates (b) Echinoderms and Pogonophores
(c) Hemichordates and pogonophores (d) None of these

Q164. The phylum Echinodermata is divided into:
(a) 2 orders: the Pelmatozoa and the Eleutherozoa (b) 2 classes: the Pelmatozoa and the Eleutherozoa
(c) 2 sub-phyla; the Pelmatozoa and the Eleutherozoa (d) 2 sub-classes: Echinoidea and the Eleutherozoa

Q165. Which Echinoderm has less ability to regenerate?
(a) Brittle star (b) Sea urchin
(c) Starfish (d) None of these

Q166. The ability of starfish to break off a part of its arm is called:
(a) Autogamy (b) Autophagy
(c) Autotomy (d) Autolysis

Q167. Arms are absent in:
(a) Sea urchin (b) Sea cucumber
(c) Both (d) None

Q168. Box-like calcareous test is found in:
(a) Sea lily (b) Sea star
(c) Sand dollar (d) Sea cucumber

Q169. It can regenerate entire alimentary canal:
(a) Whale (b) Sea cucumber
(c) Alligator (d) Cuttle fish

Q170. In Echinoderms, the nervous system is complex and contains:
(a) Central components (b) Peripheral components
(c) Brain (d) Both (a) and (b)

Q171. The vertebrates ..... lampreys, sharks and rays, bony fishes, amphibians, reptiles, birds and mammals ..... are distinguished from the invertebrates by the presence of a:
(a) Highly developed nervous system
(b) Stiff backbone
(c) Close circulatory system
(d) All above

Q172. Zoologists propose that the vertebrates may have evolved from:
(a) Echinoderms via hemichordates
(b) Lower chordates
(c) Annelids
(d) All above

Q173. Which characteristic of hemichordates is similar to chordates?
(a) The pharynx resembles the gills of fishes
(b) Structure of the dorsal nerve cord
(c) Presence of bilateral symmetry
(d) All above

Q174. The common feature which indicates that a lower chordate is the ancestor of the vertebrates is:
(a) The presence of a notochord at some stage of life
(b) The presence of a dorsal nerve chord that forms in the embryo by a folding of the layer of tissue called the ectoderm
(c) The presence at some stage of gill slits in the pharynx
(d) All above

Q175. Which statement is true?
(a) All the lower chordates are marine animals
(b) All the lower chordates are terrestrial animals
(c) Both
(d) None

Q176. Urochordates ("tail-chordates") are commonly called:
(a) Cephalochordates
(b) Hemichordates
(c) Tunicates
(d) Vertebrates

Q177. Cephalochordates have the following characteristics:
(a) Slender and laterally compressed
(b) Translucent animals about 5 to 7 cm in length
(c) Both (a) and (b)
(d) None of these

Q178. Sub-phylum Vertebrata or commonly called Craniata have:
(a) Bony or cartilaginous vertebrae
(b) True jaws
(c) Spiny skin
(d) None of these

Q179. Agnatha and Gnathostomata are two superclasses of:
(a) Protochordates
(b) Invertebrates
(c) Vertebrates
(d) Cephalochordates

Q180. In which group of vertebrates is pancreas absent?
(a) Apoda
(b) Teleost
(c) Cyclostomes
(d) Elasmobranch

Q181. The largest class of vertebrates in number of species is:
(a) Aves
(b) Pisces
(c) Mammalia
(d) Reptilia

Q182. The first evolved vertebrates are:
(a) Fishes
(b) Birds
(c) Amphibians
(d) Reptiles

Q183. In which of the following periods, the fishes originated?
(a) Cambrian
(b) Silurian
(c) Devonian
(d) Ordovician

Q184. An exo- and endoskeleton are found in:
(a) Fishes and reptiles (b) Amphibians and reptiles
(c) Jellyfishes and starfishes (d) None of these

Q185. Which part of body is absent in fish?
(a) Head (b) Heart
(c) Neck (d) Stomach

Q186. A set of true fishes is:
(a) Porcupine fish, Mosquito fish, Guitar fish (b) Jellyfish, Silverfish, Crayfish
(c) Cuttle fish, Devil fish, Starfish (d) Razor fish, Starfish, Pipe fish

Q187. The earliest known vertebrate fossils, until recently, were armoured jawless fishes called:
(a) Protochordates (b) Ostracoderms
(c) Chordates (d) Vertebrates

Q188. Gnathostomes, whether extinct or living, are:
(a) All jawless vertebrates. (b) All marine vertebrates.
(c) All freshwater vertebrates. (d) All jawed vertebrates.

Q189. Ample evidence suggests that through modifications of the first or second of the serially repeated cartilaginous gill arches, these arose:
(a) Fins (b) Jaws
(c) Lungs (d) Scales

Q190. The major innovation (s) in vertebrate evolution is:
(a) Appearance of Jaws (b) Appearance of paired fins
(c) Both (d) None

Q191. It is generally held that the swim-bladder in fishes arose from the:
(a) Primitive gills of ancient fishes (b) Primitive lung of ancient fishes.
(c) Primitive lung of ancient amphibians (d) Primitive lung of ancient reptilians.

Q192. Swim-bladders are present in:
(a) Pelagic bony fishes (b) Tunas
(c) Abyssal fishes (d) Both (a) and (c)

Q193. The swim-bladder lies between the:
(a) Alimentary canal and the gills (b) Alimentary canal and the kidneys
(c) Kidneys and the gills (d) Heart and the kidneys

Q194. Freshwater is an extremely dilute medium with a salt concentration ..... much below that of the blood of freshwater fishes .....
(a) 0.001 to 0.005 M ; 0.2 to 0.3 M (b) 0.002 to 0.005 M ; 0.5 to 0.8 M
(c) 0.5 to 0.8 M ; 0.001 to 0.005 M (d) 0.3 to 0.6 M ; 0.5 to 0.8 M

Q195. Water enters into the body of fish through:
(a) Effusion (b) Diffusion
(c) Osmosis (d) Both (b) and (c)

Q196. Marine bony fishes are:
(a) Hyber-osmotic regulators (b) Hypo-osmotic regulators
(c) Both (d) None

Q197. Which sea salt ions are secreted outward from the bodies of fishes by special salt-secretory cells?
(a) Magnesium and sulfate (b) Sodium and chloride

(c) Potassium and calcium (d) All these

Q198. Marine fishes eliminate salts from their bodies by means of:
(a) Gills (b) Urine
(c) Faeces (d) All these

Q199. In marine fishes, which salt is actively transported outward by the gills?
(a) $MgCl_2$ (b) $CaCl_2$
(c) NaCl (d) $MgSO_4$

Q200. Which sea salt is secreted by the tubular kidney in marine fishes?
(a) KCl (*i.e.*, Monovalent slat) (b) $FeCl_3$ (*i.e.*, Trivalent salt)
(c) $MgSO_4$ (i.e. Divalent slat) (d) All these

Q201. The smallest class of vertebrates in number of species is:
(a) Aves (b) Amphibia
(c) Mammalia (d) Reptalia

Q202. Amphibians originated during:
(a) Devonian period of Palaeozoic era (b) Silurian period
(c) Carboniferous period (d) None of these

Q203. Which parts of body may be present or absent in amphibians?
(a) Trunk (b) Tail
(c) Neck (d) Both (b) and (c)

Q204. Amphibians originated from:
(a) Fishes (b) Turtles
(c) Snakes (d) Lizards

Q205. Which set of animals stand in between the fishes and reptiles?
(a) Salamander, snake and lizard (b) Salamander, snake and slow-worm
(c) Lamprey, lizard and snake (d) Limbless tropical caecilians, toads and newts

Q206. The lowest and earliest tetrapod is:
(a) Lizard (b) Frog
(c) Snake (d) Kiwi

Q207. In frog, excretion is mainly carried out with the help of:
(a) Ostium (b) Oviducts
(c) Kidneys (d) Seminal vesicle

Q208. The blood brings the harmful substances into the kidney through:
(a) Renal arteries (b) Renal portal veins
(c) Bowman's capsule (d) Both (a) and (b)

Q209. Frogs and toads breed, feed and grow only during warm seasons so they are:
(a) Ectothermic (b) Endothermic
(c) Mesothermic (d) Exothermic

Q210. Select the right option about the development of frog:
(a) Unfertilized egg → Blastula → Cleavage → Gastrulation → Embryo → Tadpole
(b) Fertilized egg → Gastrulation → Blastula → Cleavage → Embryo → Tadpole
(c) Fertilized egg → Gastrulation → Cleavage → Blastula → Embryo → Tadpole
(d) Fertilized egg → Cleavage → Blastula → Gastrulation → Embryo → Tadpole

Q211. Leopard frogs usually complete metamorphosis within 3 months, whereas bullfrogs take ..... to complete the process.
(a) 2 or 3 weeks (b) 2 or 3 months
(c) 2 or 3 years (d) 5 or 6 months

Q212. Amphibians living in water compensate for salt loss by actively absorbing salt form the water. For this purpose, they use their:
(a) Mouth (b) Skin
(c) Gills (d) All these

Q213. Which ions are actively transported from the environment in frog?
(a) Na^+, Cl^- (b) Mg^{2+}, Cl^-
(c) K^+, SO_4^{2-} (d) Al^{3+}, PO_4^{3-}

Q214. In frog, kidneys form dilute urine by reabsorbing .....
(a) $MgSO_4$ (b) $MgHCO_3$
(c) NaCl (d) $NaNO_3$

Q215. The first truly terrestrial vertebrate is:
(a) Newt (b) Kingfisher
(c) Turtle (d) Scorpion

Q216. The skin is dry, always covered by a thick, sometimes a very thick, horny coat, without glands. It is:
(a) Whale (b) Salamander
(c) Newt (d) Cobra

Q217. Before the end of the Paleozoic era amniotes had diverged into multiple lineages that gave rise to:
(a) Reptilian groups (b) Birds
(c) Mammals (d) All these

Q218. In which period of Palaeozoic era did reptilians originate?
(a) Devonian period (b) Carboniferous period
(c) Jurassic period (d) None of these

Q219. Common characteristic among fishes, amphibians and reptiles is:
(a) Shelled eggs (b) Scales
(c) Laying of eggs (d) Gills

Q220. "Mesozoic era" is called the:
(a) "Age of stem reptiles" (b) "Age of extinct reptiles"
(c) "Age of dinosaurs" (d) "Age of ruling reptiles"

Q221. The gradual development from amphibian to reptile was completed about:
(a) 50,000 million years ago (b) 18,600 million years ago
(c) 250 million years ago (d) 15 hundred years ago

Q222. The unexplained facts of the history of life on our planet is:
(a) The end of the giant reptiles (b) The evolution of dinosaurs
(c) The beginning of Mesozoic era (d) None of these

Q223. The suggestion to explain the extinction of dinosaurs is:
(a) Over-adaptation to their environment (b) Spread of epidemic disease
(c) Rise in sea level at the end of the Mesozoic era (d) All these

Q224. Reptiles became extinct due to less favourable environment in:
(a) Tertiary period of Mesozoic era (b) Quaternary period of Mesozoic era
(c) Devonian period of Palaeozoic era (d) Both (b) and (c)

Q225. The present-day reptiles have been originated from dinosaurs of .....
(a) Jurassic period (b) Cretaceous period
(c) Both (d) None

Q226. Reptiles have no convenient way to rid themselves of toxic ammonia; instead, they convert it into a nontoxic, almost insoluble compound, ...
(a) Urea (b) Uric acid
(c) Ammonium carbonate (d) Ammonium hydrogen carbonate

Q227. Marine lizards and turtles, like *"Alice in Wonderland's"* Mock Turtle, shed their salt gland secretion as:
(a) Sweat (b) Salty tears
(c) Dilute $MgSO_4$ (d) Concentrated NaCl

Q228. Metanephric kidneys are found in:
(a) Reptiles only (b) Birds only
(c) Mammals only (d) All these

Q229. Urinary bladder is absent in:
(a) Lizards (b) Snakes
(c) Crocodiles (d) Both (b) and (c)

Q230. The excretory system of reptiles consists of:
(a) A pair of kidneys (b) A pair of ureters and a urinary bladder
(c) Both (a) and (b) (d) A pair of kidneys and a urinary bladder

Q231. The poisonous apparatus consists of:
(a) A pair of poison glands and their ducts (b) A pair of fangs
(c) Both (d) None

Q232. Which option is true about fangs?
(a) Two pairs of teeth, poisonous, regenerate (b) Sharply pointed, enlarged maxillary teeth, regenerate
(c) Three types, may be poisonous, cannot regenerate (d) Three types, two pairs of teeth, cannot regenerate.

Q233. The steps that are involved in the mechanism of biting is:
(a) Opening of the mouth → Transference of venom → Closing of mouth (b) Opening of the mouth → Rotation of maxilla → Transference of venom
(c) Opening of the mouth → Rotation of maxilla → closing of mouth (d) Rotation of maxilla → Opening of the mouth → Transference of venom → closing of mouth.

Q234. Which is the characteristic of non-poisonous snake?
(a) Marine, laterally compressed tail (b) Small scales and large shields on the head, unlike krait and coral snake
(c) Terrestrial snake, rounded or cylindrical tail and not compressed (d) The third supra-labial shield touches the nostril and eye

Q235. The Old World lizards are:
(a) Chameleons (b) Iguanas

(c) Basilisks and skinks (d) None of these

Q236. Which gland secretes venom?
(a) Maxillary gland (b) Salivary gland
(c) Parotid gland (d) None of these

Q237. All the special adaptations found in flying birds contribute to two things:
(a) Less power and less weight (b) More power and less weight
(c) Weak and heavy flight muscles (d) Strong keeled sternum and flight muscles

Q238. The characteristics of feathers in birds are:
(a) Heavyweight, toughness and non-flexible (b) Heavyweight, toughness and flexible
(c) Lightweight, toughness and tensile strength (d) None of these

Q239. Which is the national bird of Pakistan?
(a) Peacock (b) Partridge
(c) Pigeon (d) Dove

Q240. Air sacs of birds:
(a) Keep body warm (b) Reduce body weight
(c) Maintain body temperature (d) Helps in blood circulation

Q241. Flight muscles of birds are attached to:
(a) Scapula (b) Coracoid
(c) Clavicle (d) Keel of sternum

Q242. Which must be long and stiff in birds?
(a) Tail (b) Flight feathers
(c) Feet (d) Skeleton

Q243. Birds are closest phylogenetically to:
(a) Tetrapods (b) Theropods
(c) Mammals (d) Amphibians

Q244. Which option is true about birds?
(a) Endothermic (b) Diapsid amniotes that evolved flight in the Jurassic period of the Mesozoic
(c) Both (d) None

Q245. Endothermy stabilizes the internal temperature of:
(a) Birds (b) Mammals
(c) Reptiles (d) Both (a) and (b)

Q246. Which set of animals can remain active in water due to endothermy and exploit habitats denied to ectotherms?
(a) Salamander, Frog, Alligator, Turtle (b) Ostrich, Peacock, Albatross, Kiwi
(c) Armadillo, Kangaroo, Tiger, Whale (d) Both (b) and (c)

Q247. Number of hypotheses of the origin of bird flight is:
(a) Two: "trees down" and "ground up" (b) Two: "wing down" and "drag above"
(c) Two: "lifting up" and "lifting down" (d) Three: "wing down", "drag above" and "lifting"

Q248. Which kind of wings does a hawk have?
(a) Elliptical wings (b) High-speed wings
(c) Dynamic soaring wings (d) High-lift wings

Q249. Most birds migrate ..... in the .....
(a) North, northern winter (b) South, northern winter
(c) North, northern summer (d) South, northern summer

Q250. Which sense do birds use to navigate?
(a) Hearing (b) Sound
(c) Sight (d) Both (b) and (c)

Q251. Which substance has been discovered in the neck musculature of pigeons?
(a) Magnetite, Fe_3O_4 (b) Magnesite $MgCO_3$
(c) Calcite , $CaCO_3$ (d) Cryolite, Na_3AlF_6

Q252. Birds which do not migrate at all and they remain throughout the year in a country are called:
(a) Migratory birds (*e.g.*, Eagles) (b) Nomadic birds (*e.g.*, Sandpipers)
(c) Resident birds (*e.g.*, Bobwhite) (d) Drifting birds (*e.g.*, Gulls)

Q253. What kind of migration occurs in cuckoos, thrushes and warblers?
(a) Erratic migration (b) Seasonal migration
(c) Altitudinal migration (d) Latitudinal migration

Q254. Which set of birds are nocturnal migrants (*i.e.*, prefer to fly at night, to escape their enemies)?
(a) Geese, Ducks, Swans (b) Sparrows, Warblers, Thrushes
(c) Both (d) None

Q255. The forelimbs of birds have transformed into unique and powerful propelling organs which are:
(a) Flight muscles (b) Perching toes
(c) Wings (d) None of these

Q256. The mouth of a bird is drawn out into a horny beak which acts as a pair of forceps used in various other activities such as:
(a) Picking up the things (b) Nest building
(c) Pruning (d) All these

Q257. The short tail of a bird spreads out in a fan-like manner and serves as a:
(a) Modifying wing during flight (b) Rudder during flight
(c) Radar during flight (d) Tuft of long tail feathers

Q258. ..... is as much an unmistakable characteristic of mammals as feathers are of birds.
(a) Brain (b) Epiglottis
(c) Hair (d) Axial skeleton

Q259. All mammals have teeth except:
(a) Monotremes (b) Anteaters
(c) Certain whales (d) All these

Q260. In which era mammals evolved?
(a) Mesozoic era (b) Pre-Devonian period
(c) Devonian period (d) Cretaceous period

Q261. Which specialized functions do the mammalian teeth perform?
(a) Cutting , Seizing (b) Gnawing , Tearing
(c) Grinding , Chewing (d) All these

Q262. Into how many types mammalian dentition are differentiated?
(a) 3 (b) 4
(c) 5 (d) 6

Q263. All are deciduous teeth in mammals except:
(a) Incisors (used for snipping or biting) (b) Canines (used for piercing)
(c) Pre-molars (used for shearing, slicing, crushing, or grinding) (d) Molars (used for shearing, slicing, crushing, or grinding)

Q264. As a rule, the number of teeth does not exceed:
(a) 34 (b) 44
(c) 36 (d) 40

Q265. Which sub-class of mammals has characteristics of both reptiles and mammals?
(a) Prototheria (b) Metatheria
(c) Eutheria (d) None of these

Q266. Which set of animals belongs to the sub-class eutheria?

(a) Opossum, Kangaroo and Tasmanian wolf
(b) Man, rat, elephant, dolphin
(c) Duck bill platypus & Echidna (Spiny anteater)
(d) Both (b) and (c)

Q267. The basic trophic, or feeding categories of mammals are:
(a) Two: herbivorous and carnivorous
(b) Two: herbivorous and ruminants
(c) Three: herbivorous, carnivorous and ruminants
(d) Four: herbivorous, carnivorous, ruminants and insectivorous

Q268. The fist mammal arose:
(a) After the extinction of dinosaurs
(b) Before the origin of dinosaurs
(c) Along with the dinosaurs
(d) From dinosaurs

Q269. Number of species of mammals is:
(a) 35,000
(b) 25,000
(c) 15,000
(d) 5,000

Q270. Which option describes the heart of fishes?
(a) B-shaped ; two compartments
(b) C-shaped ; three compartments
(c) S-shaped ; four compartments
(d) L-shaped ; five compartments

Q271. In various adult vertebrates, the arterial system appears to be different from their .....
(a) Embryonic aortic arches
(b) Embryonic veins
(c) Dorsal capillaries
(d) Internal jugular veins

Q272. Which statement is true?
(a) Externally the metanephric kidney of mammals differs from that of other omniotes
(b) Internally the metanephric kidney of mammals is same with the other amniotes
(c) Internally the metanephric kidney of mammals differs from that of ther amniotes
(d) None of these

Q273. Counter-current theory is a new and recent concept about:
(a) Functioning of nervous system
(b) Dentition
(c) Digestion of food
(d) Urine formation

Q274. According to counter-current theory, the degree of urine concentration depends on the:
(a) Length of loops of Henle
(b) Collecting ducts
(c) Width of Bowman's capsule
(d) Both (a) and (b)

Q275. Brains of early vertebrates had principal divisions:
(a) Prosencephalon (or forebrain)
(b) Mesencephalon (or midbrain)
(c) Both (a) and (b)
(d) Prosencephalon, mesencephalon and rhombencephalon (*i.e.*, hindbrain)

Answers

1.	A	2.	C	3.	B	4.	A	5.	D
6.	B	7.	D	8.	A	9.	C	10.	D

11.	B	12.	C	13.	A	14.	B	15.	D
16.	B	17.	D	18.	A	19.	D	20.	D
21.	D	22.	C	23.	A	24.	A	25.	C
26.	B	27.	C	28.	B	29.	C	30.	A
31.	B	32.	A	33.	B	34.	D	35.	B
36.	C	37.	D	38.	C	39.	B	40.	B
41.	C	42.	A	43.	D	44.	C	45.	C
46.	A	47.	D	48.	B	49.	D	50.	A
51.	C	52.	B	53.	D	54.	B	55.	B
56.	C	57.	D	58.	B	59.	C	60.	B
61.	C	62.	B	63.	C	64.	D	65.	A
66.	B	67.	A	68.	C	69.	A	70.	C
71.	B	72.	C	73.	B	74.	C	75.	A
76.	B	77.	D	78.	D	79.	B	80.	A
81.	C	82.	B	83.	C	84.	C	85.	D
86.	B	87.	A	88.	D	89.	B	90.	D
91.	B	92.	D	93.	B	94.	C	95.	D
96.	B	97.	C	98.	C	99.	B	100.	D
101.	A	102.	B	103.	A	104.	C	105.	B
106.	D	107.	A	108.	A	109.	C	110.	B
111.	C	112.	A	113.	B	114.	A	115.	B
116.	B	117.	A	118.	A	119.	D	120.	C
121.	B	122.	D	123.	A	124.	B	125.	D
126.	D	127.	C	128.	D	129.	B	130.	B
131.	D	132.	B	133.	D	134.	C	135.	C
136.	C	137.	B	138.	C	139.	D	140.	A
141.	A	142.	C	143.	A	144.	C	145.	D
146.	B	147.	C	148.	A	149.	B	150.	D
151.	B	152.	B	153.	A	154.	D	155.	A
156.	B	157.	C	158.	C	159.	A	160.	B
161.	C	162.	D	163.	A	164.	C	165.	B
166.	C	167.	C	168.	C	169.	B	170.	D
171.	B	172.	D	173.	D	174.	D	175.	A
176.	C	177.	C	178.	A	179.	C	180.	C
181.	B	182.	A	183.	D	184.	A	185.	C
186.	A	187.	B	188.	D	189.	B	190.	C
191.	B	192.	D	193.	B	194.	A	195.	C
196.	B	197.	B	198.	D	199.	C	200.	C
201.	B	202.	A	203.	D	204.	A	205.	D
206.	B	207.	C	208.	D	209.	A	210.	D
211.	C	212.	B	213.	A	214.	C	215.	C
216.	D	217.	D	218.	B	219.	C	220.	D
221.	C	222.	A	223.	D	224.	A	225.	C
226.	B	227.	B	228.	D	229.	D	230.	C
231.	C	232.	B	233.	C	234.	B	235.	A
236.	C	237.	B	238.	C	239.	B	240.	B
241.	D	242.	B	243.	B	244.	C	245.	D
246.	D	247.	A	248.	D	249.	B	250.	C
251.	A	252.	C	253.	A	254.	B	255.	C
256.	D	257.	B	258.	C	259.	D	260.	A
261.	D	262.	B	263.	D	264.	B	265.	A
266.	B	267.	D	268.	C	269.	D	270.	C
271.	A	272.	C	273.	D	274.	D	275.	D

ANIMAL BEHAVIOUR

- Against each question four answers are given, out of which one is correct. Choose the correct answer.

Q1. The study of animal behaviour is:
(A) Physiology (B) Ethology
(C) Taxonomy (D) Entomology

Q2. It is a type of instinct found to be same in all members of a species:
(A) Stereotypical Action Process (SAP) (B) Fixed Action Pattern (FAP)
(C) Innate Action Process (IAP) (D) None of these

Q3. Which behaviours do animals develop from interacting with their environment?
(A) Latent behaviour (B) Acquired behaviour
(C) Inherited behaviour (D) All above

Q4. Which biologist gave the concept of "imprinting"?
(A) Konrad Lorenz (B) August Weismann
(C) Harry Harlow (D) Ivan Pavlov

Q5. When an animal turns sideways to the sun to get the maximum amount of sun on its flanks, this is an example of:
(A) Pattern (B) Orientation
(C) Instinct (D) None of these

Q6. The genetic basis of behaviour can be described by:
(A) Natural selection (B) Artificial selection
(C) Hybridization (D) Both (b) and (c)

Q7. The building of a web by a spider is an example of a/an:
(A) Fixed action pattern (B) Releaser
(C) Instinct (D) Learned behaviour

Q8. Animal behaviour is often affected by variations in:
(A) Metabolism (B) Hormone secretion
(C) Respiration (D) Digestion

Q9. Animals communicate by the use of:
(A) Visual signals (B) Acoustic signals
(C) Chemical signals (D) All above

Q10. One of the major mode of adaptation in animals is:
(A) Reflex response (B) Taxis
(C) Display (D) Migration

Q11. The oyster catcher attempts to incubate a large artificial egg chosen over a normal egg. It is an example of:
(A) Conditioned stimulus (B) Vacuum behaviour
(C) Super-normal stimulus (D) All above

Q12. The vacuum behaviour refers to:
(A) Incubation of artificial egg by an oyster catcher (B) Egg-rolling behaviour of the graying goose
(C) Fixed-action patterns in the absence of the appropriate stimulus (D) All above

Q13. Some honey bees are non-hygienic and they will uncap cells of dead pupae, but won't remove them. Their genotype will be:
(A) UuRr (B) Uurr
(C) uuRr (D) uurr

Q14. The experimental animal used by Pavlov for studying conditioned reflex was a:
(A) Dog (B) Rat
(C) Goose (D) Frog

Q15. Which is not a correct statement about "imprinting"?
(A) It is a rapid form of learning. (B) It is not genetically programmed.

(C) It is an acquired behaviour. (D) It is a response to a stimulus.

Q16. Molecules used for chemical communication between individual animals are called:
(A) Pheromones (B) Allomones
(C) Kairomones (D) All above

Q17. Which animal is highly visual?
(A) Dolphin (B) Parrot
(C) Deer (D) Beetle

Q18. A primitive animal with complex behaviour is:
(A) Honey bee (B) Snake
(C) Spiny anteater (D) Opossum

Q19. Long-distance, seasonal migration are most common in:
(A) Insects (B) Reptiles
(C) Birds (D) Fishes

Q20. Charles Darwin's pioneering book, _____ mapped a strategy for behavioural research which is still in use.
(A) "The Expression of the Emotions in Man and Animals" (B) "The Emotional Behaviour of Organisms"
(C) "The Expression of the Behaviour in Organisms" (D) None of these

Q21. An example of altruism and kin selection in nature is the remarkable co-operation and co-ordination among the euscocial insects such as:
(A) Ants (B) Bees
(C) Wasps (D) All above

Q22. Tactile communication occurs in combination with:
(A) Olfactory signals (B) Visual signals
(C) Auditory signals (D) All above

Q23. Innate behaviour is modified by:
(A) Natural selection (B) Genetic factor
(C) Experience of individual (D) All above

Q24. Which one of the following is a light compass response?
(A) Geomagntaxis (B) Hydrotaxis
(C) Mnemotaxis (D) Menotaxis

Q25. The simple four-class taste system (salt, bitter, sour and sweet) is applicable to:
(A) Humans (B) Birds
(C) Mammals (D) All above

Q26. Electric signals are used to communicate messages in:
(A) Insects (B) Flying birds
(C) Fishes (D) Whales

Q27. A common property of many animal signals is known as:
(A) Conditioning (B) Antithesis
(C) Pasteur property (D) None of these

Q28. An increased responsiveness to a stimulus is called:
(A) Habituation (B) Sensitization
(C) Association (D) None of these

Q29. "Communication" is usually treated equivalent to:
(A) Skilled behaviour (B) Social behaviour
(C) Received behaviour (D) Signal behaviour

Answers

1.	B	2.	B	3.	B	4.	A	5.	B
6.	D	7.	A	8.	B	9.	D	10.	A
11.	C	12.	C	13.	C	14.	A	15.	B
16.	D	17.	B	18.	A	19.	C	20.	A
21.	D	22.	D	23.	D	24.	D	25.	A
26.	C	27.	B	28.	B	29.	B		

DIVERSITY OF ANIMALS

☛ **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. Environment that is inhabited by protozoans is:
(a) Soil (b) Decaying organic matter
(c) Fresh and salt water (d) All these

Q2. The spaces between the soil particles are called interstices, and the populations of protozoans exist there are known as:
(a) Interstitial flora (b) Interstitial fauna
(c) Microscopic organisms (d) None of these

Q3. Into how many sub-kingdoms the animal kingdom is generally divided?
(a) 2 (b) 4
(c) 5 (d) 7

Q4. Number of species of sponges are:
(a) About 5,000 (b) More than 10,000
(c) Less than 2 lac (d) About 1,25,000

Q5. Into how many classes is phylum Porifera divided?
(a) Two: calcarea and demospongiae (b) Two: limy sponges and glass sponges
(c) Three: Hexactinellida, hyalospongiae and hydrozoa (d) Three: calcarea, hyalospongiae and demospongiae

Q6. Members of the phylum Porifera are:
(a) All marine (b) All freshwater
(c) Mostly freshwater and few marine (d) Mostly marine and few freshwater

Q7. Phylum Cnidaria includes:
(a) About 2,000 species (b) Over 9,000 species
(c) More than 50,000 species (d) None of these

Q8. Which phylum is aquatic?
(a) Phylum Porifera (b) Phylum Cnidaria
(c) Phylum Echinodermata (d) All these

Q9. The phylum Coelenterata is divided into classes:
(a) Hydrozoa or hydroids (b) Scyphozoa or jellyfishes
(c) Anthozoa or corals and sea anemones (d) All these

Q10. Number of species of phylum Ctenophora, which is a Greek word for "comb-bearers", is:
(a) 32 (b) 80
(c) 112 (d) 145

Q11. As a group, ctenophores occur:
(a) Only in fresh water (b) In land and water
(c) In all the world's oceans (d) In muddy soil

Q12. Free-living platyhelminthes (class Turbellaria) occur in:
(a) Fresh, brackish or salt water (b) Warm sea water
(c) Turbid water (d) Moist places

Q13. Flatworms are:
(a) Mostly parasitic (b) Few free-living
(c) Marine or freshwater (d) All these

Q14. The simplest animals to have primary bilateral symmetry belong to:

(a) Phylum Platyhelminthes (b) Phylum Annelida
(c) Both (d) None

Q15. All worms are:
(a) Marine (b) Parasites
(c) Free-living (d) Triploblastic

Q16. The phylum "Nemathelminthes" or Nematoda comprises about:
(a) 1,000 species (b) 8,000 species
(c) 15,000 species (d) 25,000 species

Q17. The phylum Annelida comprises of species:
(a) Less than 20,000 (b) Over 9,000
(c) Over 50,000 (d) None of these

Q18. Number of classes of phylum Annelida is:
(a) 3 (b) 4
(c) 5 (d) 6

Q19. Which class of phylum Annelida are all marine?
(a) Hirudinea *e.g., Hirudo* (b) Oligochaeta *e.g., Tubifex*
(c) Polychaeta *e.g., Nereis* (d) Archiannelida *e.g., Dinophilus*

Q20. Which phylum is considered the most successful group of animals, found in almost all habitats on the Earth?
(a) Phylum Mollusca (b) Phylum Arthropoda
(c) Phylum Nematoda (d) Phylum Echinodermata

Q21. Which sub-phylum of arthropoda are fossil arthropods?
(a) Onychophora (b) Trilobitomorpha
(c) Both (d) None

Q22. Biggest phylum, according to the number of species, is:
(a) Mollusca (b) Arthropoda
(c) Porifera (d) Protozoa

Q23. Among arthropods, ... are present only in the members of class Insecta.
(a) Legs (b) Compound eyes
(c) Wings (d) Malpighian tubules

Q24. Largest phylum next to Arthropoda in number of species is:
(a) Chordata (b) Mollusca
(c) Helminthes (d) Porifera

Q25. Number of species of phylum Echinodermata is:
(a) 7,000 (living) and 20,000 (extinct) (b) 17,000 (living) and 20,000 (extinct)
(c) 77,000 (living) and 15,000 (extinct) (d) 20,000 (living) and 17,000 (extinct)

Q26. Which phylum has none of freshwater form?
(a) Porifera (b) Echinodermata
(c) Mollusca (d) None of these

Q27. The habitat of phylum Chordata is:
(a) Aquatic (b) Aerial or terrestrial
(c) Aquatic and terrestrial (d) Both (a) and (b)

Q28. Living species belongs to phylum Chordata is:
(a) 15,000 (b) 30,000
(c) 55,000 (d) 92,000

Q29. Phylum Chordata is divided into:
(a) 13 Orders (b) 8 Classes
(c) 7 Super-classes (d) 4 Sub-phyla

Q30. Bony fishes are:
(a) Mostly marine (b) Both marine and

freshwater

(c) Only marine (d) Only freshwater

Q31. The largest class of vertebrates in number of species *i.e.*, 40,000 is:

(a) Pisces (b) Aves
(c) Mammalia (d) Reptilia

Q32. An exoskeleton and endoskeleton are found in:

(a) Flying birds (b) Fishes and reptiles
(c) Fishes and molluscs (d) Molluscs and echinoderms

Q33. With reference to the number of species, which is the smallest class of vertebrates?

(a) Reptilia (b) Aves
(c) Amphibia (d) Mammalia

Q34. First class of terrestrial vertebrates is:

(a) Reptilia (b) Arthropoda
(c) Flightless birds (d) Mammalia

Q35. Dinosaurs were large and heavy extinct reptiles. "Dinosaurs" mean:

(a) "Long-tail toads" (b) "Creeping lizards"
(c) "Strange lizards" (d) "Terrible lizards"

Q36. Select the right option about snakes:

(a) Sea snakes _____ Poisonous (b) Coral snakes _____ Small in size
(c) King cobra _____4 meter long (d) All these

Q37. The approximate number of species of Aves described so far is:

(a) 9,000 (living) (b) 12,000 (living)
(c) 19,000 (Both living & extinct) (d) None of these

Q38. Select the option related to dodo:

(a) Recently extinct bird (b) Mauritius
(c) Extincted during 17th century (d) All these

Q39. Albatross is:

(a) A marine bird (b) Largest flying bird
(c) Found all over the world (d) All these

Q40. Which is the smallest bird found in Cuba?

(a) Wagtail (b) Humming bird (Sunbird)
(c) Arctic tern (d) Cuckoo

Q41. List of scavenger birds is:

(a) Hawks, eagles and crows (b) Flamingoes, parrots and vultures
(c) Owls, pigeons and kites (d) Gooses, sandpipers and woodpeckers

Q42. Young (1958) called the birds as:

(a) "Songs in the air" (b) "Flying colours"
(c) "Masters of the air" (d) Both (b) and (c)

Q43. The title "glorified reptiles" by T.H. Huxley was given to:

(a) Salamanders (b) Snakes
(c) Birds (d) Fishes

Q44. Highly adaptable, ... have conquered all environments, from the depths of the sea to the greatest mountain ranges, and are at home in fresh as well as salt water and in air.

(a) Nematodes (b) Sponges
(c) Molluscus (d) None of these

Q45. The best-known crustaceans are:

(a) Crabs, shrimps, prawns (b) Lobsters, crayfish, woodlice
(c) Sun spiders, scorpions, mites (d) Both (a) and (b)

Q46. Most crustaceans are found:
(a) Near the shore (b) In the open sea among the plankton
(c) On the sea bed at all depths (d) All these

Q47. The most familiar terrestrial crustacean is the:
(a) Water flea (b) Woodlouse
(c) Barnacles (d) None of these

Q48. ..... are even present in woodlice and crabs that lead a terrestrial existence.
(a) Shells (b) Gills
(c) Antennae (d) Jaws

Q49. Which pigment is present in lobster?
(a) Ommatins (reds, browns, blacks) (b) Guanin (white)
(c) Cyanocrystallin (blue) (d) Melanins (dark pigments)

Q50. Luminous insects are:
(a) Glow-worms (*Lampyris*) (b) Fire-flies (*Pyrophorus*)
(c) Ground beetles (*Carabus* and *Calathus*) (d) Both (a) and (b)

Q51. Example of odorous insect is:
(a) Wasps (b) Bees
(c) Shield bugs (d) Ants

Q52. Musical insects are:
(a) Locusts and grasshoppers (b) Dung beetles and shield beetles
(c) Moths and butterflies (d) Ladybirds and weevils

Q53. Living species of sea urchins are:
(a) 200 (b) 300
(c) 800 (d) 900

Q54. Sea urchins, brittle stars and starfishes do not seem to occur deeper than about:
(a) 5,500 fathoms (b) 3,000 fathoms
(c) 1,500 fathoms (d) 48,000 fathoms

Q55. When the temperature falls too low, ... go into ..... hibernation; if it becomes too high, they aestivate.
(a) Aves (b) Reptiles
(c) Amphibians (d) Reindeers

Q56. The poison of toads and salamanders contains alkaloids that have a paralysing effect on:
(a) Heart and thorax muscles (b) Brain and heart muscles
(c) Kidney and stomach muscles (d) Lungs and kidney muscles

Q57. The heart of all reptiles has a single ventricle except:
(a) Tortoise (has 2 ventricles) (b) Crocodile (has 2 ventricles)
(c) Snake (has 2 ventricles) (d) Lizard (has 2 ventricles)

Q58. The brain of a lizard is more developed than a:
(a) Toad (b) Donkey

(c) Tapir (d) Parrot

Q59. Select the right option:

(a) The reptilian skin is wet (b) The reptiles have poorly developed senses of touch and smell

(c) The reptiles grow quickly (d) Both (b) and (c)

Q60. The life-span of various snakes is:

(a) More than 100 years (b) 50 years and upwards

(c) 60 years at the most (d) From 3 to 30 years

Q61. Select the right option about luth or leathery turtle (*Dermochelys coriacea*):

(a) It is biggest of the turtles (b) It is the only turtle whose spine is not fused to its carapace

(c) It is famous for its longevity (d) Both (a) and (b)

Q62. Spontaneous self-fracture of the tail, known as autotomy, is a feature of many saurians *e.g.*:

(a) Geckos and lizards (b) Slow-worms and hatteria

(c) Both (a) and (b) (d) None of these

Q63. These are considered the New World representatives of the Old World Varanidae:

(a) Lizards (b) Iguanas

(c) Salamanders (d) Geckos

Q64. Due to the ability to change colour ..... are masters of camouflage: whether it is to match the background or in response to emotional stress.

(a) Chameleons (b) Lizards

(c) Grass snakes (d) All these

Q65. The best cure for snake-bite is an anti-venom serum, which is derived from:

(a) Deer (b) Monkeys

(c) Horses (d) Rats

Q66. The Ganges gavial is distinguished from all the crocodiles and alligators by the length and narrowness of its:

(a) Snout (b) Teeth

(c) Tail (d) Scales on skin

Q67. The first known bird was:

(a) *Dinornis ingens* (b) *Archaeopteryx*

(c) *Ciconia ciconia* (d) *Creagrus furcatus*

Q68. Into how many orders the class Aves is divided?

(a) 13 (b) 32

(c) 27 (d) 18

Q69. Mammary glands are present in all:

(a) Birds (b) Fishes

(c) Mammals (d) All these

Q70. Which mammal has the highest development of brain?

(a) Red deer (b) Orang-utan

(c) Kangaroo (d) None of these

Q71. ..... is the largest animal in the world living upon the smallest organisms.

(a) Blue whale (b) Elephant

(c) Arabian camel (d) Hippopotamus

Q72. A ..... is a hybrid between male ass (jack) and female horse (mare).

(a) Hinny (b) Mule
(c) Zebra (d) African donkey

Q73. Choose the right statement:
(a) A hinny is a hybrid between male ass (jack) and female horse (mare)
(b) A hinny is a hybrid between male horse (stallion) and female ass
(c) A mule is a hybrid between male horse and female ass
(d) Both (a) and (c)

Q74. Which is the most intelligent ape?
(a) Gorilla (b) Chimpanzee
(c) Baboon (d) Orang-utan

Q75. Cheetah, *Acinonyx jubatus*, is the fastest animal on four legs. Its speed is:
(a) 70 miles per hour (b) 80 miles per hour
(c) 90 miles per hour (d) 120 miles per hour

Answers

1.	D	2.	B	3.	A	4.	A	5.	D
6.	D	7.	B	8.	D	9.	D	10.	B
11.	C	12.	A	13.	D	14.	A	15.	D
16.	C	17.	B	18.	B	19.	D	20.	B
21.	B	22.	B	23.	C	24.	B	25.	A
26.	B	27.	D	28.	C	29.	D	30.	B
31.	A	32.	B	33.	C	34.	A	35.	D
36.	D	37.	A	38.	D	39.	D	40.	B
41.	A	42.	C	43.	C	44.	C	45.	D
46.	D	47.	B	48.	B	49.	C	50.	D
51.	C	52.	A	53.	D	54.	B	55.	C
56.	A	57.	B	58.	A	59.	C	60.	D
61.	D	62.	C	63.	B	64.	A	65.	C
66.	A	67.	B	68.	C	69.	C	70.	B
71.	A	72.	B	73.	B	74.	B	75.	A

PLANT PHYSIOLOGY

☛ **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. The branch dealing with "life activities of plants" and their "functional aspects" is called:
(a) Plant biology (b) Plant physiology
(c) Cytology (d) Cellology

Q2. Father of plant physiology is:
(a) de Vries (b) T.H. Morgan
(c) Barbara McClintock (d) Stephen Hales

Q3. Movement of particles of a matter due to their own kinetic energy is called:
(a) Capillary action (b) Osmosis
(c) Diffusion (d) Turgor pressure

Q4. A hypothetical term which describes the potential ability of a gas, liquid or solid to diffuse from its higher concentration to lower concentration is called:
(a) Diffusion pressure (b) Osmotic pressure
(c) Turgor pressure (d) Wall pressure

Q5. Osmosis in plants is responsible for:
(a) Absorption of water by roots (b) Turgidity of plant organs
(c) Opening and closing of stomata (d) All these

Q6. What occurs when a cell is placed in hypertonic solution?
(a) Exosmosis (b) Diffusion pressure
(c) Endosmosis (d) Deplasmolysis

Q7. The pressure that develops in a cell due to osmotic diffusion of water inside it, is called:
(a) Turgor pressure (T.P) (b) Wall pressure (W.P)
(c) Diffusion pressure (D.P) (d) None of these

Q8. Which is the measure or index of sucking power?
(a) Both turgor pressure and wall pressure (b) Diffusion Pressure (D.P.)
(c) Diffusion Pressure Deficit (D.P.D) (d) Osmotic Pressure (O.P.)

Q9. Due to exosmosis, the protoplasm shrinks and leaves the cell wall and thus cell becomes flaccid, which is called plasmolysed cell so in such a cell:
(a) T.P = 0 (b) D.P.D (S.P.) = O.P
(c) D.P.D = Endosmosis (d) Both (a) and (b)

Q10. Which option shows that the cell has no further capacity to absorb any water?
(a) D.P.D = 0 (b) D.P.D = 1
(c) D.P.D = S.P (d) D.P.D ≠ S.P

Q11. A and B are the two adjacent cells in which osmotic diffusion of water can occur. Cell A has O.P = 16 atm. and T.P = 8 atm. and Cell B has O.P. = 12 atm., T.P. = 2 atm. What is the direction of movement of water?
(a) From cell A to cell B (b) From cell B to cell A
(c) In either direction (d) None of these

Q12. ..... of protoplasm is equal but opposite in sign to D.P.D. (S.P.).
(a) Free energy (G) (b) Water potential (Ψ)
(c) Entropy (S) (d) Osmotic pressure (O.S.)

Q13. Due to which phenomenon; wooden doors in rainy season swell?
(a) Diffusion (b) Osmosis
(c) Imbibition (d) Water potential

Q14. Rate of water absorption decreases below 20 °C because of:

(a) Increased viscosity of H_2O
(b) Poor root growth and low metabolic rate
(c) Decreased permeability of membranes
(d) All these

Q15. The path of ascent of sap is:
(a) Xylem
(b) Phloem
(c) Root
(d) Stem

Q16. Root pressure is absent in:
(a) Conifers
(b) Rapidly transpiring plants
(c) Plants growing in cold soils
(d) All above

Q17. Factor which best explains the rise of water in tall trees is:
(a) Turgor pressure
(b) Cohesion
(c) Diffusion
(d) Osmosis

Q18. Amount of water left in soil after drainage of gravitational water is complete is known as:
(a) Water potential
(b) Field capacity
(c) Diffusion Pressure Deficit (D.P.D)
(d) None of these

Q19. Transpiration is the loss of water in vapour form from living tissue of aerial parts of the plant is a:
(a) Physiological process
(b) Physical process
(c) Chemical process
(d) Biological process

Q20. Stomata are widely distributed in plant kingdom except:
(a) Algae
(b) Fungi
(c) Both
(d) None

Q21. High pH favours:
(a) Stomatal opening
(b) Stomatal closing
(c) Poor photosynthesis
(d) Evaporation

Q22. According to Curtis (1926):
(a) Evaporation is a necessary evil
(b) Transpiration is a necessary evil
(c) Turgor pressure is a necessary evil
(d) Osmosis is a necessary evil

Q23. In some herbaceous plants like garden nasturtium, oats, barley, rice and colocasia etc., "drops of water come out from edges or margins of leaves during night or early morning. Such a loss is called:
(a) Guttation
(b) Anti-transpiration
(c) Transpiration
(d) None of these

Q24. How many mineral elements are present in different plants shown by the analysis of plant ash?
(a) 92
(b) 78
(c) 64
(d) 25

Q25. Functions of leaves are:
(a) Evaporation and transpiration
(b) Respiration and photosynthesis
(c) Photosynthesis and transpiration
(d) All these

Q26. Yellowing and premature fall of the leaves is due to the deficiency of:
(a) K (Potassium)
(b) N (Nitrogen)
(c) Zn (Zinc)
(d) F_e (Iron)

Q27. The correct equation of photosynthesis is:
(a) $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
(b) $6CO_2 + 12H_2O \rightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$

(c) $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO2+H_2O$ (d) $6CO_2 + C_6H_{12}O_6 \rightarrow 18H_2O + 6O_2$

Q28. What percentage of light is used in photosynthesis?

(a) Only 1% (b) 3.5%
(c) 10% (d) 12%

Q29. Which of the following statement is correct about C_4 type of photosynthesis?

(a) C_4 cycle is an independent cycle (b) C_4 cycle is adjunct to Calvin cycle
(c) Both (d) None

Q30. Which pigment is present universally in all green plants?

(a) Chlorophyll-a (b) Chlorophyll-b
(c) Chlorophyll-c (d) Both (a) and (b)

Q31. Respiratory quotient (R.Q.) is:

(a) Volume of CO_2 + Volume of O_2 (b) Volume of CO_2 Volume of O_2
(c) $\frac{\text{Volume of } CO_2}{\text{Volume of } O_2}$ (d) $\frac{\text{Volume of } O_2}{\text{Volume of } CO_2}$

Q32. Krebs' cycle involves the formation of:

(a) Change of pyruvic acid to energy transformation (b) ATP from ADP
(c) Pyruvic acid from glucose (d) Glucose from malic acid

Answers

1.	B	2.	D	3.	C	4.	A	5.	D
6.	A	7.	A	8.	C	9.	D	10.	A
11.	A	12.	B	13.	C	14.	D	15.	A
16.	D	17.	B	18.	B	19.	A	20.	C
21.	A	22.	B	23.	A	24.	A	25.	C
26.	B	27.	B	28.	A	29.	B	30.	A
31.	C	32.	A						

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DIVERSITY OF PLANTS

- **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. Which scientist classified the plants into two sub-kingdoms, *viz.*, cryptogamea and phanerogamea?

(a) Engler (1886) (b) Eichler (1839-87)
(c) A.P. de Candolle (1819) (d) Linnaeus (1758)

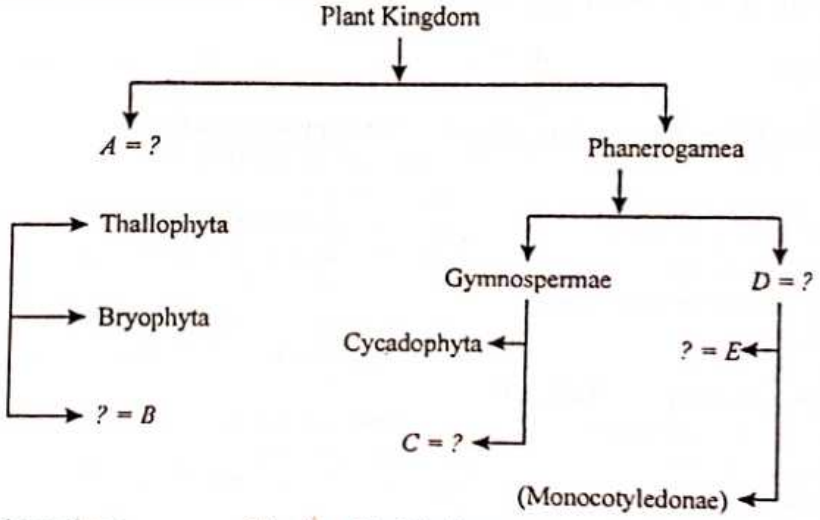
Q2. The sub-kingdom cryptogamea include plants without visible sex organs like:

(a) Algae, fungi, lichens, liverworts (b) Mosses, ferns, fern allies
(c) Gymnosperms, angiosperms (d) Both (a) and (b)

Q3. A.P. de Candolle (1819) classified plant kingdom into groups *viz.*,:

(a) Two: thallophyta and embryophyta (b) Two: vasculare and cellulare
(c) Two: thallophyta and cormophyta (d) Three: thallophyta, bryophyta and pteridophyta.

Q4. Eichler (1839-87) proposed a system of classification of the plant kingdom based on an approach to genetic correlations between different groups. Keeping in mind the genetic correlations, select the right option for MCQs (4) and (5)



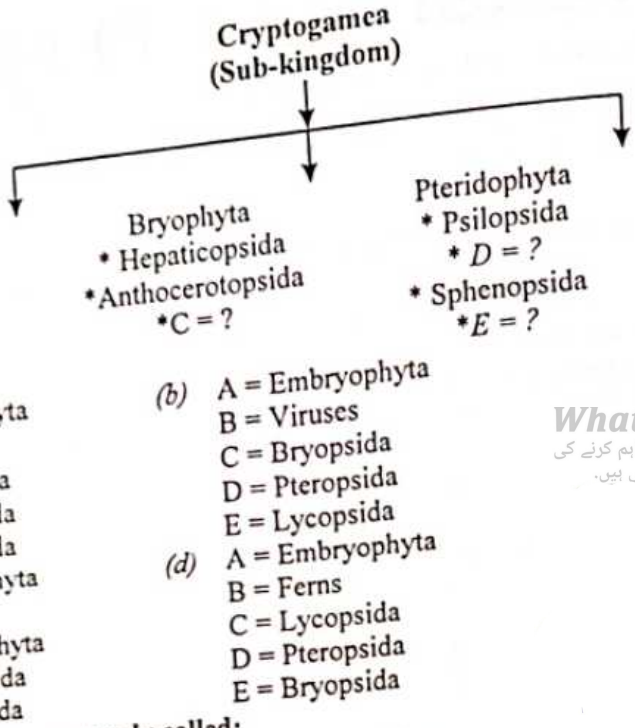
(a) A = Embryophyta
B = Pteridophyta
C = Coniferophyta
D = Angiospermae
E = Dicotyledonae

(b) A = Pteridophyta
B = Coniferophyta
C = Angiospermae
D = Dicotyledonae
E = Cryptogamea

(c) A = Cryptogamea
B = Pteriodophyta
C = Coniferophyta
D = Angiospermae
E = Dicotyledonae

(d) A = Psilopsida
B = Embryophyta
C = Pteropsida
D = Cryptogamea
E =Dicotyledonae

Q5.



(a) A = Thallophyta
B = Bacteria
C = Bryopsida
D = Lycopsida
E = Pteropsida

(b) A = Embryophyta
B = Viruses
C = Bryopsida
D = Pteropsida
E = Lycopsida

(c) A = Thallophyta
B = Mosses
C = Cormophyta
D = Pteropsida
E = Lycopsida

(d) A = Embryophyta
B = Ferns
C = Lycopsida
D = Pteropsida
E = Bryopsida

Q6. Cyanobacteria are commonly called:
(a) Cyanophycean algae
(b) Blue-Green Algae (BGA)
(c) Both
(d) None

Q7. Plant ancestors were most likely aquatic, photosynthetic protists, similar to present-day .....
(a) Bacteria
(b) Algae
(c) Fungi
(d) Bryophytes

Q8. Which of the following is seen as a basic trend in plant evolution?
(a) Gametophyte generation increases in size
(b) Gametophyte generation decreases in size
(c) Sporophyte generation produces gametes
(d) Sporophyte generation decreases in size

Q9. The study of algae is known as:
(a) Phycology
(b) Myxophyceae
(c) Algology
(d) Both (a) and (c)

Q10. Which option is false about algae?
(a) Sex organs are generally multicellular and jacketed
(b) Lack true roots, stems, leaves and complex reproductive structures
(c) Shed gametes directly into the water.
(d) Are coloured by pigments that capture light energy for photosynthesis

Q11. Types of unicellular algae are:
(a) Colonial and non-colonial
(b) Motile and non-motile
(c) Branched and un-branched
(d) Filamentous and non-filamentous

Q12. *Volvox* is an example of:
(a) Unicellular, motile algae
(b) Unicellular, free-floating and filamentous algae

(c) Multicellular, indefinite shape and rhizopodial algae (d) Multicellular, definite arrangement of cells and colonial algae

Q13. Which method of reproduction takes place in algae?
(a) Vegetative reproduction (b) Asexual reproduction
(c) Sexual reproduction (d) All these

Q14. In which algae two gametes of same mother cell fuse to form zygote (*i.e.*, autogamy)?
(a) Diatoms (b) *Chlamydomonas braunii*
(c) *Spirogyra* (d) *Pandorina*

Q15. Which colouring pigments are present in chlorophyta or green algae?
(a) Chlorophyll a and chlorophyll b (b) Chlorophyll a and chlorophyll c
(c) Xanthophylls and carotenes (d) Both (a) and (c)

Q16. Food product of assimilation (reserve food) in green algae is:
(a) Fats and proteins (b) Starch and sugars
(c) Proteins and lipids (d) None of these

Q17. Which set represents examples of chlorophyceae?
(a) *Pinnularia, Melosira, Navicula* (b) *Fucus, Ectocarpus, Laminaria*
(c) *Chlamydomonas, Spirogyra, Volvox* (d) *Oscillatoria, Nostoc, Anabaena*

Q18. Which type of spores are produced in bacillariophyta (*i.e.*, diatoms)?
(a) Auxospores (rejuvenant cells) (b) Zoospores
(c) Exospores (d) Endospores

Q19. Which option describes the structure of bacillariophyta?
(a) Multicellular, non-motile (b) Multicellular, motile, presence of fats or volutine
(c) Unicellular, non-motile, single tinsel terminal flagellum (d) Unicellular, branched, with numerous cilia

Q20. Which are the photosynthetic products or reserve food materials in phaeophyta or brown algae?
(a) Alcohol and fats (b) Polysaccharides
(c) Mannitol and laminarin (d) All these

Q21. In brown algae, all are marine except:
(a) 1 member: *Pleurocladia* (b) 2 members: *Fucus, Dictyota*
(c) 3 members: *Pleurocladia, Bodanelia* and *Heribaudiella* (d) 4 members: *Pleurocladia, Fucus, Dictyota* and *Laminaria*

Q22. The most showy of seaweeds are:
(a) Cyanophyta or blue-green algae (b) Rhodophyta or red algae
(c) Chlorophyta or green algae (d) Phaeophyta or brown algae

Q23. Which pigments make the rhodophyta red?
(a) Red pigment (r-phycoerythrin) (b) Blue pigment (r-phycocyanin)
(c) Carotenes and xanthophylls (d) Both (a) and (b)

Q24. Which option is false about cyanobacteria?

(a) No true nucleus is present (prokaryotic)
(b) Sexual reproduction is present
(c) No flagella at all
(d) The blue-green colour is due to presence of a phycobilin pigment *i.e.*, c-phycocyanin

Q25. Common name of *Spirogyra* (Chlorophyceae) is:
(a) Pond scum
(b) Water silk
(c) Pond silk
(d) All these

Q26. Devil's Aprin is the common name of:
(a) *Postelsia* (Phaeophyceae)
(b) *Laminaria* (Phaeophyceae)
(c) *Sargassum* (Phaeophyceae)
(d) *Chara* (Chlorophyceae)

Q27. Which nutrients are abundant in algae?
(a) Protein, lipids and fats
(b) Starch, minerals and fats
(c) Carbohydrates, inorganic compounds and vitamins (A, C, D, and E)
(d) Proteins, minerals and water

Q28. Which algae are used as fodder for marine as well as domestic animals?
(a) *Chlorella* and *Porphyra*
(b) *Sargassum* and *macrocystis*
(c) *Gelidium* and *Gigartima*
(d) None of these

Q29. Since *chlorella* and *synecoccus* grow very quickly so these algae are taken for space travels because these algae are helpful:
(a) To get rid of CO_2
(b) To obtain source of O_2
(c) To get food
(d) All these

Q30. Which algae deplete the O_2 of water and hence animals like fish are killed?
(a) *Microcystis* and *Oscillatoria*
(b) *Valonia* and *Acetabularia*
(c) *Chlamydomonas* and *Chara*
(d) Both (b) and (c)

Q31. All options are true about fungi except:
(a) Largest sub-group of thallophyta, eukaryotic organisms, decomposers
(b) Achlorophyllous, spore-bearing, non-vascular
(c) Presence of chlorophyll, starch or oil globules are reserve food, found in light conditions
(d) Moisture-loving, heterotrophic, may be parasitic or saprophytic

Q32. In ascomycetes (*i.e.*, sac fungi), ascospores are produced in small, thin-walled saclike units called:
(a) Cilia (Singular : cillium)
(b) Asci (Singular: ascus)
(c) Flascs
(d) None of these

Q33. In sac fungi, asexual reproduction occurs by ..... exogenously produced spores, called ..... on conidiophores.
(a) Motile ; conidia
(b) Non-motile; conidia
(c) Vascular; basidium
(d) Non-vascular; basidium

Q34. ..... is characteristic reproduction organ of basidiomycetes (club fungi) where both ..... occur.
(a) Conidium; karyogamy and plasmogamy
(b) Conidium; plasmogamy and mitosis
(c) Basidium; karyogamy
(d) Basidium; karyogamy

and mitosis and meiosis

Q35. Which is the common name of *hydnum?*
(a) Hedgehog fungi (b) Oyster mushroom
(c) Puff ball (d) Honey mushroom

Q36. Which antibiotic was obtained from *"Penicillium notatum"* by Sir Alexander Fleming?
(a) Penicillin (b) Clavicin
(c) Ephedrine (d) Glyotoxin

Q37. Which fungi has the property of fermentation?
(a) *Agaricus bisporus* (b) *A. campestris*
(c) Yeast *(Saccharomyces)* (d) *Volvaria*

Q38. Which fungi cause soil fertility?
(a) Symbiotic fungi (b) Saprophytic fungi
(c) Heterotrophic fungi (d) All these

Q39. *Alternaria solani* causes disease of:
(a) Apple scab (b) Damping of seedlings
(c) Late blight of potato (d) Early blight of potato

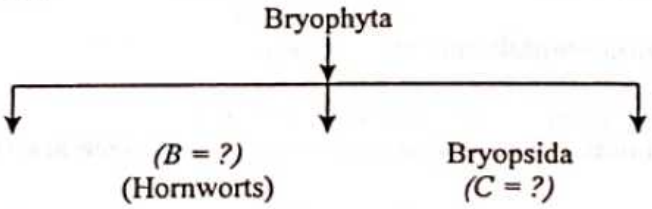
Q40. Bordeuax mixture used extensively for the treatment of plant diseases was discovered by:
(a) J.H. Millardet (b) Louis Pasteur
(c) Schwendiner (d) Leeuwenhoek

Q41. With few exceptions, the fungal plant body is composed of:
(a) Chitin (b) Hyphae
(c) Mycorrhizae (d) Cellulose

Q42. Which group of plants is known as "amphibians of plant kingdom"?
(a) Bryophytes (b) Pteridophytes
(c) Gymnosperms (d) Angiosperms

Q43. Which option is true about bryophytes?
(a) Non-vascular plants lacking true roots, stems and leaves (b) Rhizoids are anchoring structures
(c) The leafy gametophyte plant is larger than the leafless sporophyte (d) All these

Q44. Select the right option:



(a) A = Liverworts
B = Musci
C = Mosses
(b) A = Mosses
B = Musci
C = Liverworts
(c) A = Mosses
B = Anthocerotopsida
C = Liverworts
(d) A = Liverworts
B = Anthocerotopsida
C = Mosses

Q45. Which class of bryophytes prevent soil erosion by forming carpet vegetation, which bind soil particles?

(a) Liverworts (b) Hornworts
(c) Mosses (d) All these

Q46. Which example of bryophytes have antiseptic properties, so they are used as bandages on wounds?
(a) *Funaria* (b) *Sphagnum*
(c) *Polytrichum* (d) Both (a) and (b)

Q47. Funaria reproduces by:
(a) Vegetative methods (b) Sexual methods
(c) Vegetative and asexual methods (d) Vegetative and sexual methods

Q48. Which of the following statement is not true for bryophytes?
(a) They undergo meiosis to produce sporophyte (b) They lack tracheids and sieve tubes
(c) They are photosynthetic (d) Their spore germinates to produce gametophyte

Q49. Female reproductive part of bryophytes is:
(a) Antheridium (b) Oogonium
(c) Archegonium (d) Sporangium

Q50. Bryophytes have probably evolved from:
(a) Red algae (b) Brown algae
(c) Green algae (d) Blue-green algae

Q51. Pteridophytes are also known as:
(a) Lower cryptogams (b) Vascular cryptogams
(c) Botanical snakes (d) Both (b) and (c)

Q52. List related to the characteristic features of pteridophytes is:
(a) Sporophyte (2n), adventitious roots, herbaceous or woody stem, absence of seed development (b) Gametophyte (n), absence of xylem and phloem, presence of seed development
(c) Gametophyte (n), presence of xylem and phloem, absence of seed development (d) Sporophyte (2n), presence of seed development, absence of vascular tissues

Q53. _____ evolved after amphibians (bryophytes).
(a) Aves (ferns) (b) Reptiles (liverworts)
(c) Reptiles (pteridophyte) (d) Molluscs (mosses)

Q54. Most primitive and oldest known land inhabiting plants which are rootless among pteridophytes are:
(a) Pterophyta (b) Sphenophyta
(c) Lycophyta (d) Psilophyta

Q55. Characteristics of lycophyta are:
(a) "Club mosses", microphyllous (*i.e.*, small, thin leaves), homosporous (*e.g.*, *Lycopodium*) or heterosporous (*e.g.*, *Selaginella*) (b) Arrangement of leaves in whorls, rough in touch, always homosporous (*e.g.*, *Equisetum*)
(c) Megaphyllous (large leaves), smooth in touch, heterosporous (*e.g.*, (d) None of these

Marsillea)

Q56. Examples of pterophyta are:
(a) *Dryopteris, Adiantum* and *Pteris*
(b) *Sphenophyllum* and *equisetum*
(c) *Psilotum* and *Tmesipteris*
(d) *Rhynia* and *Horneophyton*

Q57. Term "Alternation of Generation" in mosses and ferns was first used by:
(a) Schwendiner
(b) Hofmeister
(c) Goebel
(d) Hugo de Vries

Q58. The gametophytic and sporophytic generations are featured in the life histories of:
(a) Brown algae
(b) Parasitic fungi
(c) Ferns
(d) Both (b) and (c)

Q59. Coal is formed by:
(a) Bacteria
(b) Algae
(c) Pteridophytes
(d) Bryophytes

Q60. Heterospory in *Selaginella* is necessary for:
(a) Seed formation
(b) Vegetative reproduction
(c) Loss of water
(d) None of these

Q61. Goebel (1887) defined gymnosperms as:
(a) "Phanerogams without seed"
(b) "Phanerogams with seed"
(c) "Phanerogams without ovary"
(d) "Phanerogams with ovary"

Q62. Select the right option about the characters of gymnosperms:
(a) Tertiary growth, absence of annual rings, smallest tree
(b) Connecting link [between gymnosperms and angiosperms], Xylem [xylem parenchyma, tracheids with bordered pits and absence of vessels]
(c) Leaves [spirally arranged, simple or compound], Phloem [sieve cells and phloem parenchyma, absence of companion cells].
(d) Both (b) and (c)

Q63. The most primitive seed plants are:
(a) Bryophytes
(b) Pteridophytes
(c) Gymnosperms
(d) Angiosperms

Q64. Which is the age of "higher gymnosperms"?
(a) Palaeozoic era
(b) Pre-palaeozoic era
(c) Mesozoic era
(d) None of these

Q65. Into how many sub-classes gymnosperms are divided?
(a) 2
(b) 3
(c) 4
(d) 6

Q66. List related to cycadophytae are:
(a) 3 orders, small plants with unbranched stem
(b) Manoxylic (soft and loose) wood, compound and large foliage leaves
(c) Small plants with branched stem, simple leaves and large trees
(d) Both (a) and (b)

Q67. Which order of cycadophytae show characters of ferns and gymnosperms?
(a) Pteridosperms (b) Bennettitales or cycadaeodales
(c) Cycadales (d) Both (b) and (c)

Q68. The connecting link between pteridophytes and gymnosperms is:
(a) *Williamsonia* (b) *Cycas*
(c) *Stangeria* (d) *Medullosa* and *Lyginopteris*

Q69. Characteristics of cycadofilicales or pteridosperms are:
(a) Originated in late palaeozoic era and are fossils (b) Originated in pre-mesozoic era and smallest gymnosperms
(c) Originated in late mesozoic era and palm-like appearance (d) None of these

Q70. Example of fossil cycads is:
(a) *Cycas* (b) *Zamia pygmaea*
(c) *Stangeria* (d) *Williamsoniella*

Q71. Which is the smallest gymnosperm?
(a) *Microcycas* (b) *Zamia pygmaea*
(c) *Williamsoniella* (d) *Stangeria*

Q72. Which is called "Maiden Hair Tree" because of the resemblance of its leaves with those of "Maiden Hair Fern" or *Adiantum?*
(a) Cycadophytae (b) Ginkgoales
(c) Coniferales (d) Gnetales

Q73. The scientific name of Christmas tree or Monkey's puzzle is:
(a) *Sequoia* (b) *Cupressus*
(c) *Araucaria* (d) *Picea*

Q74. Which is the largest gymnosperm (366 ft. in height)?
(a) *Pinus* (Pine) (b) *Sequoia* (red wood tree)
(c) *Picea* (spruce) (d) None of these

Q75. *Gnetum ula* is a common source of:
(a) Starch (b) Edible oil
(c) Making ink (d) Amber (Fossil resin)

Q76. From various species of *Pinus*, we obtain:
(a) Wood gas, wood tar and wood alcohol (b) Alkaloid, coconut oil and certain tannis
(c) Tannis (used in making ink and drugs) (d) All these

Q77. *Pinus:*
(a) Monoecious (both male and female cones are produced on the same plant but on different branches) (b) Lacks vegetative reproduction
(c) Heterosporous (d) All these

Q78. The generations represented by seed of *Pinus* is:
(a) Old sporophytic generation (b) Gametophytic generation
(c) Future sporophytic generation (d) All these

Q79. Which statement is false about the structure of seed of gymnosperms?
(a) The seed is covered with (b) Testa encloses a brown,

hard seed coat
thin membranous tegmen
(c) The tegmen surrounds fleshy endosperm
(d) None of these

Q80. Out of total 3,45,000 species of plant known today, angiosperms are about _____ in number.
(a) 50,000
(b) 1,75,000
(c) 2,00,000
(d) 2,25,000

Q81. Types of angiosperms on the basis of form are:
(a) Herbs and shrubs
(b) Excurrent or conical trees, palm-like or columnar trees, deliquescent or decurrent trees
(c) Culms
(d) All above

Q82. On the basis of life-span, (i) annuals (ii) biennials (iii) perennials are the types of angiosperms. Set of options which shows the examples of biennials is:
(a) *Argemone* (pili katili), *Artemisia* and *Astragalus*
(b) *Agave americana* (century plant) and *Bambusa bamboos* (bamboo)
(c) Radish, turnip and cabbage
(d) Mustard, gram and groundnut

Q83. A _____ consists of four zones or regions from the lower most part to the uppermost part.
(a) Stem
(b) Root
(c) Ovary
(d) Seed

Q84. Which zone of the root is the main growing region of the root?
(a) Root cap
(b) Meristematic region
(c) Zone of elongation
(d) Maturation zone

Q85. Types of fruits are:
(a) Simple fruits
(b) Aggregate fruits
(c) Composite fruits
(d) All these

Answers

1.	D	2.	D	3.	B	4.	C	5.	A
6.	C	7.	B	8.	B	9.	D	10.	A
11.	B	12.	D	13.	D	14.	A	15.	D
16.	B	17.	C	18.	A	19.	C	20.	D
21.	C	22.	B	23.	D	24.	B	25.	D
26.	B	27.	C	28.	B	29.	D	30.	A
31.	C	32.	B	33.	B	34.	D	35.	A
36.	A	37.	C	38.	B	39.	D	40.	A
41.	B	42.	A	43.	D	44.	D	45.	C
46.	B	47.	D	48.	A	49.	C	50.	C
51.	D	52.	A	53.	C	54.	D	55.	A
56.	A	57.	B	58.	C	59.	C	60.	A
61.	C	62.	D	63.	C	64.	C	65.	A
66.	D	67.	A	68.	D	69.	A	70.	D
71.	B	72.	B	73.	C	74.	B	75.	B
76.	A	77.	D	78.	D	79.	D	80.	C
81.	D	82.	C	83.	B	84.	B	85.	D

ECOLOGY

- Against each question four answers are given, out of which one is correct. Choose the correct answer.

Q1. _____ is the study of interaction between living organisms and their environment.
(A) Evolution (B) Genetics
(C) Ecology (D) Sociology

Q2. Two main types of environmental factors are:
(A) Geotropism and phototropism (B) Abiotic and biotic
(C) Land and aquatic (D) None of these

Q3. Tick the biotic (intra-specific) factors:
(A) Wave action, humidity, light (B) Colonization, aggregation, parental care
(C) Neutralism, mutualism, predation (D) Mineral elements, mutualism, parasitism

Q4. Abiotic factors include:
(A) Geomagnetism (B) Gravity
(C) Water (D) All these

Q5. Many cold=blooded animals remain inactive during winter season; it is called:
(A) Hibernation (B) Condensation
(C) Morphosis (D) Proto-operation

Q6. Dormancy in animals through a drought or dry season is called:
(A) Eurythermal (B) Diapause
(C) Aestivation (D) None of these

Q7. Which rule depicts its correct statement regarding temperature variation?
(A) Allen's Rule: Birds and mammals have greater size in cold region. (B) Bergman's Rule: The tail, snout and ears are smaller in colder region.
(C) Jordan's Rule: Birds in cold regions are with narrow wings. (D) All are false.

Q8. Plants growing in extreme cold soil are called:
(A) Sciophytes (B) Psychrophytes
(C) Heliophytes (D) Cyanophytes

Q9. In which types of soil does water logging occur?
(A) Silt (B) Clay
(C) Gravel (D) Sand

Q10. A mixture of sand and clay is:
(A) Silt (B) Kaolin
(C) Humus (D) Loam

Q11. Soil contains:
(A) *Azotobacter* (aerobic bacterium) (B) *Clostridium* (anaerobic free living)
(C) *Clostridium* (aerobic free living) (D) Both (a) and (b)

Q12. Which animals show no inter relationship (i.e., neutralism)?
(A) Cow and snake (B) Lizard and cockroach
(C) Sparrow and worm (D) Mosquito and lizard

Q13. The total surrounding of an organism including other plants and animals and those of its own kind is called:
(A) Habitat (B) Territory
(C) Environment (D) None of these

Q14. Number and types of ecosystems are:

(A) Two: Terrestrial and land (B) Three: Terrestrial, fresh water and marine
(C) Three: Land, aquatic and marshes (D) Four: Land, aquatic, marshes and freshwater

Q15. Driving force of ecosystem is:
(A) Water (B) Green plants
(C) Solar energy (D) All these

Q16. An example of decomposer is:
(A) Fungi (B) Virus
(C) Algae (D) All these

Q17. An organism that feeds on dead organic matter other than bacteria or fungi is called:
(A) Detritivore (B) Petritivore
(C) Transformer (D) Top transformer

Q18. The transfer of energy from one trophic level to another is called as:
(A) Food net (B) Food web
(C) Food chain (D) Food pyramid

Q19. In a grassland ecosystem, the food chain consists of:
(A) Grass grasshopper frog snake eagle (B) Grass hen frog snake eagle
(C) Grass hen frog deer lion (D) None of these

Q20. Food web is defined as:
(A) Interlocking of food pyramids (B) Relation between energy flow and food chain
(C) Interlocking of food chains (D) Cluster of environmental components

Q21. Secondary consumers in an aquatic (pond) ecosystem are:
(A) Molluscs (B) Fish
(C) Algae (D) None of these

Q22. Which of the following statements is wrong?
(A) Forest ecosystem controls gaseous balance in the atmospheres (B) Forest ecosystem provides habitat for wildlifes
(C) Forest ecosystem prevents drought and floods (D) Forest ecosystem controls pests and insects

Q23. The part of earth in which life exists is known as:
(A) Lithosphere (B) Biosphere
(C) Atmosphere (D) Hydrosphere

Q24. Small, floating or weakly swimming plants and animals in freshwater and marine ecosystem are termed as:
(A) Plankton (B) Nekton
(C) Benthos (D) All these

Q25. Which layer of atmosphere has maximum density?
(A) Stratosphere (B) Trophosphere
(C) Mesosphere (D) Thermosphere

Q26. Which is the best source of renewable energy ?
(A) Coal (B) Trees (Biomass)
(C) Cattle (D) Petroleum

Q27. The trophic level of lion in a forest ecosystem is:
(A) T_1 (B) T_2
(C) T_3 (D) T_4

Q28. Interaction between biotic and abiotic components forms a:
(A) Habitat (B) Population
(C) Species (D) Community

Q29. **Atmosphere consists of:**
(A) Lithosphere + Hydrosphere + Ozonosphere
(B) Lithosphere + Stratosphere + Hydrosphere
(C) Troposphere + Stratosphere + Mesosphere
(D) None of these

Q30. **Which one of the following is the sedimentary cycle?**
(A) Carbon cycle
(B) Oxygen cycle
(C) Hydrogen cycle
(D) Phosphorus cycle

Q31. **In a food chain, herbivores are:**
(A) Decomposers
(B) Primary producers
(C) Primary consumers
(D) Secondary consumers

Q32. **Which zone of a lake has no photosynthetic organism?**
(A) Littoral zone
(B) Limnetic zone
(C) Profundal zone
(D) Both (b) and (c)

Q33. **A place was rocky and barren but now there is a green forest; the sequence of origin is:**
(A) Lichen, moss, herbs, shrubs
(B) Moss, lichen, herbs, shrubs
(C) Lichen, moss, shrubs, herbs
(D) Shrubs, herbs, moss, lichen

Q34. **Some organisms resemble other organisms and thus escape from enemies. This phenomenon is known as:**
(A) Analogy
(B) Variation
(C) Mercury
(D) Homology

Q35. **The relationship between leguminous plants and *rhizobium* present in their root nodules is:**
(A) Synergism
(B) Parasitism
(C) Mutualism
(D) Commensalism

Q36. **An example of biodegradable pollutant is:**
(A) Mercuric salts
(B) Sewage
(C) Long-chain phenolic chemicals
(D) All above

Q37. **Source of carbon monoxide (CO) is:**
(A) Motor vehicles
(B) Cigarette smoke
(C) Domestic heating appliances
(D) All above

Q38. **Absence of lichens indicates atmospheric pollution by:**
(A) CO
(B) SO_2
(C) CO_2
(D) All above

Q39. **Acid rain is due to excess of:**
(A) $NO_2 + SO_2$
(B) $SO_2 + SO_3$
(C) $SO_2 + CO$
(D) $CO + CO_2 + SO_2$

Q40. **Greenhouse effect is the increase in temperature due to increase in:**
(A) Concentration of NO_2
(B) Concentration of SO_2
(C) Concentration of CO_2
(D) Concentration of CO_2

Q41. **The potent greenhouse gases are:**
(A) CH_4 and CFCs
(B) SO_2 and CO_2
(C) CO_2 and CO
(D) NO_2 and CO_2

Q42. **In the coming years, skin = related disorders will be more common due to:**
(A) Greenhouse effect
(B) Depletion of ozone layer
(C) Global warming
(D) All above

Q43. **A pollutant which causes mental illness is:**
(A) Mercury
(B) Helium
(C) Lead
(D) Tin

Q44. **Pollution caused by sewage and agricultural fertilizers is called:**
(A) Lead pollution
(B) Phosphate pollution
(C) Methane pollution
(D) None of these

Q45. **It is a measure of the oxygen needed in a specified volume of water to decompose organic materials:**

(A) Biochemical Oxygen Demand (BOD) (B) Biochemical Oxygen Development (BOD)
(C) Biological Oxygen Development (BOD) (D) Environmental Oxygen Metre (EOM)

Q46. The most dangerous radioactive pollutant which causes bone cancer and degeneration of tissues is:
(A) Strontium – 90 (B) Potassium – 40
(C) Uranium – 235 (D) Radium – 226

Q47. The World Environment Day is observed on:
(A) 18th March (B) 5th June
(C) 2nd January (D) 1st August

Q48. Which of the following gases make the most stable combination with the haemoglobin of red blood cells?
(A) N_2 (B) O_2
(C) CO (D) CO_2

Q49. Photochemical smog form in congested metropolitan cities is mainly due to :
(A) Hydrocarbons, SO_2 and CO_2 (B) Hydrocarbons, O_3 and SO_2
(C) O_3, Peroxyacetyl nitrate and NO_x (D) Smoke, SO_2 and CO_2

Q50. "Ozone Day" is observed on:
(A) January 30 (B) April 21
(C) September 16 (D) December 25

Q51. Which one of the following radiations is non-ionising and has more specific biological effects than others?
(A) X-rays (B) UV rays
(C) Gamma rays (D) Beta rays

Q52. Sewage water can be purified for recycling with action of:
(A) Micro-organisms (B) Penicillin
(C) Fishes (D) Aquatic plants

Q53. Which of the following does not cause pollution?
(A) Automobiles (B) Hydal power plant
(C) Thermal power plant (D) Nuclear power plant

Q54. Water pollution results in:
(A) Decreased de-oxygenation (B) Increased photosynthesis
(C) Decreased turbidity (D) Increased de-oxygenation and turbidity

Q55. Which pollutant causes leaf curling?
(A) SO_2 (B) CO
(C) H_2S (D) CO_2

Q56. Conservation of natural resources is:
(A) Proper use of natural resources (B) Protection of natural resources
(C) Maintenance of natural resources (D) All above

Q57. Soil erosion can be prevented by:
(A) Restricted human activities (B) Good plant cover
(C) Checking movement of animals (D) Wind screen alone

Q58. Deforestation may reduce the occurrence of:
(A) Frequent cyclones (B) Rain fall
(C) Frequent landslides (D) Erosion of surface soil

Q59. The species becomes extinct most easily by:
(A) Urbanization (B) Heavy rains
(C) Deforestation (D) All above

Q60. Extinction of a species in a food chain is compensated by:

(A) Food series (B) Ecological pyramids
(C) Food web (D) None of these

Q61. Wildlife is:
(A) Any living organism in any habitat (B) Predatory animals in their natural habitat
(C) Any living organism in its natural habitat (D) All above

Q62. WWF (World Wildlife Fund) was first established in:
(A) Switzerland (B) USA
(C) France (D) Britain

Q63. Which is the logical sequence of carbon cycle?
(A) Photosynthesis – Consumers – Decomposers (B) Decomposer – Consumers – Photosynthesis
(C) Photosynthesis – Decomposers – Consumers (D) Consumers – Photosynthesis – Decomposers

Q64. Noise pollution is measured in:
(A) Picogram (B) Hertz (Hz)
(C) Decibel (dB) (D) None of these

Q65. The carbon dioxide contents in atmospheric air is:
(A) About 0.034% (B) About 0.34%
(C) About 3.34% (D) About 6.5%

Q66. How do nitrogen fixing bacteria contribute to nitrogen-cycle?
(A) Change ammonium to nitrate (B) Withdraw nitrate from soil
(C) Change N^2 to NH_3 (D) Change N_2 to nitrate

Q67. The tip of ecological pyramid is occupied by:
(A) Producers (B) Herbivores
(C) Carnivores (D) Omnivores

Q68. Which of the following is renewable resource?
(A) Solar energy (B) Air
(C) Petroleum (D) Water

Q69. Which of the following does not occur when sewage is discharged into water?
(A) Increase in O_2 (B) Depletion of O_2 layer
(C) Depletion of CO (D) Both (b) and (c)

Q70. Thermal pollution raises the temperature of water; it increases:
(A) Metabolic rate (B) Oxygen consumption of micro-organisms
(C) Concentration of CO_2 and SO_2 (D) Both (a) and (b)

Answers

1.	C	2.	B	3.	B	4.	D	5.	A
6.	C	7.	D	8.	B	9.	B	10.	D
11.	D	12.	A	13.	C	14.	B	15.	C
16.	A	17.	A	18.	C	19.	A	20.	C
21.	A	22.	D	23.	B	24.	A	25.	B
26.	B	27.	D	28.	D	29.	C	30.	D
31.	C	32.	C	33.	A	34.	C	35.	C
36.	B	37.	D	38.	B	39.	A	40.	D
41.	A	42.	B	43.	C	44.	B	45.	A
46.	A	47.	B	48.	C	49.	C	50.	C
51.	B	52.	A	53.	B	54.	D	55.	A
56.	D	57.	B	58.	B	59.	C	60.	C
61.	B	62.	A	63.	A	64.	C	65.	A
66.	C	67.	C	68.	D	69.	A	70.	D

VIRUSES & SIMPLE ORGANISMS

- **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. These are the simplest forms of life and are acellular entities (*i. e.*, not cells):
(a) Bacteria (b) Amoeba
(c) Viruses (d) Euglena

Q2. Viruses resemble living organisms as they can:
(a) Crystallize (b) Mutate
(c) Grow (d) All these

Q3. Viruses were discovered by the Russian scientist:
(a) Dimitri Ivanowsky (b) Wendell M. Stanley
(c) Walter Reed (d) Paul Frosch

Q4. A Dutch micro biologist (1898), Martinus Beijerinck, called viruses as:
(a) *"Contagium vivum fluidum"* (*i.e.*, contagious living fluid)
(b) *"Contagium vivum fluidum"* (*i.e.*, contagious non-living fluid)
(c) *"Contagium vivum fluidum* (*i.e.*, contagious non-living prokaryotic cells)
(d) *"Contagium vivum fluidum* (*i.e.*, contagious non-living eukaryotic cells)

Q5. Although viruses lack true metabolism, some contain a few enzymes necessary for their:
(a) Metabolism (b) Growth
(c) Reproduction (d) All above

Q6. Viruses range in size from:
(a) 100 nm to 800 nm (b) 250 nm to 20 nm
(c) 10 nm to 80 nm (d) 370 nm to 880 nm

Q7. Main morphological types of viruses are:
(a) Helical (b) Icosahedral
(c) Complex (d) All these

Q8. Which viruses have icosahedral symmetry?
(a) Rabies and tobacco mosaic viruses (b) Herpes simplex and polio viruses
(c) Some bacteriophages (d) Variola and vaccinia

Q9. All viruses consist of two basic components: a nucleic acid core called the ..... surrounded by a protein coat known as the .....
(a) Spike ; peplomer (b) Capsid ; genome
(c) Genome ; capsid (d) Outer core; inner core

Q10. A completely assembled and infectious virus outside its host cell is called:
(a) Virion (b) Parvovirus
(c) Rotavirus (d) Vivum

Q11. How many types of nucleic acid are present in viruses?
(a) 6 (b) 3
(c) 5 (d) 4

Q12. An example of positive strand RNA virus is:
(a) Mumps (b) Corona virus
(c) Influenza virus (d) Measles

Q13. The HIV (Human Immunodeficiency virus), cause AIDS is a:
(a) Zoophage (b) Bacteriophage
(c) Retrovirus (d) Zymophage

Q14. Latest view regarding the origin of virus is known as:

(a) "Viral Theory" (b) "Mutation Theory"
(c) "Non-organic Theory" (d) "Regressive Theory"

Q15. Satellite viruses discovered by B. Kassanis are also known as:
(a) Incomplete viruses (b) Particle-like viruses
(c) Slow viruses (d) Flat viruses

Q16. A symbolic representation of different traits of a virus is known as:
(a) Code system (b) Crystallogram
(c) Monogram (d) Cryptogram

Q17. The smallest virus is:
(a) Pox virus (b) Tobacco mosaic virus
(c) Foot and mouth virus of cattle (d) None of these

Q18. The cause of hydrophobia is:
(a) Pox virus (b) Herpes virus
(c) Rhabdovirus (d) Picorna virus

Q19. Which disease is caused by virus?
(a) Polio (b) Typhoid
(c) Diphtheria (d) Tuberculosis

Q20. Who is credited to show that viruses are the cause of cancer?
(a) Renato Dulbecco (b) Gregor Mendel
(c) August Weismann (d) W.M. Stanley

Q21. Identify the hepatitis virus, which cannot survive independently and it requires another hepatitis virus for its multiplication:
(a) Hepatitis-A virus (b) Hepatitis-B virus
(c) Hepatitis-C virus (d) Hepatitis-D virus

Q22. The virus that infects bacteria are consisted of:
(a) Protein and RNA (b) Protein and DNA
(c) Lipid and DNA (d) None of these

Q23. Sometimes when a virus attacks a bacterium, neither the virus multiplies nor the bacterium dies. This phenomenon is called as:
(a) Lysogeny (b) Adsorption
(c) Assimilation (d) Stabilization

Q24. A secretion in response to viral infection by the cell is called:
(a) Plasmic fluid (b) Insulin
(c) Interferon (d) None of these

Q25. The process in which DNA of a bacterial cell is transferred into another bacterial cell by a virus is known as:
(a) Conjugation (b) Transduction
(c) Transformation (d) Condensation

Q26. Which of the following is false?
(a) Most plant viruses are RNA viruses (b) Most animal viruses are DNA viruses
(c) Tobacco Mosaic Virus (TMV) has double stranded RNA molecule (d) T_4 bacteriophage has double stranded DNA molecule

Q27. The cryptogram of influenza virus is:
(a) R/1: 2/5: E/E: S/X (b) R/1: 2-3/10: S/E: V/A
(c) R/1: 1/8: S/S: S/AP (d) R/1: 2/7: E/E: S/X

Q28. Viruses are genetically simple. The largest viruses, T_4, contains only:
(a) 3 genes (b) 18 genes
(c) 56 genes (d) 77 genes

Q29. A few viruses, such as the HIV and influenza viruses have an additional lipoprotein layer around the capsid derived from the cell surface membrane of the host. This layer is called:

(a) Nucleocapsid (b) Envelope
(c) Core (d) Capsomere

Q30. Viruses have the ..... inside the host cell.
(a) Power of duplication (b) Coiled genetic material
(c) Complex ribosomal enzymes (d) Cytoplasm and nucleoid

Q31. An isolated virus is not considered living since it cannot:
(a) Metabolize (b) Release enzymes
(c) Assemble (d) None of these

Q32. The transfer of genes from one bacterial cell to another by means of a virus is called:
(a) Translocation (b) Transduction
(c) Transpiration (d) All these

Q33. A virus that can reproduce without killing its host is called:
(a) Mycoplasmal virus (b) Temperate virus
(c) Polyoma virus (d) Adenovirus

Q34. "Rous Sarcoma Virus" (RSV) has the ability to do:
(a) Reverse penetration (b) Reverse transduction
(c) Reverse transcription (d) None of these

Q35. Cancer producing viruses are termed as:
(a) Invasive viruses (b) Viroids
(c) Virusoids (d) Oncoviruses

Q36. According to a theory, "Some viruses may trace their origin to animal cells, others to plant cells and still others to bacterial cells'. This theory is called:
(a) "Regressive theory" (b) "Escaped gene hypothesis"
(c) "Particle gene theory" (d) "Infectious gene hypothesis"

Q37. These are the non-cellular organisms containing a genome but lacking one of the essential features of a virus:
(a) Aviral agents (b) Anti-viral agents
(c) Sub-viral agents (d) Viral agents

Q38. Types of human interferons (IFNs) are:
(a) Two: α and β (b) Three: α, β and γ
(c) Four: α, β, γ and ω (d) Four: α, β, γ and f

Q39. An interferon is active against many different viruses. So, they are termed as:
(a) Virus - nonactivist (b) Virus - nonspecific
(c) Virus - inhibitors (d) None of these

Q40. SARS is a pneumotropic viral disease involving respiratory tract. SARS stands for:
(a) Severe Acute Respiratory Syndrome (b) Severe Asthma Respiratory Syndrome
(c) Split Asthma Respiratory Syndrome (d) Somatic Alveoli Respiratory Syndrome

Q41. A viral DNA can be made radioactive by providing:
(a) P^{32} to viruses when they are about to attach the bacteria (b) P^{32} to a bacterium which has been infected by a virus
(c) P^{32} in culturing the viruses (d) Medium of P^{32} in a virus

Q42. Viruses that infect bacteria, multiply and cause their lysis, are called:
(a) Lysogenic (b) Lytic
(c) Lysozymes (d) None of these

Q43. In the classification of viruses, these are not considered:
(a) Methods of replication (b) Size

(c) Types of DNA or RNA (d) Disease symptoms

Q44. For the successful study of the morphology of viruses:
(a) Polarized microscope is used (b) Electron microscope is used
(c) Oscillatory microscope is used (d) All above

Q45. A chemical component that is found in all viruses is:
(a) Water (b) Protein
(c) Either DNA or RNA (d) Amino acid

Q46. The name Protozoa (Gr. *protos* - first, *zoon* - animal) comes from ..... who, however, used the name simply for lower groups of zoophyta including protozoans, sponges, coelenterates, rotifers and bryzoans.
(a) Goldfuss (1818) (b) von Siebold (1845)
(c) Erdmann and Woodruff (1916) (d) Diller (1922)

Q47. Protozoa are generally microscopic in size, they are found in:
(a) Freshwater (b) Salt water
(c) Damp soil (d) All above

Q48. During the course of evolution, Protozoa have undergone:
(a) Histological differentiation (b) Morphological differentiation
(c) Cytological differentiation (d) All above

Q49. As Protozoa forms a heterogeneous group, the members display an extreme diversity of structure, different types of symmetry and adaptations to various environments, so the term ..... used for them is unfortunate.
(a) Acellular (b) Non-cellular
(c) Sub-cellular (d) Unicellular

Q50. Which organisms represent the protoplasmic level of organization?
(a) *Monocystis* and *Euglena* (b) *Hydra* and *Dugesia*
(c) *Trypanosoma* and *Vorticella* (d) Both (a) and (c)

Q51. The organism which may be considered as a connecting link between animal and plant is
(a) *Neanthes* (b) *Lumbricoides*
(c) *Eimeria* (d) *Dugesia*

Q52. The immense number of Protozoa have traditionally been separated by their ..... into four classes
(a) Mode of nutrition (b) Means of locomotion
(c) Nature of habitat (d) Cellular specificity

Q53. ..... of the nucleus of Protozoa remains intact even in cell division.
(a) Oxychromatin (b) Nuclear membrane
(c) Nucleoplasm (d) Nucleolus

Q54. Some Protozoa require ready-made proteins as food, they are unable to utilize simple substances for making their own food, such Protozoa are called "zootrophic". *e.g.*,
(a) *Euglena* (b) *Noctiluca*
(c) *Amoeba* (d) *Opalina*

Q55. Which Protozoa exhibit autotrophic nutrition?
(a) Euglena (b) Amoeba
(c) Paramecium (d) None of these

Q56. The mode of nutrition in which some Protozoa absorb complex organic substances in solution through the body surface is called:
(a) Mixotrophic nutrition (b) Holozoic nutrition
(c) Saprozoic nutrition (d) Autotrophic nutrition

Q57. Which option correctly defines mixotrophic nutrition in Protozoa?
(a) Saprozoic + Autotrophic (b) Autotrophic + Zootrophic
(c) Holozoic + Zootrophic (d) Both (a) and (b)

Q58. Protozoa move about by means of:
(a) Pseudopodia (b) Flagella
(c) Cilia (d) All above

Q59. These are generally temporary outgrowths of protoplasm from any part of the body, they are found in those Protozoa which are "naked" or have a very thin pellicle.
(a) Flagella (b) Pseudopodia
(c) Cilia (d) Flimmers

Q60. Flagella are primarily organelles of locomotion and secondarily:
(a) For capturing food (b) For fighting
(c) For swimming (d) None of these

Q61. Which statement is true?
(a) The cilia are generally longer and more numerous than flagella (b) The flagella are generally longer and more numerous than cilia
(c) The cilia are generally shorter and more numerous than flagella (d) The flagella are generally shorter and more numerous than cilia

Q62. At the tip of the main flagellum may be a very fine end piece which is calledL
(a) Ciliary flimmer (b) Mastigoneme
(c) Axopodia (d) Rhizopodia

Q63. The death of an *amoeba* results at:
(a) 20 °C (b) 25 °C
(c) 30 °C (d) 40 °C

Q64. Which theory describes the following statement about the behavior of Protozoa? "Protozoa respond to stimuli in a forced compulsory way, not because of choice, but because they cannot behave in any other way: they act like automatons being driven entirely by external stimuli."
(a) Trial and error theory (b) Tropism theory of Loeb
(c) Geotropism theory (d) Abiotic theory

Q65. The most important and dangerous Protozoa are those which are parasitic in the human blood, they are:
(a) *Plasmodium* (b) *Trypanosoma*
(c) *Leishmania* (d) All above

Q66. There are four species of Plasmodium which cause human malaria. Which species of Plasmodium causes "benign tertian malaria" in which fever comes on every 48 hours?
(a) *P. vivax* (b) *P. malariae*
(c) *P. falciparum* (d) *P. ovale*

Q67. *Leishmania tropica* is parasitic in human blood in Asia, Africa, Europe and Australia, it causes oriental sores in the skin which turn into ulcerating wounds, its vector is:
(a) *L. donovoni* (b) *Boophilus*
(c) *Phlebotomus* (d) None of these

Q68. Which *Protozoa* is found in the tissues of the hosts?
(a) *Entamoeba* (b) *Gregarina*
(c) *Trypanosoma* (d) *Plasmodium*

Q69. Which Protozoa is found in all classes of vertebrates?
(a) *Opalina* (b) *Gregarina*
(c) *Amoeba* (d) *Trypanosoma*

Q70. *Plasmodium* feeds on:
(a) Liver cells (b) Erythrocytes
(c) Lymph glands (d) Both (a) and (b)

Q71. **Which Protozoa causes (xIx) enlargement and disorders of lymph glands, spleen and liver?**
(a) *Entamoeba* (b) *Leishmania*
(c) *Plasmodium* (d) None of these

Q72. **Which Protozoa secretes poisonous toxins which cause some disease in the host?**
(a) *Plasmodium* (b) *Paramecium*
(c) *Entamoeba histolytica* (d) *Amoeba*

Q73. **..... eats the tissue cells of the colon and red blood corpuscles of the host.**
(a) *Plasmodium* (b) *Paramecium*
(c) *Entamoeba histolytica* (d) *Balantidium*

Q74. *Entamoeba* **causes:**
(a) Destruction of cells and tissues (b) Ulcers in the intestine and liver
(c) Enlargement of spleen and liver (d) Both (a) and (b)

Q75. **The asexual reproduction methods in Protozoa are:**
(a) Syngamy and conjugation (b) Plasmotomy and parthenogenesis
(c) Copulation and multiple fission (d) All these

Q76. **Conjugation is a temporary union of two Protozoa of the same species for an exchange of nuclear material without the fusion of their cytoplasm. It occurs in:**
(a) *Paramecium caudatum* (b) *Paramecium aurelia*
(c) *Vorticella* (d) None of these

Q77. **In some Protozoa, the nucleus divides into two, the two nuclei fuse together. This is called:**
(a) Copulation (b) Fission
(c) Automixis (d) Regeneration

Q78. **If the gametes differ in size and morphology then they are anisogametes and their syngamy is "*anisogamy*". Such reproduction occurs in:**
(a) *Plasmodium* (b) *Vorticella*
(c) *Paramecium aurelia* (d) All Protozoa

Q79. **In freshwater and parasitic Protozoa ..... is common.**
(a) Cyst formation (b) Parthenogenesis
(c) Budding (d) Binary fission

Q80. **If multiple fission produces four or more young ones by equal cell division, and the young ones do not separate till the process is completed, then such cell division is spoken of as "repeated fission". It occurs in:**
(a) Elphidium (b) Paramecium
(c) Vorticella (d) None of these

Q81. **Some Protozoa are beneficial in the sense that they are helpful in:**
(a) Sanitation (b) Make oceanic ooze
(c) Provide food (d) All above

Q82. **Pelagic protozoans such as ..... and ..... sink after death to the bottom of ocean and forming the fundamental source of food supply along with organic debris for the deep sea fauna,**
(a) *Paramecium, Entamoeba* (b) *Vorticella, Amoeba*
(c) *Foraminifera, Radiolaria* (d) *Plasmodium, Chlamydomonas*

Q83. **Which Protozoa in man feed upon harmful bacteria in the colon?**
(a) *Radiolaria* (b) *Balantidium coli*
(c) *Opalina* (d) *Vorticella*

Q84. ***Trichonympha* and *Colonympha* of termites and woodroaches are intestinal flagellates. These are called:**
(a) Ectocommensal Protozoa (b) Endocommensal Protozoa
(c) Symbiotic Protozoa (d) Parasitic Protozoa

Q85. **The pyramids of Egypt are constructed by limestone deposits of:**

(a) *Nummulite* shells (b) Shells of genus *Hiliolina*
(c) Skeletons of dead *Radiolaria* (d) Skeletons of both *Foraminifera* and *Radiolaria*

Q86. The zoological importance of Protozoa is due to their:
(a) Simple organization (b) Quick reproduction
(c) Easy availability (d) All these

Q87. Some Protozoans feed on the ..... holozoically and purify the water indirectly.
(a) Algae (b) Fungi
(c) Bacteria (d) All these

Q88. Which organic compound is utilized by symbiotic Protozoans (*i.e.*, symbionts) and the hosts?
(a) Glycogen (b) Cellulose
(c) Glucose (d) Maltose

Q89. ..... is an ectoparasite of man which lives in skin and causes oriental sores.
(a) *Leishmania tropica* (b) *Hydramoeba hydroxena*
(c) *Balantidium* (d) None of these

Q90. *Plasmodium* is an example of:
(a) Exoparasitic Protozoa (b) Ectoparasitic Protozoa
(c) Cytozoic Protozoa (d) Commensal Protozoa

Q91. *Entamoeba gingivalis* belong to class Sarcodina and dwells in:
(a) Tartar of teeth (b) Red blood corpuscles
(c) Abscesses of gums of man (d) Both (a) and (c)

Q92. *Entamoeba histolytica* causes:
(a) Ulceration of colon (b) Pyorrhoea
(c) Diarrhoea (d) Malaria

Q93. *Chilomonas* is responsible for:
(a) Dysentery (b) Unhealthy gums
(c) Gastric disorders (d) All these

Q94. *N. apis* is a sporozoan which dwells in the intestinal epithelium and malpighian tubules of .....
(a) Monkey (b) Honey bees
(c) Sheep (d) Turkeys

Q95. The Protozoan ..... gives salt marshy smell to water.
(a) *Volvox* (b) *P. vivax*
(c) *Ceratium* (d) *Bursaria*

Q96. ..... give odour like the ripe cucumber to the drinking water.
(a) *Eudorina* (b) *Pandorina*
(c) *Volvox* (d) All these

Q97. In *Euglena*, the elimination of CO_2 and nitrogenous matter takes place through the general body surface .....
(a) By Osmosis (b) By diffusion
(c) By contractile vacuole (d) Both (b) and (c)

Q98. Which characteristic shows that *Euglena* is an animal?
(a) It has chloroplasts with chlorophyll (b) It does not have a contractile vacuole
(c) Longitudinal binary fission takes place in it (d) None of these

Q99. In 1775, Roesel von Rosenhof discovered:
(a) *Paramecium* (b) *Euglena*
(c) *Amoeba* (d) *Chlamydomonas*

Q100. The name "*Amoeba*" is derived from a Greek word "*amoibe*" means:
(a) Change (b) Pond
(c) Damp (d) Contractile

Q101. *Amoeba* takes in food and O_2 from which it makes:
(a) Protoplasm (b) Cytoplasm

(c) Urea (d) Minerals

Q102. Reproduction in *Amoeba* chiefly occurs by asexual method, *i.e.*, by:
(a) Binary fission (b) Multiple fission
(c) Sporulation (d) All these

Q103. ..... is a marine form, found abundantly on the bottom of the ocean. Its shell is made up of .....
(a) Elphidium , $MgCO_3$ (b) *Elphidium*, $CaCO_3$
(c) Monocystis , $CaCO_3$ (d) *Eimeria*, Na_2CO_3

Q104. *Trypanosoma gambiense* causes a very serious disease in man known as:
(a) Sleeping sickness (b) Dysentery
(c) Tuberculosis (d) Diphtheria

Q105. *Trypanosomes* are harmless to their natural vertebrate hosts which are .....:
(a) Chimpanzee (b) Wild antelopes
(c) Leopards (d) All these

Q106. *Monocystis* is sluggish in locomotion. Its movements are called:
(a) Gregarine movements (b) Contractile movements
(c) Slow movements (d) None of these

Q107. *Paramecium caudatum* is specially found in abundance in stagnant ponds rich in:
(a) Decaying matter (b) Organic infusions
(c) Sewage water (d) All these

Q108. Which Protozoa is commonly known as "Slipper animalcule"?
(a) *Entamoeba* (b) *Paramecium caudatum*
(c) *Vorticella* (d) *Euglena viridis*

Q109. The mode of nutrition in *Paramecium* is:
(a) Holozoic (b) Holophytic
(c) Heterotrophic (d) Autotrophic

Q110. The Protozoa which shows a transition from a unicellular to a multi cellular organism is:
(a) *Opalina* (b) *Amoeba*
(c) *Volvox* (d) *Leishmania*

Answers

1.	C	2.	B	3.	A	4.	A	5.	C
6.	B	7.	D	8.	B	9.	C	10.	A
11.	D	12.	B	13.	C	14.	D	15.	A
16.	D	17.	C	18.	C	19.	A	20.	A
21.	D	22.	B	23.	A	24.	C	25.	B
26.	C	27.	B	28.	D	29.	B	30.	A
31.	A	32.	B	33.	B	34.	C	35.	D
36.	B	37.	C	38.	B	39.	B	40.	A
41.	B	42.	B	43.	D	44.	B	45.	B
46.	A	47.	D	48.	C	49.	D	50.	D
51.	C	52.	B	53.	B	54.	C	55.	A
56.	C	57.	D	58.	D	59.	B	60.	A
61.	C	62.	B	63.	D	64.	B	65.	D
66.	A	67.	C	68.	A	69.	D	70.	D
71.	B	72.	A	73.	C	74.	B	75.	B
76.	A	77.	C	78.	A	79.	A	80.	C
81.	D	82.	C	83.	B	84.	C	85.	A
86.	D	87.	C	88.	A	89.	A	90.	C
91.	D	92.	A	93.	C	94.	B	95.	D
96.	D	97.	D	98.	C	99.	C	100.	A
101.	A	102.	D	103.	B	104.	A	105.	B
106.	A	107.	D	108.	B	109.	A	110.	C

ENERGETICS

- **Against each question four answers are given, out of which one is correct. Choose the correct answer.**

Q1. Which is the most common energy carrier in cells?
(a) Nitrogenous bases (b) Enzymes
(c) ADP (Adenosine diphosphate) (d) ATP (Adenosine triphosphate)

Q2. Photosynthesis is:
(a) An anabolic process (b) A catabolic process
(c) A metabolic process (d) None of these

Q3. Which equation represents photosynthesis?
(a) Carbon dioxide + Water $\xrightarrow[\text{energy}]{\text{Radiant}}$ Hexose sugar + Oxygen (b) Oxygen + Water $\xrightarrow[\text{energy}]{\text{Radiant}}$ Hexose sugar
(c) Alcohol + Sugar $\xrightarrow[\text{energy}]{\text{Radiant}}$ Starch + Oxygen (d) None of these

Q4. Photosynthesis consists of two well-defined phases, which are:
(a) Oxygenated phase and de-oxygenated phase (b) Light phase and dark phase
(c) Chemical phase and photochemical phase (d) Biochemical phase and cellular phase

Q5. Dark reaction is also called as:
(a) Hill reaction (b) Uphill reaction
(c) Blackman reaction (d) Hoffmann reaction

Q6. Which equation shows light reaction?
(a) CO_2 + Assimilatory power $\xrightarrow[\text{energy}]{\text{Light}}$ Hexose sugar (b) $H_2O + NADP + ADP + P_i \xrightarrow[\text{energy}]{\text{Light}} ATP + NADPH_2$
(c) $CO_2 + H_2O + NADP + P_i \xrightarrow[\text{energy}]{\text{Light}} ATP + ADP$ (d) $CO_2 + H_2O + NADPH_2 + P_i \xrightarrow[\text{energy}]{\text{Light}} ATP + NADP$

Q7. When red light was combined with light of shorter wavelength, the rate of photosynthesis showed sudden enhancement. This is called:
(a) Enhancement effect (b) Photochemical effect
(c) Emerson effect (d) None of these

Q8. Rate of photosynthesis is measured in terms of:
(a) Photosynthetic yield (b) Quantum yield
(c) Oxygen yield (d) All above

Q9. If 8 quantum of light is needed for release of one mole of oxygen then what will be the quantum yield?
(a) 0.125 (or 1/8) (b) 8
(c) 32 (d) 16

Q10. In light reaction, ATP is synthesized using energy of sunlight. This process is called:
(a) Phosphorylation (b) Photophosphorylation
(c) Oxidative phosphorylation (d) Chemical phosphorylation

Q11. In respiration, ATP synthesis is called:
(a) Cellular phosphorylation (b) Oxidative phosphorylation

(c) Z-scheme (d) Both (b) and (c)

Q12. **Which enzyme or protein in green plants is most abundantly found?**
(a) Protease (b) Zymase
(c) Ribulose -1, 5-diphosphate (d) Ribulose biphosphate carboxylase / oxygenase enzyme (RuBISCO)

Q13. **Which is the statement of second law of thermodynamics?**
(a) During the transformation of energy, the amount of energy remains constant. (b) During the transformation of energy, the amount of energy doubles.
(c) During the transformation of energy, some energy is lost. (d) During the transformation of energy, all energy is lost.

Q14. **"Energy cannot be created nor destroyed but it can be converted from its one form to the other". This statement is called:**
(a) First law of thermodynamics (b) First law of free energy
(c) First law of entropy (d) First law of conservation of energy

Q15. **The ultimate source of energy for maintaining life of biosphere is:**
(a) Carbon cycle (b) Photosynthesis
(c) Photophosphorylation (d) Sunlight

Q16. **Which factor controls the rate of photosynthesis?**
(a) Availability of chlorophyll-a (b) Availability of oxygen
(c) Availability of water (d) Availability of carbon dioxide

Q17. **Inhibition of photosynthesis under increased level of oxygen refers to:**
(a) Law of minimum (b) Blackman's law of limiting factor
(c) Warburg's effect (d) Liebig effect

Q18. **What percentage of radiant energy available is utilized by green plants in their photosynthesis?**
(a) Only 1% (b) 5%
(c) 10% (d) 25%

Q19. **Rate of photosynthesis is independent of:**
(a) Duration of light (b) Quantity of light
(c) Size of leaf (d) Both (a) and (c)

Q20. **Respiration is a:**
(a) Cellular process (b) Catabolic process
(c) Anabolic process (d) Both (a) and (b)

Q21. **Which term defines 'ATP'?**
(a) "Energy currency" (b) "Power currency"
(c) "Physiological coins" (d) Both (a) and (c)

Q22. **In which processes, ATP is used as a raw material?**
(a) In activation of t-RNA (b) In replication and transcription of RNA
(c) In reduction of carbon dioxide during dark reaction of photosynthesis (d) All these

Q23. **Complete the following equation for aerobic respiration:**

Glucose + Oxygen ⟶ ?

(a) $CO_2 + H_2O + 38$ ATP (b) $CO_2 + 2$ ATP
(c) $H_2O + CO_2 + 38$ ADP (d) $CO_2 + 2$ ADP

Q24. Anaerobic respiration occurs in the absence of oxygen like:
(a) Combustion (b) Fermentation
(c) Oxidation (d) All these

Q25. In how many steps glycolysis consists of?
(a) 2 (b) 3
(c) 4 (d) 5

Q26. Krebs cycle occurs in:
(a) Matrix of mitochondria (b) Xylem tissues of higher plants
(c) Nucleus of all prokaryotic and eukaryotic cells (d) All above

Q27. A process of ATP generation in chloroplasts and mitochondria refers to:
(a) Glycolysis (b) Krebs cycle
(c) Chemiosmosis (d) Fermentation

Q28. Which organic acid is produced by glycolysis?
(a) Pyruvic acid (b) Succinic acid
(c) Phosphoric acid (d) Oxalic acid

Q29. Each glucose molecule releases enough energy to make:
(a) 100 molecules of ATP (b) 58 molecules of ATP
(c) 36 molecules of ATP (d) 24 molecules of ATP

Q30. When NADH becomes NAP^+, the hydrogens are used to make:
(a) $C_6H_{12}O_6$ (b) H_2O
(c) CO_2 (d) O_2

Q31. The chemical energy in sugar is used to make .....
(a) O_2 (b) ATP
(c) $FADH_2$ (d) NADH

Q32. The total energy yield from glucose metabolism is:
(a) 4 ATPs (b) 24 ATPs
(c) 36 ATPs (d) 36 to 38 ATPs

Q33. What is the anaerobic breakdown of glucose called?
(a) Glycolysis (b) Fermentation
(c) Chemiosmosis (d) Both (a) and (b)

Q34. "Drowning, suffocation, or carbon monoxide poisoning leads to death". Its reason is:
(a) Cells rely on glycolysis and fermentation to produce very little ATP from glucose metabolism. (b) Due to insufficient oxygen, mitochondria shut down
(c) Without sufficient energy from ATP, cells cannot continue functioning and die (d) All these

Q35. When oxygen combines with electrons and hydrogen ions at the end of the electron transport chain, ... is produced.
(a) "Oxygenated water" (b) "Protonated water"
(c) "Metabolic water" (d) "Anabolic water"

Q36. The light-independent reactions do not require sunlight, as long as sufficient amounts of ..... are available.
(a) ATP and NADPH (b) ATP and ADP
(c) Sugar and ADP (d) NADPH and ATP

Q37. Which organelle extracts energy from food molecules and uses it to make ATP?
(a) Ribosome (b) Mitochondrion

(c) Golgi apparatus (d) Nucleus

Q38. Which reactions need "activation energy" to get started?
(a) Exergonic reactions (b) Endergonic reactions
(c) Coupled reactions (d) Both (a) and (b)

Q39. The first step of aerobic respiration is:
(a) Citric acid cycle (b) Phosphorylation
(c) Glycolysis (d) Electron transport chain

Q40. The intermediate compound common for aerobic and anaerobic respiration is:
(a) Pyruvic acid (b) Lactic acid
(c) Citric acid (d) Fructose

Q41. Which is the last electron receptor in respiration?
(a) O_2 (b) H_2
(c) H_2O (d) CO_2

Q42. Highest number of enzymes are found in:
(a) Golgi complex (b) Chloroplasts
(c) Mitochondria (d) None of these

Q43. Which enzyme is used in alcoholic fermentation?
(a) Amylase (b) Zymase
(c) Protease (d) Invertase

Q44. During which stage in the complete oxidation of glucose are the greatest number of ATP molecules are formed from ADP?
(a) Kreb's cycle (b) Glycolysis
(c) Citric acid cycle (d) Electron transport chain

Q45. One molecule of ATP contains:
(a) 2.8 kcal energy (b) 100 kcal energy
(c) 576 kcal energy (d) 7.3 kcal energy

Q46. Which one is the sweetest sugar?
(a) Glucose (b) Sucrose
(c) Fructose (d) Maltose

Q47. What percentage of total energy is lost in cellular respiration as heat of respiration through various stages of oxidation or decomposition reactions?
(a) Nearly 20% (b) Nearly 60%
(c) Nearly 80% (d) Nearly 40%

Q48. The net gain of ATP from one molecule of glycerol is:
(a) 17 ATP (b) 18 ATP
(c) 19 ATP (d) 20 ATP

Q49. In Calvin cycle, three molecules of CO_2 will require:
(a) 9 ATP + 6 $NADPH_2$ (b) 15 ATP + 18 $NADPH_2$
(c) 15 ATP + 25 $NADPH_2$ (d) 23 ATP + 17 $NADPH_2$

Q50. Photosynthesis will be efficient if 35% of usable radiant energy entering the reaction site is converted into:
(a) Thermal energy (b) Kinetic energy
(c) Light energy (d) Potential energy

Q51. Which is a wasteful phenomenon?
(a) Photosynthesis (b) Respiration
(c) Photorespiration (d) None of these

Q52. ..... is most efficient converter of solar energy.
(a) Sugar-cane (b) Potato
(c) Both (a) and (b) (d) None of these

Q53. In proteins, amino acids are linked by:
(a) Hydrogen bonds (b) Nitrogen bonds
(c) Co-ordinate covalent bonds (d) Peptide bonds

Q54. ATP production in photosynthesis is called:
(a) Photophosphorylation (b) Oxidative phosphorylation

(c) Photochemical reaction (d) None of these

Q55. Which one carries out photosynthesis without evolution of oxygen?
(a) Green plants (b) Blue-green algae (cyano-bacteria)
(c) Photosynthetic bacteria (d) Both (b) and (c)

Q56. Photosynthesis is maximum in:
(a) Green light (b) Blue light followed by red light
(c) Red light followed by blue light (d) Blue light

Q57. Which element is essential for chlorophyll synthesis?
(a) Mg (b) Fe
(c) K (d) N

Q58. Nearly 70% of the total global carbon is found in:
(a) Forests (b) Grasslands
(c) Oceans (d) Both (a) and (b)

Q59. Photosynthetically, least effective radiation is:
(a) Blue (b) Green
(c) Red (d) Yellow

Q60. Quantum yield of photosynthesis is:
(a) 22% (b) 33%
(c) 12% (d) 74%

Q61. Which cells do not respire?
(a) Mesodermal cells (b) Epithelial cells
(c) Cork cells (d) None of these

Q62. McMunn discovered:
(a) Chain reaction (b) Cytochromes (electron carriers)
(c) Chlorophyll-a and chlorophyll-b (d) Plastids

Q63. What is necessary for the synthesis of ATP in mitochondria?
(a) O_2 (b) H_2O
(c) CO_2 (d) Pyruvic acid

Q64. Endoparasites respire:
(a) Without N_2 (b) Without O_2
(c) With O_2 (d) With N_2

Answers

1.	D	2.	A	3.	A	4.	B	5.	C
6.	B	7.	C	8.	B	9.	A	10.	B
11.	B	12.	D	13.	C	14.	A	15.	D
16.	D	17.	C	18.	A	19.	D	20.	D
21.	D	22.	D	23.	A	24.	B	25.	A
26.	A	27.	C	28.	A	29.	C	30.	B
31.	B	32.	D	33.	D	34.	D	35.	C
36.	A	37.	B	38.	D	39.	C	40.	A
41.	A	42.	C	43.	B	44.	D	45.	D
46.	C	47.	B	48.	C	49.	A	50.	D
51.	C	52.	A	53.	D	54.	A	55.	C
56.	C	57.	A	58.	C	59.	B	60.	C
61.	C	62.	B	63.	A	64.	B		

EVOLUTION

Against each question four answers are given, out of which one is correct. Choose the correct answer.

Q1. Who introduced the term evolution?
(a) Herbert Spencer (1820-1903) (b) James Hutton (1726-1797)
(c) Lamarck (1744-1829) (d) William Smith (1769-1838)

Q2. Select the right postulate about the concept of organic evolution?
(a) Organisms that appeared earlier were simpler (b) All organisms are inter-related because of common origin
(c) Earlier organisms have gradually changed into existing complex forms (d) All these

Q3. Who established a theory of evolution by means of natural selection?
(a) Alfred Russel Wallace (b) Hugo de Vries
(c) Charles Robert Darwin (d) Charles Lyell

Q4. Who developed the concept of species?
(a) Georges Buffon (b) John Ray
(c) James Hutton (d) Baron Georges Cuvier

Q5. Which theory was proposed by Aristotle (384-322 BC)?
(a) "Life originated from a single source through a gradual unfolding and branching" (b) "All life came from water"
(c) "Men were first formed as fishes: eventually cast off their fish skins and took life on dry land" (d) "Life originated from lifeless matter"

Q6. Who formalized "Binomial classification" system?
(a) Carl Linnaeus (b) Erasmus Darwin
(c) Theodosius Dobzhansky (d) Thales

Q7. Which terms were introduced by Richard Owen (1804-1892)?
(a) 'Natural selection' and "Somatic cells" (b) 'Homologous' and 'Dinosaur'
(c) 'Mutation' and 'Genes' (d) Both (a) and (c)

Q8. Prototherians, the most primitive mammals, which provide an evidence of organic evolution from geographical distribution, are found in .....:
(a) Java (b) Australia
(c) Mexico (d) Madagascar

Q9. Some of the marsupials of Australia resemble equivalent placental mammals that live in identical habitats of other continents. This form of evolutionary change is termed as:
(a) Diagonal evolution (b) Horizontal evolution
(c) Perpendicular evolution (d) Parallel evolution

Q10. Galapagos Islands are called:
(a) 'A door towards nature' (b) 'A jungle of animals'
(c) 'A living laboratory of evolution' (d) 'A paradise for biologists'

Q11. Direct evidences of organic evolution are provided by:
(a) Muddy models (b) Rocky remnants

(c) Fossils (d) All these

Q12. Which major biological event occurred in neogene period?
(a) Extinction of dinosaur (b) Man evolved
(c) Origin of Earth (d) First eukaryotes appeared

Q13. Who is called the "Father of Palaeontology" (or fossil biology)?
(a) Leonardo da Vinci (b) G.H.F. Nuttall
(c) R.E. Dickerson (d) Ernst Haeckel

Q14. Which statement shows 'the theory of recapitulation' or 'Biogenetic law'?
(a) 'Ontogeny recapitulates phylogeny' (b) 'An individual organism in its development (ontogeny) tends to repeat the stages passed through by its ancestors (phylogeny)'
(c) The sudden reappearance of some ancestral features (d) Both (a) and (b)

Q15. ..... in all vertebrate embryos including human provides a strong evidence in support of organic evolution.
(a) Absence of gill clefts (b) Presence of gill clefts
(c) Presence of thick body hairs (d) Absence of thick body hairs

Q16. Effectiveness of ..... of one vertebrate on another suggests process of evolution.
(a) Trypsin (b) Amylase
(c) Thyroxine (d) Amino acids

Q17. The production of ecologically diverse species from a common ancestral stock is called:
(a) 'Diagonal evolution' (b) 'Adaptive radiation'
(c) 'Oriental species' (d) 'Palaearctic evolution'

Q18. Analogous organs like wings of insects, birds and bats; eyes of octopus and mammal illustrate:
(a) 'Convergent evolution' (b) 'Divergent evolution'
(c) 'Parallel evolution' (d) 'Oriental evolution'

Q19. ....., a protein splitting enzyme, is found in all animals from Protozoa to mammals and hence called ancient enzyme of protein.
(a) Zymase (b) Amylase
(c) Thyroxine (d) Trypsin

Q20. Biochemical evidence of amino acid configuration of ..... was used by R.E. Dickerson (1972) to explain the concept of organic evolution.
(a) Cytochrome C (b) Cytochrome K
(c) Cytochrome B (d) Trypsin

Q21. Select the right option about Lamarck's theory:
(a) Theory of use and disuse of organs (b) Proposed by Jean Baptiste de Lamarck (1744-1829)
(c) Criticized by Georges Cuvier who greeted it by calling it "nouvelle folie" (foolish) (d) All these

Q22. The tradition of boring ears and nostrils:
(a) Supports Lamarckism (b) Disproves Lamarckism
(c) Supports Darwinism (d) Disproves Darwinism

Q23. The concepts of natural selection in evolution was proposed by:
(a) August Weismann (b) Hugo de Vries

(c) Charles Darwin (d) William Bateson

Q24. The theory of natural selection of Darwin:
(a) Has been rejected by many naturalists (b) Is the first theory of organic evolution
(c) Supports Lamarckism (d) Has been failed in explaining origin of variations

Q25. Neo-Darwinism is:
(a) Modern synthetic theory (b) Modern mutation theory
(c) Modern selection theory (d) None of these

Q26. Hugo de Vries' theory of mutation:
(a) Does not rule out natural selection theory (b) Opposes natural selection theory
(c) Contradicts Lamarckism (d) Supports Lamarckism

Q27. 'Modern synthetic theory of evolution' was designated by:
(a) R.A. Fisher (b) J. Huxley
(c) W. Harvey (d) E. Darwin

Q28. A random change in allele frequencies over the generations is called:
(a) Genetic drift (b) Sewall Wright effect
(c) Bottleneck effect (d) Both (a) and (b)

Q29. The impact of genetic drift is:
(a) Insignificant on very large populations (b) Significant on small ones
(c) Both (a) and (b) (d) None of these

Q30. Genetic drift is a binomial sampling error of:
(a) Gene pool (b) Mutation
(c) Crossing over (d) Independent assortment

Q31. Mutations introduce new genes into a species resulting a change in:
(a) Alleles (b) Gene pool
(c) Gene frequencies (d) Gene migration

Q32. G.H. Hardy, an English mathematician and Wilhelm Weinberg, a German physician in 1908 established a simple mathematical relationship to the study of:
(a) Gene migration (b) Mutation
(c) Gene frequencies (d) Genetic drift

Q33. Which theory explains that both mutations and natural selection are responsible for evolution?
(a) Hardy-Weinberg's law (b) Neo-Darwinism
(c) Lamarckism (d) de Vries's Mutation theory

Q34. The heritable changes in DNA are called:
(a) Mutations (b) Genes
(c) Alleles (d) None of these

Q35. Select the right option about mutation:
(a) It is infrequent but inevitable for evolution (b) It alone creates new alleles
(c) Majority of mutations are harmful (d) All these

Q36. Which element is used to determine the age of a fossil?
(a) Nitrogen 14 (b) Oxygen 16
(c) Both (a) and (b) (d) Carbon 14

Q37. Hugo de Vries's mutation theory does not explain:
(a) Mimicry (b) Connecting link
(c) Origin of new species (d) None of these

Q38. Hardy and Weinberg principle explains:

(a) Mutation (b) Genetic equilibrium
(c) Natural selection (d) Genetic drift

Q39. Which mathematical equation shows the Hardy-Weinberg concept?
(a) $2A^2 - 8Aa + a^2 = 0$ (b) $A^2 + 2Aa + a^2 = 0$
(c) $A^2 + 2Aa + a^2 = 1$ (d) $A^2 - 2Aa - a^2 = 1$

Q40. The study of human evolution and culture is:
(a) Genetics and Arthrology (b) Genetics and Hereditary
(c) Anthropology (d) Euphenics

Q41. The closest relative of modern man is considered to be:
(a) Asian monkey (b) Chimpanzee
(c) Gorilla (d) Gibbon or Orang-utan

Q42. Which are the New World monkeys?
(a) Howler monkey (b) Spider monkey
(c) Rhesus monkey (d) Both (a) and (b)

Q43. Modern man differs from apes in:
(a) Thick body hairs (b) Thin body hairs
(c) Arms shorter than legs (d) Appearance of fifth toe

Q44. Which experiment proved that an advantageous mutation had occurred in E. coli bacteria before they were exposed to penicillin?
(a) Diffraction experiment (b) Replica plate experiment
(c) Both (a) and (b) (d) None of these

Q45. The genetic resources that is shared by all members of a population and is passed on to the next generation are called:
(a) Gene pool (b) Gene migration
(c) Genetic drift (d) Macro-resources

Q46. The non-parental arrangements of alleles in a progeny is called as:
(a) Recombination (b) Independent assortment
(c) Crossing over (d) None of these

Q47. The physical movement of alleles into and out of a population is called:
(a) Gene migration (b) Gene flow
(c) Gene pool (d) Both (a) and (b)

Q48. A severe reduction in population size brought about by intense selection pressure or some natural calamity is called a:
(a) Genetic load (b) Bottleneck
(c) Disruptive selection (d) Isolation

Q49. The existence within the population of disadvantageous alleles in heterozygous genotypes is known as:
(a) Gene pool (b) Mimicry
(c) Genetic load (d) Selection

Q50. Which is the most critical evolutionary process that leads to changes in allelic frequencies?
(a) Natural selection (b) Polymorphism
(c) Isolation (d) Mutation

Q51. Types of selection process occurring in natural and artificial populations are:
(a) Stabilising selection (b) Directional selection
(c) Disruptive selection (d) All these

Q52. Phenomenon of ..... demonstrates natural selection.
(a) Mimicry (b) Industrial melanism
(c) Variation (d) None of these

Q53. A population is in a state of balanced polymorphism when non-identical alleles for a trait are being maintained at frequencies greater than .....
(a) 1% (b) 5%
(c) 8% (d) 20%

Q54. A phenomenon whereby an individual of one species (mimics) gains advantage by resembling an

individual of different species (model) is called .....

(a) Polymorphism (b) Genetic variation
(c) Mimicry (d) Genetic load

Q55. Which hybrid is sterile?

(a) Tigon (b) Mule
(c) Hinny (d) Both (b) and (c)

Q56. Which word represents the lowest taxonomic group?

(a) Order (b) Species
(c) Class (d) Genus

Q57. Which is not a pre-zygotic isolation mechanism?

(a) Hybrid sterility (b) Seasonal isolation
(c) Ecological isolation (d) None of these

Q58. Who explained the principle of "survival of the fittest"?

(a) Alfred Russel Wallace (b) Charles Darwin
(c) R.A. Fischer (d) Ernst Mayr

Answers

1.	A	2.	D	3.	C	4.	B	5.	D
6.	A	7.	B	8.	B	9.	D	10.	C
11.	C	12.	B	13.	A	14.	D	15.	B
16.	C	17.	B	18.	A	19.	D	20.	A
21.	D	22.	B	23.	C	24.	D	25.	A
26.	A	27.	B	28.	D	29.	C	30.	A
31.	C	32.	C	33.	B	34.	A	35.	D
36.	D	37.	A	38.	B	39.	C	40.	C
41.	B	42.	D	43.	C	44.	B	45.	A
46.	A	47.	D	48.	B	49.	C	50.	A
51.	D	52.	B	53.	A	54.	C	55.	D
56.	B	57.	A	58.	B				

REPRODUCTION & HEREDITY

Against each question four answers are given, out of which one is correct. Choose the correct answer.

Q1. Which is not a form of sexual reproduction?
(a) Fission (b) Parthenogenesis
(c) Budding (gemmation) (d) Fragmentation

Q2. In which organism binary fission occurs?
(a) *Amoeba* (b) *Paramecium*
(c) *Planaria* and *Euglena* (d) All these

Q3. Spores are produced by:
(a) Malarial parasites (b) Bacteria
(c) Protozoa (d) Both (b) and (c)

Q4. Development of egg without fertilization is called:
(a) Parthenogenesis (b) Fragmentation
(c) Gemmation (d) Multiple fission

Q5. Which process is considered to be the most fundamental characteristics of living organisms?
(a) Respiration (b) Growth
(c) Movement (d) Reproduction

Q6. Fusion of two dissimilar gametes is known as:
(a) Allogamy (b) Autogamy
(c) Anisogamy (d) None of these

Q7. Egg-laying animals are known as:
(a) Oviparous (b) Viviparous
(c) Hermaphrodite (d) Diploblastic

Q8. Animals which give birth to young ones are called:
(a) Monoblastic (b) Sterile
(c) Viviparous (d) Oviparous

Q9. Major part of semen is secreted by:
(a) Prostate gland (b) Seminal vesicle
(c) Cowper's gland (d) Perineal glands

Q10. Cowper's glands are found in:
(a) Female mammals (b) Male mammals
(c) All vertebrates (d) All invertebrates

Q11. When a mature egg leaves the ovary, it enters:
(a) Follicle (b) Interstitial cells
(c) Fimbriated funnel (d) Fallopian tubes

Q12. Puberty occurs in males at the age of:
(a) 8 -12 years (b) 12 -14 years
(c) 14 -16 years (d) 18 -20 years

Q13. At puberty, women start producing:
(a) Ova (b) Sperms
(c) Hormones (d) Enzymes

Q14. Germ cells in vertebrate gonads originate by:
(a) Mitosis (b) Meiosis
(c) Both (a) and (b) (d) None of these

Q15. Cessation of menstrual cycle in a woman is called:
(a) Menarche (b) Menopause
(c) Ovulation (d) Vitellogenesis

Q16. Which organisms are oviparous?
(a) All birds (b) All mammals
(c) All invertebrates (d) None of these

Q17. Which hormone regulate the secondary sexual characters of female sex?
(a) Estrogens (b) Progesterone
(c) Testosterone (d) All these

Q18. Which are developed by parthenogenesis?
(a) Toads (b) Frogs
(c) Male honeybees (*i.e.*, drones) (d) Rabbits

Q19. Which cells secrete the male hormone testosterone?
(a) Somatic cells (b) Germ cells
(c) Tissue cells (d) Leydig cells

Q20. Graafian follicle, named after the Dutch physician Reijnier de Graaf, is a matured ovarian vesicle in:
(a) Fishes (b) Reptiles
(c) Mammals (d) Aves

Q21. The characteristics of zona pellucida, a membrane that encloses mammalian ovum, are:
(a) Thick and transparent (b) Opaque and cellular
(c) Non-cellular (d) Both (a) and (c)

Q22. ..... present in mammalian ovary is absent in amphibians.
(a) Zona pellucida (b) Corpus luteum
(c) Atretic follicle (d) Graafian follicle

Q23. Fallopian tube serves as a passage through which an ovum is carried to ..... and through which spermatozoa move out towards .....
(a) Vagina ; Urethra (b) Vagina ; Ureter
(c) Ovary ; Uterus (d) Uterus ; Ovary

Q24. Which part of sperm contains the nucleus having chromosomes?
(a) Head (b) Middle part
(c) Lower middle part (d) Tail

Q25. Mitochondrion in the middle piece of sperm produces ..... It is a source of energy.
(a) ADP (b) ATP
(c) Hormone (d) Both (a) and (c)

Q26. Which deals with the developmental changes from zygote to death?
(a) Embryology (b) Developmental biology
(c) Cytology (d) Both (a) and (b)

Q27. Who is regarded as the founder of the science of embryology?
(a) Confucius (b) Aristotle (384-322 BC)
(c) Empedocles (500-430 BC) (d) Anaxagoras (488-428 BC)

Q28. The 'Father of Modern Embryology' is:
(a) William Smith (b) Carl Linnaeus
(c) Karl Ernst von Baer (d) Charles Lyell

Q29. The development of a new individual from an asexual reproductive body is called:
(a) Blastogenesis (b) Embryogenesis
(c) Gametogenesis (d) Paedogamy

Q30. The egg-laying animals in which the egg develops inside the maternal body, but is not supplied with the maternal nourishment are called:
(a) Oviparous (*e.g.*, cockroach) (b) Viviparous (*e.g.*, Eutherian mammals)
(c) Ovoviviparous (*e.g.*, guppies) (d) None of these

Q31. The eggs can be classified into three types, which are:
(a) Based on the amount of yolk *viz.;* microlecithal, (b) Based on the distribution of yolk *viz;* Isolecithal,

mesolecithal and macrolecithal
(c) Both (a) and (b)
telolecithal and centrolecithal
(d) None of these

Q32. Fertilization is a:
(a) Biological process
(b) Physico-chemical process
(c) Physical process
(d) Chemical process

Q33. External fertilization occurs in oviparous animals which lay eggs in water. An example of such an organism is:
(a) Elephant
(b) Reindeer
(c) Frog
(d) All these

Q34. In ovoviviparous or viviparous animals, internal fertilization occurs. Examples are:
(a) *Echidna*
(b) Rabbit and man
(c) Both (a) and (b)
(d) None of these

Q35. Conjugation of two or more male pronuclei with a female pronucleus is an abnormal fertilization. It is called:
(a) Polyandry
(b) Polygyny
(c) Polyspermy
(d) Androgenesis

Q36. Which one of the following is the correct sequence for the development of fertilized ovum?
(a) Zygote → morula → blastula → cleavage → gastrula →neurula
(b) Zygote → cleavage → morula → blastula → gastrula → neurula →
(c) Zygote → morula → blastula → gastrula → neurula→ cleavage
(d) Zygote → neurula → gastrula → blastula → morula → cleavage

Q37. Frog breeds in rainy season from:
(a) March to May
(b) May to August
(c) June to September
(d) May to October

Q38. Spawn is a cluster or mass of eggs laid by a female. A spawn of *Rana tigrina* contains about:
(a) 500-800 eggs
(b) 800-1200 eggs
(c) 1000-1500 eggs
(d) 3000-4000 eggs

Q39. The abrupt transition from larval to adult form is called:
(a) Polymorphism
(b) Metamorphosis
(c) Parthenogenesis
(d) Gastrulation

Q40. Which system of frog undergoes maximum changes during metamorphosis?
(a) Digestive system
(b) Circulatory system
(c) Nervous system
(d) Respiratory system

Q41. As iodine is the main constituent of ....., it is found that deficiency or abundance of iodine in pond water also affect metamorphosis.
(a) Insulin and oxytocin
(b) Glycoprotein
(c) Thyroxine
(d) Thiourea

Q42. Allantois is extra-embryonic membrane found in:
(a) Birds
(b) Reptiles
(c) Mammals
(d) All these

Q43. A thin membrane that forms about the 8th day after fertilization is:
(a) Amnion
(b) Chorion
(c) Placenta
(d) Both (b) and (c)

Q44. ..... provides necessary requirements for growth of embryo:
(a) Allantois
(b) Placenta
(c) Allantois and Amnion
(d) Chorion

Q45. Gestation period is duration:
(a) Of fertilization
(b) Before metamorphosis

(c) Between fertilization and parturition (d) After parturition

Q46. A disease transferred from mother to child through placenta is:
(a) German measles (b) AIDS
(c) Syphilis (d) All these

Q47. Which cell division is found during cleavage?
(a) Amitosis (b) Mitosis
(c) Meiosis-I (d) Meiosis-II

Q48. Which type of cell division takes place in zygote?
(a) Mitosis (b) Closed mitosis
(c) Meiosis (d) Cleavage

Q49. In a vertebrate which germ layer forms the skeletal muscle?
(a) Ectoderm (b) Endoderm
(c) Mesoderm (d) Both (a) and (b)

Q50. Genetics is a science denoted to the study of the underlying basis of:
(a) Heredity (b) Genetic distribution
(c) Variation (d) Both (a) and (c)

Q51. The oldest branch of genetics which deals with the transmission of genes from generation to generation is called:
(a) Molecular genetics (b) Transmission genetics
(c) Mendelian or classical genetics (d) Both (b) and (c)

Q52. The first scientific study leading to formulations of laws of inheritance was carried out by ..... known as "father of genetics".
(a) Hugo de Vries (b) Walther Flemming
(c) Gregor Johann Mendel (d) Francis Crick

Q53. Mendel derived two laws or principles which are:
(a) Segregation (Purity of gametes) and Independent assortment (b) Dominant and recessive laws
(c) Hybridization and reciprocal cross (d) Both (b) and (c)

Q54. A mating between two individuals, leading to the fusion of gametes is called:
(a) Character (b) Trait
(c) Cross (d) Hybrid

Q55. When any of three or more genes occupy the same locus in a given pair of homologous chromosomes, they are said to constitute a series of:
(a) Co-dominance (b) Over-dominance
(c) Multiple alleles (d) Duplicate genes

Q56. If the number of alleles in a series is n, the number of genotypes will be:
(a) n (2n+1) (b) 1/2 (n+1)
(c) 1/2 (2n+1) (d) n/2 (n+1)

Q57. The three principles of Mendelism are:
(a) Random fertilization, variation and independent assortment (b) Dominance-recessiveness, segregation and independent assortment
(c) Linkage, hybridization and segregation (d) Hybridization, dominance and inheritance

Q58. Mendel's laws are applicable only in:
(a) Complete dominance (b) Recessive genes
(c) True breeding parents (d) Genes which are linked

Q59. ABO blood group system exhibits:
(a) Incomplete dominance (b) Co-dominance
(c) Epistasis (d) Multiple allelism

Q60. Recombination of genes results in variations. It is called:
(a) Dominance (b) Crossing-over
(c) Heterozygosity (d) Homozygosity

Q61. Who proposed the "Chromosome theory of inheritance"?
(a) Walter Sutton (b) Theodor Boveri
(c) Harriet Creighton (d) Both (a) and (b)

Q62. The tendency for alleles of different genes to be passed together from one generation to the next is called:
(a) Linkage (b) Transference
(c) Recombination (d) Inheritance

Q63. Who invented the procedure for chromosome mapping?
(a) Morgan and Cattell (b) Barbara McClintock
(c) Alfred H. Sturtevant (d) William Bateson

Q64. Which is the principle of Alfred H. Sturtevant (1911) about chromosome mapping?
(a) "Genes on the same chromosome should be inherited together"
(b) "There is greater probability for a cross over to occur between two genes farther apart than two genes nearer each other"
(c) "Chromosomes are the carriers of genes"
(d) "Coupling and repulsion are two aspects of the same phenomenon linkage"

Q65. A mutation that visibly changes chromosome structure is known as:
(a) Linkage group (b) Oncogene
(c) Lethal mutation (d) Chromosomal aberration

Q66. Types of chromosomal aberration are:
(a) 2 (b) 4
(c) 5 (d) 7

Q67. Mutual exchange (reciprocal) of the chromosome segments between non-homologous chromosomes is called:
(a) Deletion or deficiency (b) Duplication
(c) Inversion (d) Translocation

Q68. A unit of specific biological function located at a fixed position on a chromosome is called a:
(a) DNA segment (b) Centi Morgan
(c) Gene (d) None of these

Q69. The mode in which DNA passes its genetic information to RNA is known as:
(a) Protein synthesis (b) Transcription
(c) Coding (d) Both (b) and (c)

Q70. Which statement defines genetic code?
(a) "The correspondence between triplets in DNA (or RNA) and amino acids in protein"
(b) "Hereditary traits are determined by specific genes"
(c) "The separation of homologous chromosomes during anaphase of mitotic and meiotic divisions"
(d) "The ability of a gene to have multiple effects in the inter-relationship between the metabolic pathways that may

contribute towards different phenotypes"

Q71. Which option defines translation?
(a) Elongation of chromosomes
(b) Formation of peptide bonds
(c) Biosynthesis of proteins
(d) Transportation to ribosome by t-RNA

Q72. How many steps translation involves?
(a) Two: Propagation and termination
(b) Two: Propagation and polymerization
(c) Three: Initiation, elongation and termination
(d) Three: Initiation, propagation and polymerization

Q73. Sexual reproduction leads to:
(a) Translocation
(b) Genetic recombination
(c) Polyploidy
(d) Non-disjunction

Q74. Any cell with more than (2n) chromosomes is called:
(a) Diploid
(b) Autotetraploid
(c) Polyploid
(d) Allotetraploid

Q75. Who introduced the term "polyploid"?
(a) Strasburger
(b) T.H. Morgan
(c) H.J. Muller
(d) L.J. Stadler

Q76. A gene whose ..... kills the bearer is known as lethal gene.
(a) Determinate variations
(b) Indeterminate variations
(c) Genotypic effect
(d) Phenotypic effect

Q77. Albinism in corn is due to:
(a) Different phenotypes
(b) Lethal gene
(c) Different genotypes
(d) Mutation

Q78. Which types of chromosomes determine sex?
(a) Sex chromosomes
(b) Autosomes
(c) Both (a) and (b)
(d) None of these

Q79. A human egg contains:
(a) 22 autosomes + 2X chromosomes
(b) 22 autosomes + 1Y chromosome
(c) 22 autosomes + 1X chromosome
(d) 24 autosomes + 4X chromosomes

Q80. Which is the correct statement?
(a) The X chromosome is much bigger than the Y chromosome
(b) The Y chromosome carries very little genetic information
(c) At fertilization, when the 2X chromosomes come together, offspring are female; when X and Y come together, offspring are male
(d) All these

Q81. The sex-linked traits of humans is:
(a) Haemophilia
(b) Colour blindness
(c) Sickle cell aneaemia
(d) Both (a) and (b)

Q82. Who coined the term "gene"?
(a) W. Johannsen
(b) Gregor Johann Mendel
(c) H.F. Wilkins
(d) Rosalind Franklin

Q83. Who discovered the nature of the coded instructions in genes?

(a) James Watson (b) Francis Crick
(c) Both (a) and (b) (d) Leeuwenhoek

Q84. Polygenic inheritance is:
(a) Same genotypes may affect a single phenotype (*i.e.*, the visible character)
(b) Many different genotypes may affect a single phenotype
(c) An individual can have no more than two alleles at a given locus
(d) Separation of alleles located on the same chromosome occurs

Q85. "Several sets of alleles may produce a cumulative effect on the same character". It is a case of:
(a) Multiple alleles (b) Crossing over
(c) Autosomal linkage (d) Gene interaction

Q86. Molecular basis of inheritance are:
(a) Genes (b) Chromosomes
(c) Nucleic acids (d) All these

Q87. Ribonucleic acid (RNA) functions in protein synthesis and deoxyribonucleic acid (DNA) is the:
(a) Ribosomal protein (b) Mitochondrial protein
(c) Ribosomal amino acids (d) Genetic material

Q88. Who discovered transduction?
(a) Joshua Lederberg (b) Norton Zinder
(c) Alick Isaacs and Jean Lindenmann (d) Both (a) and (b)

Q89. When genes transfer from one bacterial cell to another by means of a virus, this process is called:
(a) Transcription (b) Replication
(c) Transformation (d) Transduction

Q90. Transfer of live genetic material is involved in:
(a) Transcription (b) Transduction
(c) Sexduction (d) Both (b) and (c)

Q91. A new method of harvesting stem cells is known as:
(a) Artificial parthenogenesis (b) Cloning
(c) Parthenogenesis (d) Hybridization

Q92. Recently cloned species is:
(a) Dolly ..... Goat (b) Dolly ..... Sheep
(c) Dolly ..... Deer (d) Dolly ..... Cat

Q93. The first mammal clone "Dolly" was created by:
(a) Ian Wilmut (b) August de Candolle
(c) John Ray (d) Andrea Caesalpino

Q94. The sheep "Dolly" was cloned by using the somatic cells from the donor's:
(a) Skin (b) Udder
(c) Kidney (d) Stomach

Q95. A gene that has been introduced into a cell or organism is called a:
(a) Gene pool (b) Modified gene
(c) Transgene (for transferred gene) (d) Endogenous gene

Q96. "Transgenic" is:
(a) "An organism that carries the introduced foreign gene" (b) "A protein that synthesize enzymes"
(c) "A gene that inhibits synthesis of protein" (d) "A gene which helps to control lethal genes"

Q97. GMOs are transgenics or transgenic organisms. GMOs stand for:
(a) Gene Mutation Organs (b) General Mutative Organisms
(c) Genotype Modified Organisms (d) Genetically Modified Organisms

Q98. How many methods are used to produce transgenic animals?
(a) Two (b) Five
(c) Six (d) Nine

Q99. The first transgenic animal produced was the:
(a) Polymouse (b) Supermouse
(c) Genetic mouse (d) None of these

Q100. Which is the correct option about genetic engineering"?
(a) It is a kind of biotechnology (b) It involves transfer or replacement of genes
(c) It is also known as "recombination DNA technology" or "gene splicing" (d) All these

Q101. Which of these are genetic disorders?
(a) Sickle-cell anaemia and haemophilia (b) Albinism and Huntington disease
(c) Malaria and Down syndrome (d) Both (a) and (b)

Q102. Most human genetic disorders are caused by:
(a) Homozygous recessive alleles (b) Homozygous dominant alleles
(c) Heterozygous dominant alleles (d) Heterozygous recessive alleles

Q103. Due to homozygous recessive alleles, genetic disorders in humans occur. Because these homozygous recessive genes do not generate enough:
(a) Pigments (b) Chemicals
(c) Acidic proteins (d) Enzymes

Q104. A defect in melanin production results in:
(a) Haemophilia (b) Albinism
(c) Sickle-cell anaemia (d) None of these

Q105. Which human genetic disorder is caused by homozygous dominant alleles?
(a) Sickle-cell anaemia (b) Albinism
(c) Huntington disease (d) All these

Q106. Genetic disorders among liveborn humans are caused by abnormal numbers of sex chromosomes. These include:
(a) Turner syndrome, (X O females) (b) Trisomy X (XXX females)
(c) Klinefelter syndrome (XXY males) ; and XYY males (d) All these

Q107. Which genetic disorder among liveborn humans is caused by abnormal numbers of autosomes?
(a) Turner syndrome (b) Trisomy 21 (Down syndrome)
(c) Haemophilia (d) Red-green colour blindness

Q108. Haemophilia is an X-linked recessive gene which causes a blood disorder. What are the chances that the daughter of a normal man and a heterozygous woman will have haemophilia?
(a) Zero (b) 10%

(c) 25% (d) 100%

Q109. Each normal human possesses in his or her body cells:
(a) 2 pairs of sex chromosomes and 46 pairs of autosomes
(b) 2 pairs of sex chromosomes and 23 pairs of autosomes
(c) 1 pair of sex chromosomes and 22 pairs of autosomes
(d) 1 pair of sex chromosomes and 22 pairs of autosomes

Q110. Which of the following could be detected by counting up the number of chromosomes in a cell of the affected person?
(a) Albinism (b) Trisomy 21
(c) AIDS (d) SARS

Q111. Traits controlled by sex-linked recessive genes are expressed more often in males because:
(a) Males inherit these genes from their fathers
(b) Males are always homozygous
(c) All male offspring of a female carrier get the gene
(d) The male has only one gene for the trait

Q112. A colourblind woman marries a non-colourblind man. Which of the following is true of their children?
(a) All will be colourblind
(b) All daughters will be normal and all sons will be carriers.
(c) All daughters will be colourblind and all sons will be normal.
(d) All daughters will be heterozygous and all sons will be colourblind.

Q113. A recessive allele on the X-chromosome causes colourblindness. A non-colourblind woman (whose father is colourblind) marries a colourblind man. What is the chance to be a colourblind of their son?
(a) 25% (b) 50%
(c) 75% (d) 100%

Q114. A man who carries a harmful X-linked gene will pass the gene on to:
(a) All of his daughters (b) Half of his daughters
(c) All of his children (d) All of his sons

Q115. A colourblind boy has a non-colourblind mother and a colourblind father. From which parent did he get the colourblind gene?
(a) Father (b) Mother
(c) Either parent could have given him the gene
(d) Neither father nor mother

Q116. An intuitive way to predict the genotypes and phenotypes of offspring is:
(a) Linkage method (b) Pedigree
(c) Punnet square method (d) G-P graph method

Q117. Which of the following is not a goal of biotechnology?
(a) Generating economic benefits
(b) Effective treatment of diseases
(c) Improvement in agriculture
(d) Creation of humans with higher intelligence levels

Q118. Genetic material that has been altered by the incorporation of genes from a different organism, typically from another species is called:
(a) Recombinant DNA (b) DNA probe
(c) Chain DNA (d) None of these

Q119. Genetic engineering allows the production of therapeutic proteins like:
(a) Insulin (b) Human growth hormone

(c) Both (a) and (b) (d) None of these

Q120. Which technique facilitates genetic detection?
(a) Tissue culture (b) DNA fingerprinting
(c) Selective breeding (d) All these

Q121. DNA recombinations controlled by scientists in the laboratory:
(a) Are random and undirected (b) Involve specific pieces of DNA moved between deliberately chosen organisms
(c) Usually cause harmful mutations (d) Are of little practical use to humans

Q122. Small accessory chromosomes found in bacteria and useful in recombinant DNA procedures are called:
(a) Plasmids (b) Palindromes
(c) Centrioles (d) Both (b) and (c)

Q123. In biotechnology research, DNA fragments created by restriction enzyme action are separated from one another by:
(a) Crossing over (b) Gel electrophoresis
(c) Polymerase chain reaction (PCR) (d) Centrifugation

Q124. The enzymes used to cut genes in recombinant DNA research are called:
(a) Restriction enzymes (b) Replicases
(c) RNA polymerases (d) Spliceosomes

Q125. The polymerase chain reaction (PCR) is useful in:
(a) Cutting DNA into many small pieces (b) Allowing restriction enzymes to cut DNA at palindromes
(c) Making many copies of a small amount of DNA (d) Creating recombinant plasmids

Q126. In the context of genetic engineering, a bacterium, plasmid, or virus that carries DNA between different organisms is called a:
(a) Transgenic (b) Genome
(c) Vector (d) Bacteriophage

Q127. If amounts of bases in a DNA molecule are measured, we find:
(a) A = C and G = T (b) A = G and C = T
(c) T = A and C = G (d) That all bases are equal in amount.

Q128. When comparing DNA and RNA, we find:
(a) No sugar is present in either molecule (b) Hydrogen bonding is important only in DNA
(c) Only DNA has a backbone of sugars and phosphates (d) Adenine pairs with different bases in DNA and RNA

Q129. The DNA of a certain organism has guanine as 30% of its bases. What percentage of its bases would be adenine?
(a) 5% (b) 10%
(c) 20% (d) 32%

Q130. The correct structure of a nucleotide is:
(a) Phosphate -ribose - adenine. (b) Phosphate -lipid -sugar
(c) Adenine -phosphate - cytosine (d) Phosphate -glucose - phospholipids

Q131. The two polynucleotide chains in a DNA molecule are attracted to each other by:

(a) Covalent bonds between carbon atoms
(b) Hydrogen bonds between bases
(c) Ionic bonds between alkyl groups and amino acids
(d) Peptide bonds between amino acids

Q132. Using an analogy of DNA as a twisted ladder, the rungs (steps) of the ladder are:
(a) Phosphate groups
(b) Paired nitrogenous bases
(c) Oxygen-carbon double bond
(d) All these

Q133. All the cells of a specific organism contain equal amounts of:
(a) Adenine and guanine
(b) Guanine and cytosine
(c) Thymine and cytosine
(d) Adenine and cytosine

Q134. The purine bases in DNA are:
(a) Adenine and guanine
(b) Guanine and cytosine
(c) Cytosine and thymine
(d) Thymine and adenine

Q135. A pyrimidine base always base-pairs with a:
(a) Single-ring pyrimidine
(b) Double-ring pyrimidine
(c) Single-ring purine
(d) Double-ring purine

Q136. Figuratively speaking, a double helix is comparable to:
(a) Tangled threads
(b) Twisted ladder
(c) Coiled fabrics
(d) Circular filaments

Q137. Chromosome:
(a) In eukaryotes, is a linear strand composed of DNA and protein
(b) In eukaryotes, is found in the nucleus of a cell, that contains the genes
(c) In prokaryotes, is a circular strand composed solely of DNA
(d) All options are correct

Q138. Which environmental forces damage DNA?
(a) X-rays
(b) Ultraviolet radiation from the sun
(c) Certain chemicals
(d) All these

Q139. The DNA replication is controlled by:
(a) Enzymes
(b) Nitrogenous bases
(c) Ultraviolet radiations from the sun
(d) None of these

Q140. The process whereby the sequence of nucleotides of messenger RNA (m-RNA) is converted into the sequence of amino acids of a protein is called:
(a) Translation
(b) Transcription
(c) Transduction
(d) Both (b) and (c)

Q141. The synthesis of an RNA molecule from a DNA template is called:
(a) Genetic coding
(b) Mutation
(c) Protein synthesis
(d) Transcription

Answers

1.	B	2.	D	3.	D	4.	A	5.	D
6.	C	7.	A	8.	C	9.	B	10.	B
11.	D	12.	C	13.	A	14.	C	15.	B
16.	A	17.	A	18.	C	19.	D	20.	C
21.	D	22.	B	23.	D	24.	A	25.	B
26.	D	27.	B	28.	C	29.	A	30.	C
31.	C	32.	B	33.	C	34.	C	35.	A
36.	B	37.	C	38.	D	39.	B	40.	D
41.	C	42.	D	43.	A	44.	B	45.	C
46.	D	47.	B	48.	D	49.	C	50.	D
51.	D	52.	C	53.	A	54.	C	55.	C
56.	D	57.	B	58.	C	59.	D	60.	B
61.	D	62.	A	63.	C	64.	A	65.	D
66.	B	67.	D	68.	C	69.	B	70.	A
71.	C	72.	C	73.	B	74.	C	75.	A
76.	D	77.	B	78.	A	79.	C	80.	D
81.	D	82.	A	83.	C	84.	B	85.	D
86.	C	87.	D	88.	D	89.	D	90.	D
91.	B	92.	B	93.	A	94.	B	95.	C
96.	A	97.	D	98.	A	99.	B	100.	D
101.	D	102.	A	103.	D	104.	B	105.	C
106.	D	107.	B	108.	A	109.	C	110.	B
111.	D	112.	D	113.	B	114.	A	115.	B
116.	C	117.	D	118.	A	119.	C	120.	B
121.	B	122.	A	123.	B	124.	A	125.	C
126.	C	127.	C	128.	D	129.	C	130.	A
131.	B	132.	B	133.	B	134.	A	135.	D
136.	B	137.	D	138.	D	139.	A	140.	A
141.	D								

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Miscellaneous MCQs

THE CELL

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

EMERGENCE & IMPLICATION OF CELL THEORY

1. **The cell was discovered by:**
   (a) Lamarck (b) Lorenz Oken
   (c) Robert Hooke (d) Robert Brown
2. **The cell nucleus was discovered by:**
   (a) Virchow (b) Robert Brown
   (c) Robert Hooke (d) Schwann
3. **The cell theory was formulated by:**
   (a) Schleiden and Weismann (b) Pasteur and Schwann
   (c) Schleiden and Shan (d) Schleiden and Schwann
4. **In electron microscope the resolution of microscope ranges between _____.**
   (a) 2-6 Angstrom (b) 2-4 Angstrom
   (c) 3-6 Angstrom (d) 1-4 Angstrom
5. **Contraction and relaxation are the characteristics of:**
   (a) Muscle cells (b) Nerve cells
   (c) Gland cells (d) Tendons
6. **The photosynthetic cells of green plants are also called:**
   (a) Meristematic cells (b) Parenchymatous cells
   (c) Sclerenchymatous cells (d) Chlorenchymatous cells
7. **The surplus food is stored in:**
   (a) Chlorenchymatous cells (b) Parenchymatous cells
   (c) Photosynthetic cells (d) Meristemetic cells
8. **Growth and development of plant is the function of:**
   (a) Meristematic cells (b) Chlorenchymatous cells
   (c) Parenchymatous cells (d) Sclerenchymatous cells
9. **Omnis cellula-e-cellula was hypothesized by:**
   (a) Schleiden (b) Rudolph Virchow
   (c) Louis Pasteur (d) Lorenz Oken
10. **The biggest cell in the world is the egg of:**
    (a) Ostrich (b) Kiwi
    (c) Turtle (d) Elephant

STRUCTURE OF A GENERALIZED CELL

11. **60-80% of the chemical component of the cell membrane is the:**
    (a) Protein (b) Lipid
    (c) Carbohydrate (d) Nucleic acid
12. **The intake of materials by the animal cells by forming vacuoles is called:**
    (a) Pinocytosis (b) Endocytosis
    (c) Phagocytosis (d) Mitosis
13. **The primary cell wall is composed of cellulose and some deposition of pectin and:**
    (a) Lignin (b) Silica
    (c) Hemicellulose (d) Chitin
14. **Cellulose molecules are arranged in a:**

(a) Random arrangement (b) Peculiar arrangement
(c) Criss-cross arrangement (d) Straight fibres arrangement

15. **Prokaryotic cell wall lacks:**
(a) Lignin (b) Cellulose
(c) Hemicellulose (d) All of above

16. **Prokaryotic cell wall is formed of:**
(a) Murein (b) Peptidoglycan
(c) Polysaccharide plus shorter chains of amino acids (d) All of above

17. **Fungal cell wall is made up of:**
(a) Cutin (b) Pectin
(c) Chitin (d) Cellulose

18. **All the living content of a eukaryotic cell is called:**
(a) Protoplasm (b) Nucleoplasm
(c) Cytoplasm (d) Cytosol

19. **Cytoplasm is a site for certain metabolic processes such as:**
(a) Kreb's cycle (b) Glycolysis
(c) Calvin cycle (d) Glyoxylate cycle

20. **The free floating cell organelles move about in cytoplasm due to cytoplasmic:**
(a) Oceanic movement (b) Streaming movements
(c) Wavy movements (d) To and fro movements

21. **The rough surfaced endoplasmic reticulum is involved in the synthesis of:**
(a) Lipids (b) Proteins
(c) Carbohydrates (d) Glycolipids

22. **Detoxification of harmful drugs is the function of:**
(a) RER (b) SER
(c) Both RER and SER (d) Mitochondria

23. **SER also helps in metabolism of a number of different types of molecules, particularly:**
(a) Carbohydrates (b) Proteins
(c) Lipids (d) None of above

24. **Palade was the first person to study the:**
(a) Lysosomes (b) Ribosomes
(c) Polysomes (d) Peroxisomes

25. **Ribosomes are chemically composed of:**
(a) Only protein (b) Ribonucleoprotein
(c) RNA and protein (d) (b) and (c) are correct

26. **A group of ribosomes attached to mRNA are known as:**
(a) Centrosome (b) Polysome
(c) Nucleosome (d) Peroxisome

27. **New ribosomes are assembled in the:**
(a) Nucleus (b) Cytoplasm
(c) Nucleolus (d) Endoplasmic reticulum

28. **Golgi apparatus was discovered by Golgi in:**
(a) 1889 (b) 1896
(c) 1898 (d) 1888

29. **Which of the following statements about ribosomes is correct?**
(a) They are chemically composed of DNA and protein.
(b) They are enclosed in their own membrane.
(c) They are concentrated in the cisternal space of RER.
(d) They are attached to the cisternal surface.

30. **Modification of proteins and lipids into glycoproteins and glycolipids occurs in:**
(a) Golgi apparatus (b) SER
(c) Chloroplast (d) Mitochondria

31. **Golgi apparatus has two ends:**
(a) First face and second face (b) Forming face and deforming face
(c) Forming face and maturation face (d) Proximal face and distal face

32. **Golgi complex is concerned with:**
(a) Cell eating (b) Power house of cell
(c) Cell development (d) Cell secretions

33. **The proteins or enzymes which have to be transported out of the cell pass through the:**
(a) Endoplasmic reticulum (b) Golgi complex
(c) Vacuoles (d) Exocytosis

34. **Lysosomes were first isolated in 1949 by:**
(a) De Duve (b) De veries
(c) Palade (d) Tay-Sach

35. **Which type of cells would probably be most appropriate to study lysosomes?**
(a) Mesophyll cells of leaf (b) Nerve cells
(c) Phagocytic white blood cells (d) Muscle cells

36. **Lysosomal sacs are rich in:**
(a) Acid oxidase and hydrolytic enzymes
(b) Reductase and oxidases only.
(c) Acid phosphatase and proteolytic enzymes
(d) Acid phosphotase and hydrolytic enzymes

37. **Which of the following pairs of structure-function is mismatched?**
(a) Ribosome; protein synthesis (b) Nucleolus; ribosome production
(c) Golgi; muscle contraction (d) Lysosome; intracellular digestion

38. **The lysosomes which eat parts of its own cell are known as:**
(a) Autophagosomes (b) Primary lysosomes
(c) Secondary lysosomes (d) Both (a) and (c)

39. **The digestive vacuoles and autophagosomes are also known as:**
(a) Primary lysosomes (b) Secondary lysosomes
(c) Phagocytic lysosomes (d) Peroxides

40. **Several congenital diseases have been found to be due to accumulation within the cell of substances such as glycogen or various:**
(a) Lipoproteins (b) Glycolipids
(c) Glycoproteins (d) Lipopolysaccharides

41. **_____ disease is because of absence of an enzyme that is involved in the catabolism of lipids:**
(a) Glycogenosis Type II (b) Cancer
(c) Microcephaly (d) Tay-Sach's

42. **Mental retardation and even death may be caused if the brain cells accumulate:**
(a) Glycogen (b) Proteins
(c) Lipids (d) Starch

43. **In the disease glycogenosis Type II, glycogen fills the liver and:**
(a) Pancreas (b) Lungs
(c) Kidneys (d) Muscles

44. **Lysosomes also release enzymes for extra cellular:**
(a) Development (b) Digestion
(c) Contraction (d) Secretion

45. **Peroxisomes in 1965 were isolated by:**
(a) Golgi and coworkers (b) De Duve and coworkers
(c) Palade and coworkers (d) Sanger and coworkers

46. **The cell organelles enriched with oxidative enzymes such as peroxidase, catalase and glycolic acid oxidase is called:**
(a) Polysome (b) Glyoxisome
(c) Centrosome (d) Peroxisome

47. **Peroxisomes have also been found in protozoa, yeast and many cell types of higher:**

(a) Animals (b) Algae
(c) Fungi (d) Plants

48. **The name peroxisome was applied because this organelle is specifically involved in formation and decomposition of _____ in the cell.**
(a) Nitrogen peroxide (b) Calcium peroxide
(c) Hydrogen peroxide (d) None of above

49. **Glyoxisomes are most abundant in germinating seedlings where their enzymes convert stored fatty acids to:**
(a) Glycerols (b) Carbohydrates
(c) Succinate (d) Proteins

50. **In lipid-rich seeds, glyoxisomes are the sites for breakdown of fatty acids to:**
(a) Succinate (b) Glycerol
(c) Fats (d) Carbohydrates

51. **Glyoxisome is absent in lipid-poor seed such as:**
(a) Castor bean (b) Pea
(c) Mung (d) None of above

52. **The plant vacuole is the major contributor to the:**
(a) Storage (b) Turgor
(c) Excretion (d) Growth

53. **The microtubules of the cytoskeleton are composed of the protein called:**
(a) Tubulin (b) Actin
(c) Myosin (d) Tropomyosin

54. **Cilia, flagella and centrioles are special assemblies of:**
(a) Microfilaments (b) Mitcrotubules
(c) Intermediate filaments (d) None of above

55. **Cyclosis and amoeboid movements are because of:**
(a) Microtubules (b) Intermediate filaments
(c) Microfilaments (d) Macrofilaments

56. **Centrioles are not found in:**
(a) Cells of lower plants (b) Cells of lower animals
(c) Cells of higher plants (d) Cells of higher animals

57. **Centrioles are made up of nine microtubules:**
(a) Duplet (b) Triplet
(c) Octect (d) Tetrads

58. **Centrioles play important role in the location of furrowing during cell division, and in the formation of:**
(a) Flagella (b) Cilia
(c) Cilia and flagella (d) None of above

59. **Mitochondria are also known as:**
(a) Store house (b) Information house
(c) Power house (d) All of above

60. **Mitochondria are composed of:**
(a) DNA only (b) Enzymes, coenzymes, inorganic and organic salts
(c) Protein only (d) All of above

61. **Under compound microscope, mitochondria appears to be:**
(a) Filaments (b) Vesicles
(c) Vesicles, rods or filaments (d) Rods

62. **Mitochondria are found in:**
(a) Prokaryotic cells only (b) Both prokaryotic & eukaryotic cells
(c) Eukaryotic cells only (d) In none of the above

63. **Mitochondria also contain:**
(a) DNA and RNA (b) DNA and protein

(c) RNA and ribosomes (d) DNA and ribosomes

64. **In plants membrane bounded mostly pigment containing bodies in the cells are called:**
(a) Chloroplasts (b) Plastids
(c) Chromoplasts (d) Both chloroplast & chromoplast

65. **Chlorophyll has Mg^{++} as central atom while haem has:**
(a) Ca^{++} (b) Na^{+}
(c) K^{+} (d) Fe^{++}

66. **The chloroplasts have grana embedded in the:**
(a) Matrix (b) Grana
(c) Intergrana (d) Stroma

67. **Under electron microscope a chloroplast shows three main components viz. the envelope, the stroma and the:**
(a) Matrix (b) Intergranum
(c) Thylakoid (d) Granum

68. **Stroma is a fluid in the chloroplast which surrounds the:**
(a) Granum (b) Stroma
(c) Matrix (d) Thylakoids

69. **The stroma of the chloroplast contains some ribosomes, a small circular DNA and:**
(a) Proteins (b) Lipids
(c) Sugars (d) Starches

70. **Which of the following is true about chloroplasts?**
(a) Found in underground parts of plants.
(b) Help in pollination and dispersal of seeds.
(c) Self-replicating organelles.
(d) Involved in protein synthesis

71. **Which type of cell would probably be most appropriate to study chloroplasts?**
(a) Parenchymatous cell (b) Photosynthetic cell
(c) Meristematic cell (d) Xylem cell

72. **Which statement about plastids is true?**
(a) They are the powerhouses of cell.
(b) They are surrounded by a single membrane.
(c) They contain DNA and ribosomes.
(d) They are found in all organisms.

73. **On the layers of thylakoids chlorophyll molecules are arranged and that is why granum appear to be:**
(a) Yellowish Red (b) Greyish white
(c) Red (d) Green

74. **The plastids found in the cells of petals of the flowers and the fruits are the:**
(a) Cytochromes (b) Chloroplasts
(c) Phytochromes (d) Chromoplasts

75. **_____ help in pollination and dispersal of seeds**
(a) Chloroplast (b) Chromoplast
(c) Leucoplast (d) All of above

76. **Leucoplasts are colourless plastids and serve to store:**
(a) Lipids (b) Food
(c) Protein (d) All of above

77. **Nucleus can be seen in a:**
(a) Young cell (b) Non-dividing all
(c) Germinating cell (d) Dividing cell

78. **One of the following is not a double membranous structure:**
(a) Chloroplast (b) Mitochondrion

(c) Vacuole (d) Nucleus

79. **Nucleus contains soluble sap called:**
(a) Protoplasm (b) Cytoplasm
(c) Nucleoplasm (d) None of above

80. **The nuclear pores allow exchange of materials between the nucleus and the:**
(a) Protoplasm (b) Nucleoplasm
(c) Cytoplasm (d) Cytosol

81. **Erythrocytes have:**
(a) Only 3 or 4 pores/ nucleus (b) Only 4 or 5 pores/ nucleus
(c) Only 2 or 4 pores/ nucleus (d) Only 5 or 6 pores/ nucleus

82. **Egg cell has:**
(a) About 25,000 pores per nucleus (b) About 35,000 pores per nucleus
(c) About 30,000 pores per nucleus (d) About 3,000 pores per nucleus

83. **Which statement about nucleolus is not true?**
(a) Without membranous boundary (b) Hereditary centre
(c) Composed of two regions (d) Synthesizing site for rRNA

84. **Which statement about the nuclear envelope is not true?**
(a) Its inner membrane bears ribosomes.
(b) RNA and some proteins pass through it.
(c) It is a double membrane structure.
(d) It has pores.

85. **Chimpanzee has the number of chromosomes:**
(a) 44 (b) 46
(c) 64 (d) 48

86. **Gametes are also called:**
(a) Sperms (b) Gonads
(c) Eggs (d) Germ cells

87. **Drosophila melanogaster is the biological name of:**
(a) Butterfly (b) Fruit fly
(c) Housefly (d) Tsetse fly

88. **The number of chromosomes in normal body cells are:**
(a) Haploid (b) Diploid
(c) Monoploid (d) Triploid

PROKARYOTIC & EUKARYOTIC CELL

89. **Prokaryotes include blue-green algae and:**
(a) Viruses (b) Bacteria
(c) Protozoans (d) Protists

90. **Eukaryotes include animals, plants, fungi and:**
(a) Protista (b) Monera
(c) Bacteria (d) Viruses

91. **The entire cell wall of prokaryotic cell is often regarded as a single huge molecule known as:**
(a) Polysaccharide (b) Lipoprotein
(c) Murein or sacculus (d) Cellulose

92. **The prokaryotic cell can divide by:**
(a) Multiple fission (b) Mitosis

(c) Meiosis (d) Binary fission

93. **The sedimentation coefficient of prokaryotic ribosome is:**
(a) 80S (b) 30S
(c) 50S (d) 70S

94. **Perhaps the most distinctive feature of prokaryotic cell is its:**
(a) Cell membrane (b) Hereditary material
(c) Ribosomes (d) Cell wall

95. **Organisms possessing prokaryotic cells are called:**
(a) Mononucleate (b) Eukaryotes
(c) Unicellular (d) Prokaryotes

Answers

1.	c	2.	b	3.	d	4.	b
5.	a	6.	d	7.	b	8.	a
9.	b	10.	a	11.	a	12.	c
13.	c	14.	c	15.	d	16.	d
17.	c	18.	a	19.	b	20.	b
21.	b	22.	b	23.	c	24.	b
25.	d	26.	b	27.	c	28.	c
29.	c	30.	a	31.	c	32.	d
33.	b	34.	a	35.	c	36.	d
37.	c	38.	a	39.	b	40.	b
41.	d	42.	c	43.	d	44.	b
45.	b	46.	d	47.	d	48.	c
49.	b	50.	a	51.	b	52.	b
53.	a	54.	b	55.	c	56.	c
57.	b	58.	b	59.	c	60.	b
61.	c	62.	c	63.	d	64.	b
65.	d	66.	a	67.	c	68.	d
69.	a	70.	c	71.	b	72.	c
73.	d	74.	d	75.	b	76.	b
77.	b	78.	c	79.	c	80.	c
81.	a	82.	c	83.	b	84.	a
85.	d	86.	d	87.	b	88.	b
89.	b	90.	a	91.	c	92.	d
93.	d	94.	d	95.	d		

VARIETY OF LIFE

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

1. Large groups are divided into smaller groups until the:
   (a) Class level (b) Species level
   (c) Order level (d) Phylum level
2. A set of related genera would grouped into:
   (a) A family (b) An order
   (c) A species (d) A class
3. A class is a group of related:
   (a) Order (b) Species
   (c) Genera (d) Family
4. Species is the basic unit of:
   (a) Evolution (b) Genetics
   (c) Ecology (d) .Classification

NOMENCLATURE

5. Carolus Linnaeus developed the system of nomenclature which is called:
   (a) Monomial (b) Binomial
   (c) Trinomial (d) Naming and classification
6. Linnaeus published his list of animals in:
   (a) 1747 (b) 1748
   (c) 1758 (d) 1753
7. In the scientific name of onion, Allium cepa, the Allium belongs to its:
   (a) Genus (b) Group
   (c) Species (d) Family
8. Members of which category resembles to one another more than do the members of higher taxon:
   (a) Middle (b) Second last from higher
   (c) Second to higher (d) Lower
9. Cassia fistula is the scientific name for:
   (a) Argvad (b) Amaltas
   (c) Golden shower (d) All of above
10. Solanum tuberosum is the scientific name of:
    (a) Potato (b) Tobacco
    (c) Tomato (d) Onion
11. Scientific name has advantage of having:
    (a) No scientific bases.
    (b) Scientific basis and universally accepted.
    (c) Same organisms having different names in different areas.
    (d) Same name applied to different organisms.

TWO TO FIVE KINGDOM CLASSIFICATION SYSTEMS

12. In the two kingdom system which of the following would characterize an animal:
    (a) Inability to move (b) Cellulose cell wall
    (c) Ingestion of food (d) Photosynthesis
13. In 1866, Ernst Haeckel in order to accommodate Euglena like organisms and bacteria, proposed a Kingdom called:
    (a) Protista (b) Plantae
    (c) Monera (d) Fungi
14. The five kingdom system of classification was proposed by

(a) Robert Brown (b) Undertaker
(c) Robert Whittaker (d) Margulis and Schwartz

15. **Robert Whittekar's five kingdom system of classification was modified by:**
(a) E. Chatton (b) Charles Chamberland
(c) Ernst Haeckel (d) Margulis and Schwartz

16. **According to Whittaker system of classification the prokaryotic unicellular organisms belong to the kingdom:**
(a) Fungi (b) Animalia
(c) Protista (d) Monera

17. **In the five kingdom system of classification developed by Robert Whittaker, member of the kingdom Plantae are autotrophic, eukaryotic, and:**
(a) Multicellular (b) Motile
(c) Either unicellular or multicellular (d) Have sexual reproduction

18. **Five kingdom system proposed by Margulis and Schwartz is not based on:**
(a) Nucleic acid (b) Genetics
(c) Mode of nutrition (d) Cellular organization

19. **Phlogeny describes a species:**
(a) Evolutionary history (b) Geographic distribution
(c) Reproductive compatabilities with other species (d) Morphological similarities with other species

20. **In the classification system, the mode of nutrition related to fungi is:**
(a) Ingestion (b) Photosynthesis
(c) Absorption (d) Chemosynthesis

VIRUSES

21. **The study of viruses is called as:**
(a) Virology (b) Ecology
(c) Mycology (d) Phycology

22. **Viruses may be considered non-living because:**
(a) They can mutate (b) They do not locomote
(c) Their nucleic acid does not code for protein (d) They cannot reproduce independently

23. **Vaccination was introduced by:**
(a) Louis Pasteur (b) Robert Koch
(c) Edward Jenner (d) Chamberland

24. **Stanley isolated viruses from the host cell of tobacco in:**
(a) 1946 (b) 1892
(c) 1935 (d) 1835

25. **The hereditary material in viruses may be:**
(a) DNA (b) DNA or RNA
(c) Both DNA and RNA (d) RNA

26. **The fact that a virus can be transmitted from an infected organism to a healthy organism of the same kind was demonstrated in 1892 by:**
(a) Lederberg (b) Ivanowski
(c) Morgan (d) Stanley

27. **Which one of the following does not describe viruses:**
(a) Each virus has both DNA and RNA in it.
(b) A protein capsid surrounds the nucleic acid portion of each virus.
(c) Viruses are obligate intracellular parasites.
(d) They exhibit some but not all of the characteristics of living.

28. **Which of the following is an infectious protein particle:**
(a) Capsid (b) Prion
(c) Virion (d) Retrovirus

29. A virion is a:
(a) Viral gene (b) Viral enzyme
(c) Viral protein (d) Virus

30. An isolated virus is not considered living since it:
(a) Separates into two inert parts.
(b) Is coated with an air tight shield.
(c) Rapidly looses its genome chemically inert.
(d) Cannot metabolize.

31. Which of the following are found in all viruses?
(a) DNA, RNA and protein.
(b) Protein, nucleic acid, carbohydrates.
(c) Protein and nucleic acid.
(d) Envelope, nucleic acid, capsid.

32. Common cold is caused to human by the:
(a) Oncovirus (b) Adenovirus
(c) Parvovirus (d) Retrovirus

33. Which is the most effective protection against viral infections:
(a) Washing hands (b) Antibiotics
(c) Disinfectants (d) Natural immunity of the host

34. Which step in the lytic cycle follows attachment of virus and release of DNA into the host cell?
(a) DNA replication (b) Assemblage
(c) Production of lysozyme (d) Disintegration of host DNA

35. Which of the following is a true statement?
(a) Viruses do not need ribosomes for protein formation.
(b) Viruses use the host's ribosomes for their own needs.
(c) New viral ribosomes form after viral DNA enter the cell.
(d) Viruses carry with them their own machinery for protein formation.

36. The enzymes involved in viral replication are synthesized:
(a) By the host cell.
(b) On the interior surface of viral coat.
(c) On the interior surface of viral membrane.
(d) On the viral ribosomes.

37. Viruses range in size from 250 nm of poxviruses to the 20 nm of:
(a) Provirus (b) Protovirus
(c) Parvovirus (d) Retrovirus

38. 162 capsomeres are present in the _____ of herpes virus:
(a) Capsid (b) Head
(c) Tail (d) Nucleocapsid

39. The best known phages are T phages that infect:
(a) Escherichia coli (b) Mycoplasma
(c) Pseudomonas (d) Salmonella typhi

40. The bacteriophage replicates only inside the:
(a) Animal cell (b) Fungal cell
(c) Plant cell (d) Bacterial cell

41. To dissolve a portion of the bacterial cell wall, the tail of bacteriophage releases the enzyme:
(a) Ligase (b) Erypsin
(c) Lipase (d) Lysozyme

42. The phage which causes lysis of the host cell is known as virulent phage or:
(a) Phagocytic (b) Lysogenic
(c) Lytic (d) Endocytic

43. In the lytic cycle of bacteriophage, the host DNA is:
(a) Digested into its nucleotides.
(b) Turned on by removal of a protein coat.
(c) Turned off by a protein coat.
(d) Replicated.

44. In the lysogenic cycle, the DNA of a bacteriophage:

(a) Joins the bacterial chromosome.
(b) Goes directly to the host's ribosome for translation.
(c) Attaches to the inner surface of the host membrane.
(d) Is immediately degraded when it enters the host.

45. **Temperate phage may exist as:**
(a) Retrovirus (b) Viroid
(c) Capsid (d) Prophage

46. **Most commonly Herpes Simplex occurs in the mouth, on the lips, and at other:**
(a) Active sites (b) Binding sites
(c) Skin sites (d) Receptor sites

47. **Polioviruses are:**
(a) Spherical (b) Filamentous
(c) Vesicular (d) Rod-shaped

48. **Paramyxoviruses cause the disease:**
(a) Tetatus (b) Measles and mumps
(c) Influenza (d) Herpes simplex

49. **Small pox is caused to human beings by;**
(a) Prions (b) Bacteria
(c) Viruses (d) Protozoans

50. **Retroviruses cause the disease:**
(a) AIDS (b) Sleeping sickness
(c) Malaria (d) Mumps and measles

51. **RNA retroviruses have a special enzyme that:**
(a) Translate host DNA (b) Transcribes viral RNA to DNA
(c) Polymerize host RNA (d) Synthesizes host DNA

52. **Pigs could be reservoirs to:**
(a) Hepatitis E (b) Hepatitis A
(c) Hepatitis B (d) Hepatitis C

53. **Vaccine is not yet available for:**
(a) Hepatitis B virus (b) Hepatitis A virus
(c) Hepatitis C virus (d) For all as above

54. **The human immuno-deficiency virus primarily infects:**
(a) Red blood cells (b) Helper T-Cells (T-lymphocytes)
(c) Plasma cells (d) None of above

55. **Which one of following is false about AIDS:**
(a) Host specific (b) HAV
(c) HIV (d) T-lymphocytes

Answers

1.	b	2.	a	3.	a	4.	d
5.	b	6.	c	7.	a	8.	d
9.	d	10.	a	11.	b	12.	c
13.	a	14.	c	15.	d	16.	d
17.	a	18.	a	19.	a	20.	c
21.	a	22.	d	23.	c	24.	c
25.	b	26.	b	27.	a	28.	c
29.	d	30.	d	31.	c	32.	b
33.	d	34.	d	35.	b	36.	a
37.	c	38.	a	39.	a	40.	d
41.	d	42.	c	43.	a	44.	a
45.	d	46.	c	47.	a	48.	b
49.	c	50.	a	51.	b	52.	a
53.	c	54.	b	55.	b		

KINGDOM PLANTAE

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

KINGDOM PLANTAE

1. **Plant cells have a cell wall outer to:**
   (a) Cell membrane (b) Plasma lamella
   (c) Plasma membrane (d) All of above
2. **The total number of plant species known so far is:**
   (a) 235,000 (b) 360,000
   (c) 380,000 (d) 460,000
3. **The kingdom Plantae can be divided into two broad categories viz.:**
   (a) Bryophyta and Tracheophyta
   (b) Bryophyta and Pteridophyta
   (c) Bryophyta and Lycophyta
   (d) Gymnospermae and Angiospermae
4. **The sub-division Psilopsida includes:**
   (a) Club mosses (b) Mosses
   (c) Whisk ferns (d) Horsetails
5. **Ferns and seed plants are included in the sub-division:**
   (a) Pteropsida (b) Sphenopsida
   (c) Lycopsida (d) Psilopsida
6. **The sub-division Anthocerotopsida includes:**
   (a) Stoneworts (b) Hornworts
   (c) Liverworts (d) None of above
7. **The division Tracheophyta constitutes:**
   (a) All gymnosperms (b) All pteropsids
   (c) Horsetails, clubmosses and seed plants (d) All vascular plants

DIVISION BRYOPHYTA

8. **Bryophytes are generally thought to have evolved from:**
   (a) Green algae (b) Red algae
   (c) Brown algae (d) All of above
9. **The first plants to colonize on land were:**
   (a) Pteridophytes (b) Bryophytes
   (c) Arthrophytes (d) Tracheophytes
10. **All the bryophytes share certain characteristics like:**
    (a) Vascular tissue, true leaves and waxy cuticle
    (b) Reproductive tissue in protective chambers and vascular tissue.
    (c) A waxy cuticle, true leaves and reproductive cells in protective chambers
    (d) Reproductive cells in protective chambers and waxy cuticle
11. **The bryophytes are also called:**
    (a) Sporogonium (b) Amphibians
    (c) Arthrophytes (d) All of above
12. **The sporophyte in bryophytes is:**
    (a) Diploid (b) Monoploid
    (c) Haploid (d) Both (b) and (c)
13. **In bryophytes the gametes are produced by:**
    (a) Binary fission (b) Meiosis

(c) Mitosis (d) Amitosis

14. **In bryophytes the antherozoids are attracted towards archegonia:**
(a) Chemotactically (b) Thermotactically
(c) Phototactically (d) Osmotically

CLASSIFICATION OF BRYOPHYTES

15. **Bryophytes are divided into three sub-divisions:**
(a) Lycopsida, sphenopsida and pteropsida
(b) Hepaticopsida, Bryopsida and Anthocerotopsida
(c) Hepaticopsida, Filicineae and Angiospermae
(d) Filicineae, Gymnospermae and Angiospermae

16. **The number of plant species of liverworts is about:**
(a) 400 (b) 700
(c) 1000 (d) 900

17. **The example of leafy liverwort is:**
(a) Porella (b) Marchantia
(c) Polytrichum (d) Lycopodium

18. **The plant body is thalloid, flat, ribbon like, usually dichotomously branched in:**
(a) Selaginella (b) Anthoceros
(c) Marchantia (d) Psilotum

19. **In mosses the sex organs develop at the tips of different branches on different plants as in:**
(a) Polytrichum (b) Porella
(c) Lycopodium (d) Funaria

20. **In mosses the archegonia and antheridia form clusters and are mixed with sterile hairs, called:**
(a) Epiphyses (b) Paraphyses
(c) Periphyses (d) None of above

21. **The spore of a moss plant develops into an alga like structure, the:**
(a) Chlamydomonas (b) Prothallus
(c) Plakea (d) Protonema

22. **The gametophytic plant body organization is highly lobed and irregular in outline in:**
(a) All bryophytes (b) Anthocerotopsida
(c) Bryopsida (d) Hepaticopsida

23. **In hornworts the sporophyte has a band of specialised cells, at the junction of foot and spore producing region, known as:**
(a) Conducting tissue (b) Meristematic tissue
(c) Vascular tissue (d) Both (a) and (c)

24. **A haploid spermatozoid fuses with a haploid egg, in bryophytes, to produce diploid:**
(a) Zygote (b) Oosphere
(c) Oospore (d) Both (a) and (c)

25. **The oospore in bryophytes does not produce the gametophyte directly but produces a totally different plant called:**
(a) Sporophyte (b) Protonema
(c) Prothallus (d) Sporangium

26. **The sporophyte of bryophytes is also called:**
(a) Sporangium (b) Sporogonium
(c) Prothallus (d) Protonema

27. **It should be noted that in bryophytes the sporophyte generation begins with oospore and ends at:**
(a) Spores (b) Oospore
(c) Spore mother cell (d) Zygote

DIVISION TRACHEOPHYTA

28. **The vascular tissue contains:**

(a) Xylem and xylem vessles
(b) Vessels and trachieds
(c) Trachieds and phloem cells
(d) Xylem and phloem

PSILOPSIDA (PSILOPHYTA)

29. **In psilopsids plants have:**
(a) Rootless sporophytes
(b) Stem differentiated into an underground rhizome and an aerial part
(c) Green, photosynthetic and leafless aerial branches
(d) All of above

30. **One of the extinct psilophyte is:**
(a) Horneophyton (b) Xylia
(c) Haematoxylon (d) Psilotum

31. **Tmesipeteris is an example of:**
(a) Horsetail (b) Clubmoss
(c) Psilopsid (d) Fern

32. **Psilotum is an example of:**
(a) Fern (b) Whisk fern
(c) Moss (d) Club moss

EVOLUTION OF LEAF

33. **Early vascular land plants were without true leaves or:**
(a) Sporophylls (b) Sporangia
(c) Shoots (d) Roots

34. **The first plants which developed true leaves and roots were:**
(a) Pteropsids (b) Sphenopsids
(c) Lycopsids (d) Psilopsids

35. **Such a leaf which is small in size and has a single vein in it is called:**
(a) Microsporophyll (b) Megaphyll
(c) Microphyll (d) Megasporophyll

36. **The expanded porotion of leaf blade is also known as:**
(a) Ramenta (b) Lamina
(c) Ligule (d) Retina

37. **The evolution of megaphylls started from a dichotomous branching system in some primitive:**
(a) Fern like plants (b) Bryophytes
(c) Rhynia like plants (d) Hornworts like plants

38. **During evolution the fusion of vascular strands resulted in net or:**
(a) Valvate venation (b) Reticulate venation
(c) Circinate venation (d) Imbricate venation

39. **The process of evolution of leaf was very slow and completed in more than:**
(a) 150-170 million years (b) 120-150 million years
(c) 20-50 million years (d) 15-20 million years

LYCOPSIDA

40. **The arrangement of leaves in Lycopsida is:**
(a) Spiral or whorled (b) Opposite or decussate
(c) Spiral or opposite (d) Opposite or superimposed

41. **The sporophylls in lycopsida may or may not be arranged in the form of a:**
(a) Cone (b) Strobilus
(c) Flower (d) None of above

42. **The ligules are present in the leaves or sporophylls of:**
(a) Lycopodium (b) Equisetum
(c) Tmesipeteris (d) Selaginella

43. **Lycopsids are also called:**
(a) Club mosses (b) Panicle mosses
(c) Spike mosses (d) Both (a) & (c)

44. **Selaginella resembles spermatophytes because of its:**
(a) Heterospory (b) Pollen tube habit
(c) Seed habit (d) Green colour

45. **The gametophyte of Lycopsida is mainly:**
(a) Aerial (b) Partly aerial & partly underground
(c) Underground (d) Photosynthetic

SPHENOPSIDA

46. **The Sphenopsids are commonly called:**
(a) Cattails (b) Horsetails
(c) Cowtails (d) Dogtails

47. **Another name assigned to Sphenopsida or horsetails is:**
(a) Sporophytes (b) Arthropods
(c) Arthrophytes (d) Pteridophytes

48. **In Equisetum the sporangia borne on sporangiophores are aggregated to form:**
(a) Cones (b) Strobilus
(c) Clusters (d) Spike

49. **Each sporangiophore in Equisetum has:**
(a) A filament and an anther
(b) A slender stalk and an expanded disc at its jointed end
(c) A stiff stalk and an expanded disc at its free end
(d) A slender stalk and an expanded disc at its free end

PTEROPSIDA

50. **Pteropsida is divided into:**
(a) Seven classes (b) Three classes
(c) Four classes (d) Two classes

51. **The leaves of class Filicineae are called:**
(a) Microphylls (b) Sporophylls
(c) Fronds (d) Megaphylls

52. **The immature and young leaf of ferns is coiled, this pattern of development is called:**
(a) Valvate vernation (b) Circinate venation
(c) Imbricate venation (d) Circinate vernation

53. **An ostrich fern is an example of:**
(a) Fern (b) Whisk fern
(c) Moss plant (d) Seed plant

54. **The plant which grows on the bark of trees is called:**
(a) Saprophyte (b) Epiphyte
(c) Parasite (d) All of above

55. **Ferns are especially abundant:**
(a) On equator (b) In arctic regions
(c) In tropics (d) In boreal regions

56. **Tmesipeteris is a whisk fern but pteris is a:**
(a) Horsetail (b) Fern
(c) Club moss (d) Liverwort

57. **The underground part of stem of Adiantum is called:**
(a) Corm (b) Bulb
(c) Tuber (d) Rhizome

58. **The group of sporangia is called:**
(a) Torus (b) Sporangiophore

(c) Sorus (d) None of above

59. **Each sorus in Adiantum is covered by a:**
(a) Flag (b) False indusium
(c) True indusium (d) Annulus

60. **The edge of sporangium or capsule of Adiantum has two parts:**
(a) Foot and seta (b) Annulus and indusium
(c) Annulus and stomium (d) Torus and sorus

61. **Prothallus is the alternate name of Adiantum:**
(a) Antheridia (b) Embryo
(c) Sporophyte (d) Gametophyte

62. **The spermatozoid of Adiantum has following characteristics:**
(a) Spirally coiled and multicilliated
(b) Elongated and multinucleated
(c) Rounded and multicilliated
(d) Spirally coiled and multinucleated

EVOLUTION OF SEED HABIT

63. **A review of plant kingdom shows that spermatophytes predominate over:**
(a) Vascular plants (b) Non-seed vascular plants
(c) Non seeded plants (d) None of above

64. **One of the most significant event in history of land plants was development of:**
(a) Heterospory (b) Pollen tube habit
(c) Seed habit (d) Flower

65. **The development of seed habit in vascular plants occurred approximately:**
(a) 390 million years ago (b) 380 million years ago
(c) 365 million years ago (d) 435 million years ago

66. **The first complete seed appeared during:**
(a) Late Carboniferous times (b) Late Devonian times
(c) Early Devonian times (d) Late Ordovician times

67. **An ovule is:**
(a) Fertilised seed
(b) Integumented indehiscent megasporangium
(c) Dehiscent megasporangium
(d) Integumented dehiscent megasporangium

68. **A heterosporous plant is one that:**
(a) Produces a gametophyte that bears both sex organs
(b) Produces two kinds of spores, one asexually by mitosis and one type by meiosis
(c) Produces microspores and megaspores in separate sporangia, giving rise to separate male and female gametophyte
(d) Is a seedless vascular plant

69. **Important terrestrial adaptations that evolved exclusively in seed plants include all of the following except:**
(a) Retension of the gametophyte plant within the sporophyte
(b) Transport of water through vascular tissues
(c) Pollination by wind or animal instead of fertilization by swimming sperm
(d) Protection and nourishment of the embryo within the seed

70. **During evolution of seed habit some branch like structures of sporophyte surrounding the megasporangium fused around to latter to form protective envelope or:**
(a) Seed coat (b) Integument
(c) Tegmen (d) Indusium

71. **The single healthy megaspore retained within the megasporangium germinated to form an egg containing female gametophyte called:**
(a) A male gametophyte (b) An embryo

(c) A pollen grain (d) An embryo sac

CLASS GYMNOSPERMAE

72. **Gymnosperms are one of the most successful groups of seed plants of:**
(a) Arctic, subarctic region (b) Subarctic and boreal regions
(c) Worldwide distribution (d) Tropics and temperate zones

73. **The gymnosperms are heterosporous plants which produce seeds but no:**
(a) Fruits (b) Ovule
(c) Spores (d) Seed coat

74. **The term gymnospermae literally means:**
(a) Enclosed seeded (b) Hidden seeded
(c) Naked seeded (d) Vascular and seeded

75. **The ovules, in gymnosperms, are usually borne on exposed surface of fertile leaves also called:**
(a) Sporophylls (b) Microsporophylls
(c) Megasporophylls (d) Megaphylls

76. **In gymnosperms the megasporophylls bearing ovules are not folded and joined at the margins to form:**
(a) A fruit (b) A cone
(c) A strobilus (d) An ovary

77. **The common name of cycas is:**
(a) Hemlcok (b) Sago-palm
(c) Fanpalm (d) Bottle-palm

78. **Pine is a:**
(a) Conifer (b) Juniper
(c) An angiosperm (d) Pteridophyte

79. **Pollen grain, in gymnosperms, is a whole term for:**
(a) Megasporangium containing ovule
(b) Microspore containing microgametophyte including gametes
(c) Microspore containing male gametophyte including gametes
(d) Both (b) and (c)

80. **Pollen grain in Pinus has two wings attached to its:**
(a) Anterior and posterior sides
(b) Lateral sides
(c) One side
(d) Posterior sides

81. **In gymnosperms the embryo sac contains:**
(a) 1-4 archegonia (b) 3-7 archegonia
(c) One to several archegonia (d) 3-9 archegonia

CLASS ANGIOSPERMAE

82. **In angiosperms the ovary after fertilization is changed into:**
(a) A seed (b) A fruit containing seed
(c) A fruit (d) A seed containing embryo

83. **The total Angiosperm species known so far is:**
(a) 360,000 (b) 380,000
(c) 450,000 (d) 235,000

84. **A flower is a modified shoot which consists of:**
(a) Pedicel, thalamus or torus and vegetative leaves
(b) Pedicel or torus, thalamus and floral leaves
(c) Peduncle, petiole and floral leaves
(d) Pedicel, thalamus or torus and floral leaves

85. **The essential or reproductive parts of the flower are:**
(a) Stamens and sepals (b) Stamens and carpels

(c) Sepals and petals (d) Petals and carpels

86. In angiosperms the ovule consists of an integument and a tissue called:
(a) Prothallus (b) Meristematic tissue
(c) Nucellus (d) None of above

87. In angiosperms the female gametophyte contains:
(a) One to several cells (b) 7 cells only
(c) 3 cells only (d) 5 cells only

88. The male gametophyte of an angiosperm is:
(a) Microspore (b) Germinated pollen grain
(c) Anther (d) Embryo sac

89. Double fertilization is the characteristic of:
(a) Angiosperms only (b) All spermatophytes
(c) Gymnosperms only (d) All tracheophytes

90. As a result of double fertilization the oospore develops into an embryo and endosperm nucleus into a multicellular nutritive tissue, the:
(a) Female gametophyte (b) Endosperm
(c) Nucellus (d) Embryo sac

91. Angiosperms are further classified on the basis of number of cotyledons in the:
(a) Seed (b) Seedling
(c) Embryo (d) Endosperm

ANGIOSPERMIC FAMILIES ROSACEAE

92. The common name of family Rosaceae is:
(a) Pear family (b) Rose family
(c) Potato family (d) Apple family

93. The scientific name of strawberry is:
(a) Fragaria (b) Bauhinia
(c) Physalis (d) Pyrus

94. The number of genera of family Rosaceae found in Pakistan is:
(a) 213 (b) 129
(c) 29 (d) 82

95. Tobacco pipes are made from the wood of:
(a) Pyrus pashia (b) Xylia
(c) Crataegus (d) Cassia alata

FAMILY SOLANACEAE

96. In Pakistan 14 genera and about 52 species are reported of family Solanaceae by Mr.:
(a) Jaffer (b) Nasir
(c) Qaisar (d) Ihsan

97. The condition where stamens are inserted on corolla is called:
(a) Epiphytic (b) Episepalous
(c) Epipetalous (d) Synpetalous

98. The type of placentation in family Solanaceae is:
(a) Free central (b) Marginal
(c) Basal (d) Axile

99. The scientific name of brinjal is:
(a) Solanum tuberosum (b) Nicotiana tabaccum
(c) Lycopersicum esculentum (d) Solanum melongena

100. Capsicum annum is the scientific name of:
(a) Black pepper (b) Chilly
(c) Red pepper (d) Rat-Ki-Rani

101. Petunia belongs to the family:
(a) Solanaceae (b) Fabaceae
(c) Caesalpiniaceae (d) Mimosaceae

FAMILY FABACEAE (PAPILIONACEAE)

102. **Cicer arietinum is the biological name of:**
(a) Sweet pea (b) Chick pea
(c) Garden pea (d) Peanut

103. **The world's best forage crop for horses is:**
(a) Medicago (b) Trifolium
(c) Melilotus (d) Indigofera

104. **Peanut oil is extracted from the seeds of:**
(a) Brassica campestris (b) Lathyrus odoratus
(c) Arachis hypogea (d) Pisum sativum

105. **Sesbania & Lupinus belong to the family:**
(a) Fabaceae (b) Caesalpiniaceae
(c) Rosaceae (d) Graminae or Poaceae

106. **All the pulses belong to the family:**
(a) Mimosaceae (b) Rosaceae
(c) Caesalpiniaceae (d) Papilionaceae

FAMILY CAESALPINIACEAE

107. **Family Caesalpiniaceae carries the number of genera in total:**
(a) 60 (b) 152
(c) 93 (d) 28

108. **The other name of family Caesalpiniaceae is:**
(a) Acacia family (b) Pea family
(c) Cassia family (d) Grass family

109. **Cassia senna and Cassia obovata are cultivated for the leaves which yield the drug:**
(a) Atropine (b) Daturine
(c) Senna (d) Nicotine

110. **Oil extracted from the seeds of Cynometera cauliflora is applied:**
(a) As a laxative
(b) Against snake bite
(c) For curing eye disease
(d) Externally for skin diseases

111. **The bark of Bauhinia and Tamarindus indica is used in:**
(a) Tanning (b) Curing malaria
(c) Blood purifier (d) Yielding dyes

112. **The acidic fruit of Tamarindus indica is rich in:**
(a) Formic acid (b) Acetic acid
(c) Tartaric acid (d) Lactic acid

113. **The leaves and flower's bud of Bauhinia variegata are used as:**
(a) Fragrance (b) Vegetable
(c) Mosquito repellent (d) Curing skin diseases

FAMILY MIMOSACEAE

114. **The other name of family Mimosaceae is:**
(a) Prosopis family (b) Mimosa family
(c) Acacia family (d) Both (b) & (c)

115. **The number of genera of Acacia family which are native to Pakistan is:**
(a) 14 (b) 4
(c) 18 (d) 11

116. **Cabinet work and railway carriages are made possible by the wood of:**
(a) Prosopis glandulosa (b) Xylia
(c) Albizzia lebbek (d) Cassia fistula

117. **Katha is a dye obtained from:**
(a) Cassia alata (b) Acacia catechu
(c) Cassia obovata (d) Acacia nilotica

118. **The tender leaves of Acacia nilotica are used as:**
(a) Vegetable (b) Laxative

(c) Blood purifier (d) Forage crop for horses

FAMILY GRAMINEAE

119. The traditional family name Gramineae takes its name from:
(a) Greek Grammar (b) Latin Grammar
(c) Arabic Grammar (d) English Grammar

120. The biological name of wheat is:
(a) Triticum vulgare (b) Avena sativa
(c) Zea mays (d) Oryza sativa

121. Floret is the whole term for:
(a) Lemma and palea (b) Lemma, palea and awns
(c) Glumes, palea and awns (d) Lemma, palea and flower

122. Biological name of rye is:
(a) Hordeum vulgare (b) Sorghum vulgare
(c) Secale cereale (d) Saccharum munja

Answers

1.	d	2.	b	3.	a	4.	c
5.	a	6.	b	7.	d	8.	a
9.	b	10.	d	11.	b	12.	a
13.	c	14.	a	15.	b	16.	d
17.	a	18.	c	19.	a	20.	b
21.	d	22.	b	23.	b	24.	c
25.	a	26.	b	27.	c	28.	d
29.	d	30.	a	31.	c	32.	b
33.	d	34.	c	35.	c	36.	b
37.	a	38.	b	39.	d	40.	c
41.	b	42.	d	43.	d	44.	a
45.	c	46.	b	47.	b	48.	a
49.	d	50.	b	51.	c	52.	d
53.	a	54.	b	55.	c	56.	b
57.	d	58.	c	59.	b	60.	c
61.	d	62.	a	63.	b	64.	c
65.	c	66.	b	67.	b	68.	c
69.	a	70.	b	71.	d	72.	c
73.	a	74.	c	75.	c	76.	d
77.	b	78.	a	79.	d	80.	b
81.	c	82.	b	83.	d	84.	d
85.	b	86.	c	87.	b	88.	b
89.	a	90.	b	91.	c	92.	b
93.	a	94.	c	95.	a	96.	b
97.	c	98.	a	99.	d	100.	b
101.	a	102.	b	103.	a	104.	c
105.	a	106.	d	107.	b	108.	c
109.	c	110.	d	111.	a	112.	c
113.	b	114.	d	115.	b	116.	c
117.	b	118.	c	119.	b	120.	a
121.	d	122.	c	123.	b	124.	a
125.	b						

KINGDOM ANIMALIA

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

INTRODUCTION

1. **The name animalia is derived from Latin, anima which means:**
   (a) Life (b) Breath
   (c) Soul (d) Both (b) and (c)
2. **Multicellular animals were, broadly, referred to as:**
   (a) Metazoa (b) Eumetazoa
   (c) Protozoa (d) Parazoa
3. **Kingdom Animalia includes all animals which are:**
   (a) Multicellular (b) Eukaryotic
   (c) Diploid (d) All of above
4. **All biologists agree that animals evolved from:**
   (a) Bacteria (b) Protoctists
   (c) Cyanobacteria (d) All of above

DEVELOPMENT OF COMPLEXITY IN ANIMALS

5. **The simplest of the animals belong to sub-kingdom:**
   (a) Parazoa (b) Metazoa
   (c) Protozoa (d) Eumetazoa
6. **The animals which have a false coelom are called:**
   (a) Acoelomata (b) Pseudocoelomata
   (c) Coelomata (d) Radiata
7. **Typically a false coelom is known as called:**
   (a) Gastrocoele (b) Blastostyle
   (c) Pseudocoele (d) None of above
8. **All the animals included in grade Bilateria are:**
   (a) Triploblastic (b) Acoelomate
   (c) Diploblastic (d) Pseudocoelomate
9. **Diploblastic animals are included in phylum:**
   (a) Cnidaria (b) Porifera
   (c) Coelenterata (d) Both (a) and (c)
10. **Muscular, skeletal and reproductive systems are originated from the layer:**
    (a) Ectoderm (b) Endoderm
    (c) Mesoderm (d) None of above
11. **In Aschelminthes the space between the body wall and the digestive tube is called:**
    (a) False body cavity (b) Pseudocoelom
    (c) False coelom (d) All of above
12. **Pseudocoelom is not homologous to true coelom because:**
    (a) It is not lined by coelomic epithelum.
    (b) It has no relation with the reproductive and excretory organs.
    (c) It develops from blastocoel of embryo.
    (d) All of above.

PARAZOA

13. **In most sponges the body wall is formed of an outer layer, pinacoderms, made up of cells called:-**
    (a) Pinocytes (b) Pinacocytes
    (c) Dermocytes (d) Choanocytes
14. **In sponges the water leaves the body through main opening called:**

(a) Osculum (b) Micropyle
(c) Operculum (d) Ostiole

15. In sponges the skeleton is in the form of variously shaped needle-like structures called:
(a) Ostia (b) Spines
(c) Operculum (d) Spicules

16. The asexual reproduction in sponges is by:
(a) Fragmentation (b) Fission
(c) Budding (d) All of above

17. The internal buds produced in asexual reproduction of sponges are called:
(a) Gemmules (b) Gemma cups
(c) Gemmae (d) Gemma buds

18. Protandrous is the condition where:
(a) Male sex organs develop first (b) Female sex organs develop first
(c) Both male and female sex organs develop at the same time (d) No sex organs develop

19. It is beautiful and delicate sponge made up of glass framework:
(a) Sycon (b) leucoselenia
(c) Euplectella (d) Spongilla

20. The best commercial sponges are found in the warm waters of:
(a) Red Sea (b) Mediterranean Sea
(c) Carabian Sea (d) Red Sea

GRADE RADIATA PHYLUM COELENTERATA/ CNIDARIA DIPLOBLASTIC ANIMALS

21. The characteristic stinging cells of phylum coelenterata are called:
(a) Cnidocytes (b) Pinacocytes
(c) Nematocysts (d) Choanocytes

22. In coelenterates, between the two layers of body wall, ectoderm and endoderm, there is jelly-like:
(a) Mesenchyme (b) Mesogloea
(c) Enteron (d) All of above

23. The coelenterates range in size from microscopic Hydra to macroscopic_____that may reach two meters in length:
(a) Balanoglossus (b) Obelia
(c) Saccoglossus (d) Branchioceranthus

24. Polyps are cylindrical animals, which in most cases are nutritive in function, hence named as:
(a) Gastrozooids (b) Medusae
(c) Gonozooids (d) Hydrozoan polyp

25. Most colonial coelenterates such as corals produce a hard exoskeleton formed of:
(a) Silica (b) Calcium silicate
(c) Calcium carbonate (d) Calcium

26. Some of the colonial members have upto five different types of zooids, performing different functions for colony e.g.:
(a) Madrepore (b) Portuguese man of war
(c) Sea anemone (d) Obelia

GRADE BILATERIA
TRIPLOBLASTIC ANIMALS – THE ACOELOMATES PHYLUM PLATYHELMINTHES – THE FLATWORMS

27. Platyhelminthes exhibit bilateral symmetry and body is:
(a) Unsegmented (b) Metamerically segmented
(c) Simple segmented (d) None of above

28. The following is a free living species and found in freshwater:

(a) Tape worm (b) Liver fluke
(c) Blood fluke (d) Planaria

29. The scientific name of tape worm is:
(a) Dugesia (b) Fasciola hepatica
(c) Taenia solium (d) Schistosoma

30. Tape worm is an endoparasite of:
(a) Humans (b) Pig
(c) Cattle (d) All of above

31. In tapeworm the body is ribbon like and divided into segments called:
(a) Proglottids (b) Parapodia
(c) Epiglottis (d) Nephridia

TRIPLOBLASTIC ANIMALS-PSEUDOCOELOMATES ASCHELMINTHES (PHYLUM NEMATODA) THE ROUND WORMS

32. In nematodes a fluid filled space is present between the body wall and alimentary canal which gives:
(a) "Tube within tube" like structure
(b) "tube without tube" like structure
(c) "Fluid within tube" like structure
(d) All of above

33. Ascaris lumbericoides is an intestinal parasite of:
(a) sheep (b) cow
(c) man (d) pig

34. The scientific name of pin worm is:
(a) Enterobius vermicularis
(b) Ascaris lumbericoides
(c) Acyclostoma duodenale
(d) Taenia solium

35. A single rotting apple may contain:
(a) 70,000 round worms (b) 90,000 round worms
(c) 9,000 round worms (d) 7,000 round worms

THE COELOMATES PHYLUM ANNELIDA-THE SEGMENTED WORMS

36. The word annelida is derived from Latin word meaning;
(a) Segment (b) Partition
(c) Metamerically segmented (d) Little ring

37. The mouth of annelids is overhung by a lobed structure called:
(a) Prostomium (b) Operculum
(c) Peristomium (d) Epiglottis

38. Specialized excretory structures in annelids are called:
(a) Flame cells (b) Malpighian tubules
(c) Spiracles (d) Nephridia

39. The organs of locomotion in annelids are:
(a) Chaetae (b) Parapodia
(c) Setae (d) All of above

40. The chaetae are absent in:
(a) Neries (b) Earthworm
(c) Stylaria (d) Leech

41. Which of the following belong to the class oligochaeta:
(a) Chaetopterus (b) Hirudo medicinalis
(c) Lumbricus terrestris (d) Neries

PHYLUM ARTHROPODA

ANIMALS WITH JOINTED LEGS

42. **The body, in arthropods, is covered by waterproof chitinous cuticle secreted by the:**
    (a) Endodermis (b) Epidermis
    (c) Protoplasm (d) All of above
43. **Malpighian tubules of arthropods are meant for:**
    (a) Excretion (b) Respiration
    (c) Reproduction (d) Transportation
44. **The nitrogenous waste in arthropods is:**
    (a) Semi solid uric acid (b) Urea
    (c) Solid uric acid (d) Ammonia
45. **In arthropods the sensory organs are usually:**
    (a) A pair of compound eyes
    (b) Antennae
    (c) A pair of compound eyes and antennae
    (d) A pair of legs
46. **In arthropods the main tubes of tracheae open to the exterior through openings called:**
    (a) Osculum (b) Spiracles
    (c) Tentacles (d) Ostia
47. **In arthropods the larva resembles adult and called:**
    (a) Lymph (b) Syrnix
    (c) Instar (d) Trochopore
48. **Wood louse, prawn and cyclops are included in the class:**
    (a) Insecta (b) Myriapoda
    (c) Arachnida (d) Crustacea
49. **Book lungs are special respiratory structures in:**
    (a) Annelids (b) Molluscs
    (c) Arthropods (d) Nematods
50. **Class myriapoda includes:**
    (a) Daphnia and crabs (b) Scorpion and spider
    (c) Moth and butterfly (d) Centipede and millipede
51. **The process of shedding of exoskeleton in arthropods is called:**
    (a) Ecdysis (b) Metamorphosis
    (c) Moulting (d) (a) and (c) correct
52. **Trypanosoma, the cause of sleeping sickness is transmitted by:**
    (a) Tse-tse fly (b) Butterfly
    (c) Dragon fly (d) Aphids
53. **Locust is a kind of:**
    (a) Protozoan (b) Earthworm
    (c) Grasshopper (d) Nematode
54. **Insect larvae are source of food for:**
    (a) Reptiles (b) Fish
    (c) Amphibians (d) Birds

PHYLUM MOLLUSCA

55. **The largest invertebrate animal is:**
    (a) Water mussel (b) Giant squid
    (c) Oyster (d) Octopus
56. **In molluscs the body is covered by a glandular epithelial envelope called:**
    (a) Epidermis (b) Shell
    (c) Mantle (d) All of above
57. **In the mouth cavity of many molluscs there is a rasping tongue-like:**
    (a) Blastula (b) Radula
    (c) Neurula (d) Gastrula

58. In molluscs a respiratory pigment of blue in colour is present called:
(a) Phycocyanin (b) Haemocyanin
(c) Phycoerythrin (d) Haemoglobin

59. Molluscs are classified into:
(a) Three classes (b) Seven classes
(c) Four classes (d) Six classes

60. Helix aspersa is commonly termed as:
(a) Garden snail (b) Squid
(c) Slug (d) Oyster

61. The other name for Bivalvia is:
(a) Cephalopoda (b) Gastropoda
(c) Pelecypoda (d) Crustacea

62. The shell is reduced and internal in:
(a) Cephalopoda (b) Gastropoda
(c) Bivalvia (d) None of them

63. The harmful molluscs are slugs and:
(a) Pinworms (b) Earth worms
(c) Shipworms (d) Round worms

64. Pearls are produced by:
(a) Oyster (b) Squid
(c) Mussel (d) Snail

PHYLUM ECHINODERMATA - THE SPINY SKINNED ANIMALS

65. The unique characteristic of echinoderms is that, their coelom bears:
(a) A water vascular system
(b) A respiratory system
(c) An excretory system
(d) A blood vascular system

66. Certain biochemical peculiarities are common among echinoderms and chordates e.g.;
(a) Phospholecithin (b) Phospholipids
(c) Phosphocreatin (d) phosphoric acid

67. Which of the following is not an echnioderm?
(a) Brittle star (b) Octopus
(c) Sea urchin (d) Cake urchin

PHYLUM HEMICHORDATA

68. Hemichordates are a group of animals that has a combination of characteristics both of:
(a) Molluscs and echinoderms
(b) Molluscs and chordates
(c) Arthropods and chordates
(d) Echinoderms and chordates

69. Hemichordate alongwith echinoderms and chordates belong to the group:
(a) Protostome (b) Deuterostome
(c) Nephrostome (d) None of above

70. Balanoglossus belongs to the phylum:
(a) Chordata (b) Echinodermata
(c) Hemichordata (d) Coelenterata

71. In hemichordates, connected to the blood vessels the excretory system has a single:
(a) Plexus (b) Nephron
(c) Glomerulus (d) Bowman capsule

PHYLUM CHORDATA

72. The structure which is possessed by all members of the phylum chordata either in larval or embryonic stages or throughout life is:

(a) Vertebral column (b) Notochord
(c) Nerve cord (d) Gills

73. The adult members of sub-phylum urochordata are sessile and enclosed in a covering called:
(a) Mantle (b) Tunio
(c) Epidermis (d) Tunica

74. Oikopleura, ascidia and salpa are examples of sub-phylum:
(a) Vertebrata (b) Urochordata
(c) Cephalochordata (d) None of above

75. The example of sub-phylum cephalochordata is:
(a) Molgula (b) Ascidia
(c) Amphioxus (d) Saccoglossus

SUB-PHYLUM VERTEBRATA (CRANIATA)

76. The class cyclostomata includes most primitive living vertebrates which are without:
(a) Cartilage (b) Gills
(c) Jaws (d) Operculum

77. Commercially shark liver oil is extracted and used in medicine as a source of vitamin:
(a) D & K (b) A & B
(c) A & D (d) A & K

78. Placoid scales are present in:
(a) Class cyclostomata (b) Class osteichthyes
(c) Class chondrichthyes (d) None of above

SUPERCLASS-TETRAPODA CLASS AMPHIBIA

79. In some members glands in the skin are poisonous containing pigment cells called:
(a) Chromatophores (b) Chromophores
(c) Chloroplasts (d) None of above

80. Amphibians are cold blooded animals and are also called:
(a) Homeothermic (b) Poikilothermic
(c) Isothermic (d) Heterothermic

81. Amphibians hibernate in:
(a) Summer (b) Spring
(c) Winter (d) Autumn

CLASS REPTILIA

82. The ventricle is completely partitioned into two in:
(a) Snake (b) Slow-worm
(c) Lizard (d) Crocodiles

83. Reptiles flourished throughout:
(a) Proterozoic period (b) Mesozoic period
(c) Palaeozoic period (d) Coenozoic period

84. The present day reptiles are:
(a) Lizards and snakes (b) Slow-worm and lizard
(c) Tuatra (d) Tuatra and lizard

CLASS AVES-BIRDS

85. Archaeopteryx is a fossil of:
(a) Mammal (b) Amphibian
(c) Reptile (d) Bird

86. Both ovaries and oviducts are functional in:
(a) Robin (b) Eagle
(c) King fisher (d) Crow

87. The body of birds is covered by:
(a) Scales (b) Spines
(c) Feathers (d) Hair

88. **The organ of voice in birds is called:**
(a) Tongue (b) Larynx
(c) Syrinx (d) Pharynx

89. **The gizzard is used for crushing food in:**
(a) Fishes (b) Birds
(c) Frogs (d) Reptiles

CLASS MAMMALIA-MAMMALS

90. **The term mammal was given by:**
(a) Linnaeus (b) Robert Koshland
(c) Emil Fischer (d) Dixon and Jolly

91. **Duckbill platypus is found in:**
(a) Africa (b) America
(c) Asia (d) Australia

92. **Mammals became dominant in:**
(a) Proterozoic period (b) Mesozoic period
(c) Palaeozoic period (d) Coenozoic period

93. **Cotylosaurs were the:**
(a) Mammalian ancestors (b) Reptilian ancestors
(c) Amphibian ancestors (d) Avian ancestors

94. **Varanope was early reptilian fossil found in:**
(a) Great Britain (b) Berlin
(c) Mexico (d) Texas

95. **Mammals have well developed voice apparatus called:**
(a) Pharynx (b) Syrinx
(c) Larynx and epiglottis (d) Epiglottis

Answers

1.	d	2.	a	3.	d	4.	b
5.	a	6.	b	7.	c	8.	a
9.	d	10.	c	11.	d	12.	d
13.	b	14.	a	15.	d	16.	c
17.	a	18.	a	19.	c	20.	b
21.	c	22.	b	23.	d	24.	a
25.	c	26.	b	27.	a	28.	d
29.	c	30.	d	31.	a	32.	a
33.	c	34.	a	35.	b	36.	d
37.	a	38.	d	39.	d	40.	d
41.	c	42.	b	43.	a	44.	c
45.	c	46.	b	47.	c	48.	d
49.	c	50.	d	51.	d	52.	a
53.	c	54.	b	55.	b	56.	c
57.	b	58.	b	59.	d	60.	a
61.	c	62.	a	63.	c	64.	a
65.	a	66.	c	67.	b	68.	d
69.	b	70.	c	71.	c	72.	b
73.	b	74.	b	75.	c	76.	c
77.	c	78.	c	79.	a	80.	b
81.	c	82.	d	83.	b	84.	a
85.	d	86.	b	87.	c	88.	c
89.	b	90.	a	91.	d	92.	d
93.	b	94.	d	95.	c		

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BIOENERGETICS: KINGDOM PROKARYOTAE (Monera)

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

BIOENERGETICS

1. **The principles of energy transformations in living systems is called:**
   (a) Biophysics (b) Bioenergetics
   (c) Biochemistry (d) Thermodynamics
2. **Which part of plant captures light energy?**
   (a) Chloroplast (b) mesophyll cells
   (c) Plastids (d) stomata
3. **The presence of free oxygen made possible the evolution of:**
   (a) Man (b) Dark reactions
   (c) Photosynthesis (d) Respiration

PHOTOSYNTHESIS

4. **Which statement about photosynthesis is not correct?**
   (a) CO_2 and H_2O are used.
   (b) Takes place in light and dark.
   (c) Light energy absorbed by chlorophyll.
   (d) Occurs in almost all the green parts of plant.
5. **Process of photosynthesis is almost exactly opposite to:**
   (a) Combustion (b) Fermentation
   (c) Anaerobic respiration (d) Aerobic respiration
6. **Which equation of photosynthesis is correct one?**
   (a) $6CO_2 + 12H_2O + \text{Light} \longrightarrow C_6H_{12}O_6 + 6O_2 + 6H_2O$
   (b) $6CO_2 + 6H_2O + \text{Light} \longrightarrow C_6H_{12}O_6 + 6O_2$
   (c) $6CO_2 + 6H_2O + \text{Chemical energy} \longrightarrow C_6H_{12}O_6 + 6O_2$
   (d) Both (a) and (b)
7. **Oxygen released during photosynthesis comes from:**
   (a) Atmosphere (b) CO_2
   (c) H_2O (d) Soil
8. **What is not correct for photosynthesis?**
   (a) It uses oxygen (b) It uses water
   (c) It uses CO_2 (d) It occurs during day time
9. **What is unrelated to light reactions?**
   (a) It can occur in light only
   (b) $NADPH_2$ is produced in it
   (c) ATP is produced in it
   (d) It can occur in dark

CHLOROPLASTS-THE SITE OF PHOTOSYNTHESIS IN PLANTS

10. **The number of chloroplasts in a square millimeter of leaf surface is about:**
    (a) 0.5 million (b) Half a million
    (c) 5 lac (d) All of above
11. **The number of chloroplasts in each mesophyll cell ranges from:**
    (a) 20-40 (b) 20-60
    (c) 20-100 (d) 60-80

12. **Chloroplast encloses a dense fluid filled region called:**
(a) Stroma (b) Cytosol
(c) Matrix (d) Grana

13. **The interior of thylakoid space is also called a:**
(a) Cavity (b) Lumen
(c) Coelom (d) Enteron

14. **Thylakoid sacs are stacked in columns called:**
(a) Piles (b) Stroma
(c) Lamellae (d) Grana

15. **Thylakoid membranes are involved in ATP formation by:**
(a) Oxidative phosphorylation (b) Chemiosmosis
(c) Chemosynthesis (d) Osmosis

16. **The products of photosynthetic light reactions are:**
(a) ATP and NADH (b) ATP and FADPH
(c) ATP and NADPH (d) ATP and NAD

PHOTOSYNTHETIC PIGMENTS

17. **Light can work in photosynthesis only if it is:**
(a) Absorbed (b) Reflected
(c) Transmitted (d) Refracted

18. **Spectrophotometer is used to measure:**
(a) absorption of water
(b) absorption of different wavelengths
(c) absorption of blue light
(d) absorption of CO_2

19. **The pigments found in the thylakoid membranes are:**
(a) Xanthophyll (b) Chlorophyll
(c) Carotenoids (d) All

20. **Which chlorophylls are found in algae and photosynthetic plants?**
(a) a and b (b) c and d
(c) a and c (d) Both (a) and (b)

21. **Which wavelengths are least absorbed by chlorophyll?**
(a) Orange and indigo (b) Violet and yellow
(c) Green and yellow (d) Blue and red

22. **Which wavelengths are mainly absorbed by chlorophyll?**
(a) Violet blue and orange red (b) Green and blue
(c) Violet and orange (d) Red and indigo

23. **Magnesium is an important nutrient ion in green plants as it is an essential component of:**
(a) Protein (b) Chlorophyll
(c) Cell sap (d) Glucose

24. **Chlorophyll contains magnesium in which part:**
(a) Phytol tail (b) Pyrrole ring
(c) Porphyrin ring (d) Haeme portion

25. **Which statement about chlorophyll is not true?**
(a) It contains terminal carbonyl group.
(b) It contains phytol tail
(c) It contains porphyrin ring
(d) It contains magnesium.

26. **Most important and most abundant chlorophyll is:**
(a) c (b) b
(c) a (d) d

27. **The colour of chlorophyll b is:**
(a) Orange-red (b) Yellow-green

(c) Blue-green (d) Orange-green

28. The absorbing peak of chlorophyll a is:
(a) 680 (b) 690
(c) 670 (d) All of above

29. Human eye is protected by:
(a) Carotenoids (b) Chlorophyll a
(c) Xanthophylls (d) Chlorophyll c

30. Which of the following is accessory pigment:
(a) Chlorophyll b (b) Carotenoids
(c) Chlorophyll a (d) both (a) and (b)

LIGHT-THE DRIVING ENERGY

31. Visible light ranges between:
(a) 280-450 nm (b) 380-750 nm
(c) 380-650 nm (d) 350-700 nm

32. T. W. Engelmann worked on:
(a) Photosynthetic bacteria (b) Ulothrix
(c) Algae (d) Spirogyra

33. Percentage of light absorbed by leaf surface is:
(a) 0.1% (b) 1%
(c) 10% (d) 8%

34. Which of the following shows absorption of light?
(a) Light spectrum (b) Absorption spectrum
(c) Action spectrum (d) Colour spectrum

35. Red part of spectrum shows peak around:
(a) 670 nm (b) 580 nm
(c) 530 nm (d) 670 nm

ROLE OF CO_2 : A PHOTOSYNTHETIC REACTANT

36. Sugar is formed during:
(a) Dark independent reactions
(b) Light independent reactions
(c) dark dependent reactions
(d) Light dependent reactions

37. About 90% of photosynthesis is carried out by plants living in:
(a) Oceans (b) Ponds
(c) Lakes (d) All of above

38. The percentage of CO_2 in air is:
(a) 30-40% (b) 0.03-0.04%
(c) 79% (d) 0.3-0.4%

39. Carbon dioxide enters leaves through:
(a) Roots (b) Cuticle
(c) Stomata (d) Epidermis

40. The entry of CO_2 into the leaves depends upon:
(a) Opening of stomata (b) Light
(c) Humidity (d) temperature

REACTIONS OF PHOTOSYNTHESIS

41. Photosynthesis is a:
(a) Oxidative process (b) Reductive process
(c) Orthodox process (d) Redox process

42. Light dependent reactions use:
(a) Water (b) Light indirectly
(c) Light directly (d) CO_2

43. **Light reactions result in:**
(a) O_2 (b) $NADPH_2$
(c) ATP (d) All of above

44. **Light independent reactions are also called:**
(a) Energy conservation reactions
(b) Energy conversion reactions
(c) Energy dissipition reactions
(d) energy requiring reactions

45. **Photosynthetic pigments are organized into clusters called:**
(a) Photo systems (b) Phytols
(c) Photons (d) Pyrroles

46. **The photo systems of photosynthesis consist of:**
(a) Electron transport system (b) Reaction center
(c) Antenna complex (d) All of above

47. **Antenna complex has:**
(a) Chlorophyll a molecules (b) Chlorophyll b molecules
(c) Carotenoids (d) All of above

48. **The light energy absorbed by the pigment molecules of antenna complex is transferred ultimately to:**
(a) Reaction center (b) Electron transport system
(c) Chlorophyll b molecules (d) Plastoquinone

49. **Water splitting process of photosynthesis releasing oxygen is called:**
(a) Glycolysis (b) Photolysis
(c) Hydrolysis (d) All of above

50. **Plastocyanin is proteinaceous electron carrier which contains:**
(a) Iron (b) Nitrogen
(c) Copper (d) Magnesium

51. **The second major stage of photosynthesis is called:**
(a) Kreb's cycle (b) Calvin cycle
(c) C_3 pathway (d) Both (b) and (c)

52. **Which of the following is electron carrier?**
(a) Plastocyanin (b) Cytochromes
(c) Plastoquinone (d) All of above

53. **Which of the following contains iron:**
(a) Plastoquinone (b) Plastocyanin
(c) Ferredoxin (d) Chlorophyll

54. **Each photon of light excites:**
(a) Many electrons (b) 3 electrons
(c) 2 electrons (d) 1 electron

55. **What is not produced during cyclic electron flow?**
(a) oxygen (b) ATP
(c) NADPH (d) both (a) and (c)

56. **An enzyme NADP reductase transfers electrons from:**
(a) Fd to NADP (b) NADP to Fd
(c) Fd to NADPH (d) Fd to ADP

57. **When a green plant performs photosynthesis at its maximum rate:**
(a) The rate of water loss is low.
(b) The water content of plant will be low.
(c) The energy content of plant will be low.
(d) The energy content will be unaffected.

58. **Which statement about ATP is not true?**
(a) It is used as an energy currency by the cells.
(b) It is formed only under aerobic conditions

(c) Some ATP is used to drive synthesis of storage compounds
(d) It provides the energy for many different biochemical reactions

59. **Melvin Calvin made his observations at the University of:**
(a) Texas (b) South Wales
(c) California (d) Florida

60. **The dark reaction consists of:**
(a) Carbon fixation (b) Reduction
(c) Regeneration of RuBP (d) All of above

61. **The most abundant protein on earth is:**
(a) NADP reductase (b) Rubisco
(c) ATP synthase (d) none of these

62. **Calvin cycle is also known as:**
(a) C_3 pathway (b) C_4 pathway
(c) C_2 pathway (d) C_5 pathway

63. **Name the carbohydrate which is produced directly during Calvin cycle:**
(a) Glucose (b) G3P
(c) Fructose (d) Sucrose

64. **During the dark reactions of photosynthesis the main process which occurs is:**
(a) Release of oxygen
(b) Formation of ATP
(c) Energy absorption
(d) Adding of hydrogen to carbon dioxide

65. **Which statement about the chemiosmotic mechanism is not true?**
(a) The membrane in question is the inner mitochondrial membrane
(b) Proton pumping is associated with respiratory chain
(c) Protons are pumped across a membrane
(d) Protons return through the membrane by way of a channel protein

66. **The number of carbon atoms in one molecule of RuBP is:**
(a) 4 (b) 6
(c) 3 (d) 5

RESPIRATION

67. **The way glucose is oxidized or metabolized depends on the availability of:**
(a) Oxygen (b) Suitable temperature
(c) Glucose (d) Energy

68. **Glucose molecules split into two molecules of:**
(a) Acetic acid (b) Pyruvic acid
(c) Acetyl CoA (d) G3P

69. **Which of the following occurs in the absence of oxygen?**
(a) Alcoholic fermentation (b) Aerobic respiration
(c) Lactic acid fermentation (d) Both (a) and (c)

70. **During aerobic respiration glucose is oxidized to:**
(a) Water (b) Energy
(c) CO_2 (d) All of above

71. **Glycolysis literally means splitting of:**
(a) Sucrose (b) Sugar
(c) Glucose (d) Maltose

72. **In yeast pyruvic acid is converted to:**
(a) Acetic acid (b) Lactic acid
(c) Ethyl alcohol (d) Methyl alcohol

73. **The inner foldings of inner membrane in mitochondrion are called:**
(a) Grana (b) Thylakoids
(c) Cristae (d) None of above

74. **Breaking of terminal phosphate of ATP releases energy:**

(a) 4.3 Kcal (b) 5.3 Kcal
(c) 7.3 Kcal (d) 6.3 Kcal

75. **Cellular respiration consists of:**
(a) Glycolysis (b) Pyruvic acid oxidation
(c) Kreb's cycle and respiratory chain (d) All of above

76. **Glycolysis can be divided, for convenience into two phases:**
(a) Oxidative and reductive phase (b) Preparatory and oxidative phase
(c) Preparatory and reductive phase (d) All of above

77. **Glycolysis:**
(a) Produces no ATP
(b) Is the same as fermentation
(c) Takes place in mitochondrion
(d) Reduces two molecules of NAD^+ for every glucose molecule processed

78. **Before pyruvate enters the citric acid cycle, it is decarboxylated, oxidized and combined with coenzyme A, forming acetyl CoA, carbon dioxide and one molecule of:**
(a) NADH (b) ADP
(c) ATP (d) $FADH_2$

79. **The citric acid cycle:**
(a) Takes place in the mitochondrion
(b) Reduces two molecules of NAD^+ for every glucose molecule processed
(c) Is the same as fermentation
(d) Has no connection with the respiratory chain

80. **Which statement about oxidative phosphorylation is not true?**
(a) Its functions can be served equally well by fermentation
(b) In eukaryotes, it takes place in mitochondrion
(c) It is brought about by chemiosmotic mechanism
(d) It is the formation of ATP during operation of respiratory chain

Answers

1.	b	2.	a	3.	d	4.	b
5.	d	6.	d	7.	c	8.	a
9.	d	10.	d	11.	c	12.	a
13.	b	14.	d	15.	b	16.	c
17.	a	18.	b	19.	d	20.	d
21.	c	22.	a	23.	b	24.	c
25.	a	26.	c	27.	b	28.	d
29.	a	30.	d	31.	b	32.	d
33.	b	34.	b	35.	a	36.	b
37.	d	38.	b	39.	c	40.	a
41.	d	42.	c	43.	d	44.	a
45.	a	46.	d	47.	d	48.	a
49.	b	50.	c	51.	d	52.	d
53.	c	54.	d	55.	d	56.	a
57.	b	58.	b	59.	c	60.	d
61.	b	62.	a	63.	b	64.	c
65.	b	66.	d	67.	a	68.	b
69.	d	70.	d	71.	b	72.	c
73.	c	74.	c	75.	d	76.	b
77.	d	78.	a	79.	a	80.	a
81.	c	82.	c	83.	a		

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REPRODUCTION

Multiple Choice Questions (MCQs)

Select the correct answer and encircle it.

INTRODUCTION

1. Microspore mother cells are:
   (a) Monoploid (b) Diploid
   (c) Haploid (d) Polyploid
2. Which one of the following is a diploid?
   (a) Embryo (b) Gametophyte
   (c) Microspore (d) Megaspore
3. Asexual reproduction involves:
   (a) Mitosis (b) Multiple fission
   (c) Binary fission (d) Meiosis
4. The hormone associated with the ripening of fruit is:
   (a) Cytokinins (b) Ethene
   (c) Gibberellins (d) Auxins
5. Which of the following hormone is not present in germinating seeds?
   (a) Ethene (b) Gibberellins
   (c) Cytokinins (d) Auxins
6. The life cycle of some fungi, some algae and all the animals in which adults are diploid which produce haploid gametes by meiosis is called the:
   (a) Diplontic (b) Diplohaplontic
   (c) Haplontic (d) Both (a) and (c)
7. Parthenocarpy is the development of fruit without:
   (a) Hormones involved (b) Fertilization
   (c) Pollination (d) Wall formation
8. Germinating pollen grain is the rich source of:
   (a) Abscisic acid (b) Cytokinins
   (c) Gibberellins (d) Auxins
9. Developing seeds are rich source of:
   (a) Gibberellins (b) Cytokinins
   (c) Auxins (d) All of above
10. Fruit ripening is often accompanied by a burst of respiratory activity called the:
    (a) Climatric (b) Respiration
    (c) Glycolysis (d) All of above
11. If the two generations are vegetatively similar such an alternation of generations is referred to as:
    (a) Heteromorphic (b) Polymorphic
    (c) Isomorphic (d) None of above

PHOTOPERIODISM

12. Photoperiod affects flowering when shoot meristems start producing:
    (a) Lateral branches (b) Lateral buds
    (c) Floral buds (d) Foliar buds
13. Photoperiodism was first studied by Garner and Allard in:
    (a) 1918 (b) 1952
    (c) 1920 (d) 1948
14. A biological response to the changes in proportions of light and dark for flower initiation during 24h daily cycle is called:
    (a) Photomorphogenesis (b) Photoperiodism

(c) Photosynthesis (d) Phototropism

15. **Which of the following is not a long day plant?**
(a) Cabbage (b) Henbane
(c) Snapdragon (d) Cucumber

16. **Which of the following is a day-neutral plant?**
(a) Garden pea (b) Soyabean
(c) Chrysanthemum (d) Strawberry

17. **A blue light sensitive protein pigment found in plant cells is:**
(a) Phytochrome (b) Cytochrome
(c) Melanin (d) Abscisic acid

18. **Red light is absorbed by the type of phytochrome:**
(a) P_{630} (b) P_{730}
(c) P_{660} (d) P_{760}

19. **Far red light is absorbed by the type of phytochrome:**
(a) P_{700} (b) P_{730}
(c) P_{780} (d) P_{760}

20. **At the end of day a plant has more phytochrome in the form of:**
(a) P_{730} (b) P_{630}
(c) P_{660} (d) P_{760}

21. **Red light inhibits flowering in:**
(a) Short day plants (b) Day neutral plants
(c) Long day plants (d) Both (a) and (c)

22. **Far red light inhibits flowering in:**
(a) Long day plants (b) Long night plants
(c) Short day plants (d) Day neutral plants

23. **The P_{730}–P_{660} interconversion might be the plant time regulator for:**
(a) Flowering (b) Fruiting
(c) Branching (d) Germination

24. **The biological clock once stimulated causes production of florigen hormone in leaves, which travel through phloem to:**
(a) Lateral buds (b) Floral buds
(c) Foliar buds (d) Apical meristem

25. **Which of the following is active form of phytochrome?**
(a) P_{730} (b) P_{760}
(c) P_{660} (d) P_{630}

26. **In nature, P_{660} to P_{730} conversion takes place in:**
(a) Day light (b) Early morning
(c) Dark (d) Evening

27. **Match photoperiodism with one of the following hormone:**
(a) Abscisic acid (b) Florigen
(c) Auxins (d) Gibberellins

VERNALISATION

28. **In vernalisation, the low temperature stimulus is received by the:**
(a) Shoot apex of a mature stem
(b) Embryo of the seed
(c) Leaves
(d) Both (a) and (b)

29. **In some cases, vernalisation simply assists in inducing:**
(a) Flowering (b) Fruiting
(c) Foliar buds (d) Shoot buds

30. **In vernalisation, the low temperature treatment required for flowering varies from:**
(a) Three days to four months

(b) Four days to three months
(c) Seven days to three months
(d) Twenty-one days to three months

31. **Low temperature treatment stimulates the production of a hormone:**
(a) Auxin (b) Cytokinin
(c) Gibberellin (d) Ethene

32. **Photoperiodism and vernalisation are important for plants as they ensure:**
(a) Reproductive behaviour of plants with their environment.
(b) Reproduction at favourable times of the year.
(c) That members of the same species flower at the same time, for cross pollination leading genetic variability.
(d) All of above.

REPRODUCTION IN ANIMALS

33. **Asexual reproduction requires only a single parental organism which gives rise to offsprings by:**
(a) Mitotic cell division
(b) Meiotic cell division
(c) Binary fission
(d) Parthenogenesis

34. **A type of asexual reproduction in which parent organism simply divides into two daughter organisms is:**
(a) Binary fission (b) Amitosis
(c) Budding (d) Haploid parthenogenesis

35. **The type of parthenogenesis in aphids is:**
(a) Diploid (b) Triploid
(c) Haploid (d) All of above

36. **In tissue culturing technique in plants-cambium tissue excised from plants could be stimulated by the addition of:**
(a) Cytokinins (b) Nutrients
(c) IAA (d) All of above

37. **The mechanism which produces new generations and maintains a species is called:**
(a) Evolution (b) Cloning
(c) Reproduction (d) Genetic variability

38. **Organisms produced from a single cell by subculturing are called:**
(a) Drones (b) Apomicts
(c) Clones (d) All of above

39. **Haploid parthenogenesis takes place in:**
(a) Fruit fly (b) Honey bee
(c) House fly (d) Aphid

40. **The twins formed by the splitting of blastomere are:**
(a) Identical twins (b) Dissimilar twins
(c) Fraternal twins (d) All of above

SEXUAL REPRODUCTION

41. **Which of the following is irrelevant for sexual reproduction?**
(a) Meiosis (b) Gametes
(c) Two parents (d) Large number of offsprings

42. **External fertilization is the characteristic of:**
(a) Reptiles (b) Amphibians
(c) Mammals (d) Birds

43. **The animals in which fertilization is internal and which give shelled eggs to protect the developing embryo from harsh terrestrial conditions are called:**
(a) Viviparous animals (b) Ovoviviparous animals
(c) Oviparous animals (d) Placental animals

44. **The example of an ovoviviparous animal is:**
(a) Duckbill platypus (b) Eagle
(c) Turtle (d) Apes

45. **Maximum protection to the developing embryo is provided in:**
(a) Viviparous animals (b) Oviparous animals
(c) Ovoviviparous animals (d) Pouched animals

46. **The process which leads to the union of gametes is called:**
(a) Gametogenesis (b) Parthenogenesis
(c) Spermatogenesis (d) Fertilization

47. **Internal fertilization is the characteristic of:**
(a) Aquatic environment (b) Arid environment
(c) Terrestrial environment (d) All of above

48. **The examples of oviparous animals are:**
(a) Reptiles (b) Amphibian
(c) Birds (d) Both (a) and (c)

49. **Non-motile female gametes or eggs are also called as:**
(a) Oogonia (b) Archegonia
(c) Ova (d) Trichogyne

50. **The animals in which internal fertilization leads to internal development of embryo inside the female body and which give birth to young ones are called:**
(a) Ovoviviparous animals (b) Oviparous animals
(c) Viviparous animals (d) Egg-laying animals

REPRODUCTION IN MAN
MALE & FEMALE REPRODUCTIVE SYSTEMS

51. **Between the seminiferous tubules are interstitial cells which secrete the hormone:**
(a) Oxytocin (b) Testosterone
(c) Progesterone (d) Oestrogen

52. **Each testis consists of a highly complex duct system called:**
(a) Malpighian tubules (b) Convoluted tubules
(c) Seminiferous tubules (d) All of above

53. **External genitalia of human male consist of a pair of testes which lie outside the body in the sac like:**
(a) Scrotum (b) Pouch
(c) Marsupium (d) Amniotic cavity

54. **Fluid secreted by sertoli cells provides sperms:**
(a) Liquid medium (b) Nourishment
(c) Protection (d) All of above

55. **Germ cells in ovary produce many:**
(a) Oogonia (b) Primary oocytes
(c) Spermatogonia (d) Secondary oocytes

56. **The release of ovum from follicle in ovary is called:**
(a) Sporulation (b) Ovulation
(c) Gametogeneis (d) Oogenesis

57. **Male reproductive organ is used to transfer the sperms into the female:**
(a) Urinary tract (b) Digestive tract
(c) Reproductive tract (d) Excretory tract

58. **Oogonia in the ovary divide mitotically to form:**
(a) Primary oocytes (b) Secondary oocytes
(c) Polar bodies (d) Primary oocytes and polar bodies

59. **The oviduct is generally called:**
(a) Uterine tube (b) Fallopian tube
(c) Oviducal funnel (d) Both (a) and (b)

60. The spermatids ultimately differentiate into mature:
(a) Eggs (b) Sperms
(c) Sertoli cells (d) Both (b) and (c)

61. In male reproductive system, the first convoluted part of vas deferens is called:
(a) Epididymis (b) Scrotum
(c) Seminiferous tubule (d) Sperm duct

62. The zygote is implanted in:
(a) Uterine tube (b) Ovary
(c) Uterus (d) Vagina

63. The structure which is established between uterine and foetal tissues for the exchange of oxygen, carbon dioxide, wastes and nutrients is called as:
(a) Umbilical cord (b) Placenta
(c) Cervix (d) Endometrium

FEMALE REPRODUCTIVE CYCLE & BIRTH

64. Periodic reproductive cycle in human females is completed in approximately:
(a) 280 days (b) 28 days
(c) 21 days (d) 3-7 days

65. Menstrual cycle can be divided in:
(a) Five phases (b) Three phases
(c) Four phases (d) Two phases

66. Corpus luteum is a:
(a) Gland (b) Follicle
(c) Germ line cell (d) Ovum

67. Menstruation involves the discharge of:
(a) Cell debris (b) Ovum
(c) Blood (d) All of above

68. The complete stop or end of menstrual cycle is called as:
(a) Menses (b) Menstruation
(c) Oestrous (d) Afterbirth

69. Oestrous cycle is not found in:
(a) Sheep (b) Cow
(c) Man (d) Bitch

70. Longest phase of menstrual cycle is:
(a) Secretary phase (b) Menstruation
(c) Proliferative phase (d) None of above

71. The total pregnancy period in human is about:
(a) 270 days (b) 290 days
(c) 240 days (d) 280 days

72. Pregnancy is maintained by the hormone:
(a) Progesterone (b) LH
(c) Oestrogen (d) FSH

73. Most of the major organs of embryo are formed within the:
(a) 14 weeks (b) 16 weeks
(c) 12 weeks (d) 10 weeks

74. Which of the following foetal hormone is involved in the process of birth?
(a) Corticosteroid (b) Androgen
(c) Cortisol (d) Adrenaline

75. The hormone which is involved in labour pain is:
(a) Progesterone (b) Luteinising hormone
(c) Oestrogen (d) Oxytocin

76. The hormone which is involved in mammary development in preparation for lactation is:
(a) Luteotropic hormone (b) Oxytocin

(c) Placental lactogen (d) Both (a) and (c)

TEST TUBE BABIES & SEXUALLY TRANSMITTED DISEASES (STDs)

77. Test tube baby fertilization takes place in:
(a) In vivo (b) In uterus
(c) In vitro (d) In vagina

78. Syphilis is caused by:
(a) Treponema pallidum (b) Mycobacterium
(c) Neisseria gonorrhoeae (d) HIV

79. Which of the following sexually transmitted disease is caused by a gram positive bacterium?
(a) Gonorrhoea (b) Genital herpes
(c) Syphilis (d) AIDS

80. Which part of the body is most effected in genital herpes?
(a) Ovaries (b) Genitalia
(c) Uterus (d) Brain

Answers

1.	b	2.	a	3.	a	4.	b
5.	a	6.	a	7.	b	8.	d
9.	d	10.	a	11.	c	12.	c
13.	c	14.	b	15.	d	16.	a
17.	a	18.	c	19.	b	20.	a
21.	a	22.	a	23.	a	24.	b
25.	a	26.	a	27.	b	28.	d
29.	a	30.	b	31.	c	32.	d
33.	a	34.	a	35.	a	36.	d
37.	c	38.	c	39.	b	40.	a
41.	d	42.	b	43.	c	44.	a
45.	a	46.	d	47.	c	48.	d
49.	c	50.	c	51.	b	52.	c
53.	a	54.	d	55.	a	56.	b
57.	c	58.	a	59.	d	60.	b
61.	a	62.	c	63.	b	64.	b
65.	c	66.	a	67.	d	68.	b
69.	c	70.	a	71.	d	72.	a
73.	c	74.	a	75.	d	76.	d
77.	c	78.	a	79.	a	80.	b

EVOLUTION

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

INTRODUCTION

1. The processes that have transformed life on earth from its earliest forms to the vast diversity that we observe today, are collectively referred as:
   (a) Evolution (b) Succession
   (c) Revolution (d) All of above
2. The first person who argued from evidence that species were not created in their present form rather they had evolved from ancestral species was:
   (a) Aristotle (b) Lamarck
   (c) Darwin (d) Mendel
3. Darwin proposed a mechanism for evolution, which he termed:
   (a) Natural selection (b) Special creation
   (c) Adaptation (d) Descent with modification

CONCEPT OF EVOLUTION VS SPECIAL CREATION

4. The concept that all living things came into existence in their present forms especially and specifically created by Nature is called as:
   (a) Theory of special creation
   (b) Theory of special selection
   (c) Theory of natural creation
   (d) Theory of natural selection
5. Among the scientists who believed in divine creation as:
   (a) Darwin (b) Carolous Linnaeous
   (c) Lamarck (d) Wallace
6. Essay on "principle of population" was published by:
   (a) Cuvier (b) Mendel
   (c) Malthus (d) Darwin
7. Essay on "principles of geology" was published by:
   (a) Wallace (b) Malthus
   (c) Lyell (d) Cuvier

EVOLUTION FROM PROKARYOTES TO EUKARYOTES

8. The prokaryotes may have arisen more than:
   (a) 420 million years ago
   (b) 42 billion years ago
   (c) 3.5 billion years ago
   (d) 1.5 billion years ago
9. Endosymbiont hypothesis was first proposed by:
   (a) Lynn Margulis (b) Malthus
   (c) Cuvier (d) Darwin
10. According to endosymbiont hypothesis the aerobic bacteria developed into:
   (a) Lysosomes (b) Mitachondria
   (c) Chloroplast (d) Nucleus
11. Which of the following hypothesis involved the evolution of eukaryotic cell from a prokaryotic cell?
   (a) Endosymbiont hypothesis (b) Membrane invagination hypothesis
   (c) Vent hypothesis (d) Both (a) and (b)

12. **Lamarck was incharge of invertebrate collection at Natural History Museum in:**
(a) Berlin (b) Paris
(c) California (d) Brun

13. **Lamarck published his theory of evolution in:**
(a) 1822 (b) 1812
(c) 1817 (d) 1809

14. **The idea of inheritance of acquired characteristics was presented by:**
(a) Margulis (b) Lamarck
(c) Linnaeus (d) Cuvier

CHARLES DARWIN

15. **Charles Darwin was born in Shrewsbury, in Western England in:**
(a) 1854 (b) 1807
(c) 1809 (d) 1866

16. **Which of the following things were not collected by Darwin?**
(a) Specimens of diverse faunas and floras of South America
(b) South American fossils
(c) 13 types of finches
(d) Turtles

17. **Darwin published "The Origin of Species" in:**
(a) 1840 (b) 1844
(c) 1858 (d) 1859

18. **Wallace developed a Theory of Natural Selection similar to that of:**
(a) Lamarck (b) Linnaeus
(c) Darwin (d) Lyell

19. **According to Darwin descent with modification means:**
(a) Same ancestor (b) Same characters
(c) Different ancestors (d) Different characters

20. **Population genetics emphasized on:**
(a) Extensive genetic variation within population
(b) Importance of quantitative characters
(c) Importance of qualitative characters
(d) Both (a) and (b)

21. **Modern synthesis or Neo-Darwinism includes ideas from:**
(a) Palaeontology
(b) Taxonomy and biogeography
(c) Population genetics
(d) All of above

EVIDENCE OF EVOLUTION

22. **Darwin theory of evolution was mainly based on the evidence from:**
(a) Geographical distribution of species
(b) Fossil record
(c) Comparative anatomy
(d) Both (a) and (b)

23. **Armadillos are the armored mammals that live only in the:**
(a) Africa (b) America
(c) Europe (d) Australia

24. **The succession of fossil forms is a strong evidence in favour of:**
(a) Natural selection (b) Palaeontology
(c) Evolution (d) Biogeography

25. **The oldest known fossils are:**
(a) Dipnoi (b) Prokaryotes
(c) Archaeopteryx (d) Bacteria

26. Most fossils are found in:
(a) Sedimentary rocks (b) Modern rocks
(c) Ignitious rocks (d) All of above

27. Oldest known vertebrate fossils belong to the class:
(a) Reptilia (b) Amphibia
(c) Pisces (d) Mammalia

28. The structures or organs which are structurally alike but functionally different, called as:
(a) Homologous organs (b) Anatomous organs
(c) Analogous organs (d) None of these

29. Similarity in characteristics resulting from common ancestry is known as:
(a) Anatomy (b) Homology
(c) Analogy (d) Palaeontology

30. The oldest homologous structures are:
(a) Homologous organs (b) Vestigial organs
(c) Analogous organs (d) All of above

31. In humans gills are modified to form:
(a) Eustachian tubes (b) Lungs
(c) Ear (d) Throat

32. Which of the following is a vestigial organ?
(a) Vestiges of pelvic and leg bones in skeletons of whale
(b) Vermiform appendix in carnivores
(c) Ear muscles in man.
(d) All of above

33. Cytochrome c, a respiratory protein is found in all:
(a) Anaerobic species (b) All eukaryotes
(c) Aerobic species (d) All prokaryotes

NATURAL SELECTION AND ARTIFICIAL SELECTION

34. Natural selection can amplify or diminish only those variations that are:
(a) Similar (b) Acquired
(c) Different (d) Heritable

35. An example of natural selection in action is the evolution of antibiotic resistance in:
(a) Man (b) Bacteria
(c) Viruses (d) All of above

36. A localized group of individuals belonging to same species is called a:
(a) Community (b) Population
(c) Organization (d) Clone

37. The total aggregate of genes in a population at any one time is called as:
(a) Polygenes (b) Multiple alleles
(c) Gene pool (d) All of above

38. If all members of a population are homozygous for the same allele, the allele is said to be:
(a) Dominant allele (b) Fixed allele
(c) Recessive allele (d) Multiple allele

39. Related to the allele frequencies are the frequencies of:
(a) Genes (b) Genotypes
(c) Phenotypes (d) All of above

40. Hardy-Weinberg theorem explains the frequencies of genotypes of:
(a) Evolving population
(b) Non-evolving population
(c) Dominant population
(d) Ancient population

41. A smallest biological unit that can evolve over time is:
(a) A species (b) A population

(c) An individual (d) Cell

42. **Which of the following can change the overall genetic structure of a population?**
(a) Sexual recombination
(b) Random fertilization
(c) Shuffling of alleles due to meiosis
(d) Migration

43. **Change in frequency of alleles at a locus that occurs by chance is called:**
(a) Genetic equilibrium (b) Genetic drift
(c) Gene selection (d) Deletion

44. **Which of the following factor cannot change the gene frequency?**
(a) Random fertilization (b) Selection
(c) Inbreeding (d) Migration

ENDANGERED SPECIES

45. **The most threatened areas on the earth are:**
(a) Tropical rain forests
(b) Temperate deciduous
(c) Coniferous alpine and boreal forests
(d) Tundra

46. **In Ecuador, forest coverage has been reduced by:**
(a) 85% (b) 60%
(c) 44% (d) 95%

47. **The main causes of extinction of species include:**
(a) Climate change
(b) Invasions from foreign species
(c) Pollution
(d) All of above

48. **Endangered species of plants have been recorded to more than:**
(a) 2500 (b) 300
(c) 500 (d) 1500

Answers

1.	a	2.	c	3.	a	4.	a
5.	b	6.	c	7.	c	8.	c
9.	a	10.	b	11.	d	12.	b
13.	d	14.	b	15.	c	16.	d
17.	d	18.	c	19.	a	20.	d
21.	d	22.	d	23.	b	24.	c
25.	b	26.	a	27.	c	28.	a
29.	b	30.	b	31.	a	32.	d
33.	c	34.	d	35.	b	36.	b
37.	b	38.	b	39.	b	40.	a
41.	a	42.	d	43.	b	44.	a
45.	a	46.	d	47.	d	48.	c

ECOSYSTEM

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

1. Major unit of ecology is:
   (a) Ecosystem (b) Community
   (c) Biosphere (d) Population
2. Actual place or location where an organism lives is called its:
   (a) Niche (b) Terrain
   (c) Habitat (d) Domain
3. Succession begins by a few hardy invaders called:
   (a) Leaders (b) Pioneers
   (c) Successors (d) Openers
4. Primary succession that starts on a dry soil or rock is called:
   (a) Derosere (b) Hydrosere
   (c) Xerosere (d) Lithosere
5. Primary succession that starts in a pond is called:
   (a) Xerosere (b) Hydrosere
   (c) Derosere (d) Sammosere
6. The animal that is caught and eaten away is called:
   (a) Victim (b) Prey
   (c) Predator (d) Host
7. The type of association between two organisms, which brings benefit to both the organisms is called:
   (a) Commensalism (b) Predation
   (c) Mutualism (d) Parasitism
8. Over-grazing may lead to:
   (a) Desert (b) Tundra
   (c) Taiga (d) Grassland
9. Nutrient cycle are also called as:
   (a) Biogeochemical cycles (b) Elemental cycles
   (c) Geochemical cycles (d) Biochemical cycles
10. A collection of related parts that function as a unit is called:
   (a) Individual (b) System
   (c) Organism (d) Organ

Answers

1.	a	2.	c	3.	b	4.	a
5.	b	6.	b	7.	c	8.	a
9.	a	10.	b				

SOME MAJOR ECOSYSTEMS

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

1. **Coniferous forests of high altitude are known as:**
   (a) Tundra (b) Boreal
   (c) Alpine (d) Arctic
2. **Limnetic phytoplanktons include:**
   (a) Mosses (b) Algae
   (c) Bacteria (d) Cyanobacteria
3. **A dominant plant of temperate deciduous forests is the:**
   (a) Euphorbia (b) Taxus baccata
   (c) Cactus (d) Acacia
4. **A common animal of temperate deciduous forests is the:**
   (a) Kangaroo (b) Cat
   (c) Leopard (d) Rhesus monkey
5. **Coniferous forests located at high latitude are called:**
   (a) Boreal (b) Taiga
   (c) Tundra (d) Alpine
6. **Sahara Desert is found in:**
   (a) Europe (b) America
   (c) Africa (d) Australia
7. **Dominant species of mammals in grassland are the:**
   (a) Omnivores (b) Herbivores
   (c) Carnivores (d) Insectivores
8. **Dominant plant species in grassland are:**
   (a) Graminoids (b) Trees
   (c) Climbers (d) Herbs
9. **Grasslands of tropic climate have woody trees and are called:**
   (a) Alpine (b) Boreal
   (c) Biome (d) Savanna
10. **Shallow water zone of the lake near the shore is called:**
   (a) Intertidal zone (b) Littoral zone
   (c) Profundal zone (d) Limnetic zone

Answers

1.	c	2.	d	3.	b	4.	d
5.	a	6.	c	7.	b	8.	a
9.	d	10.	b				

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ENZYMES

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

ENZYMES

1. Enzymes are the most important group of proteins which are biologically:
   (a) Energetic (b) Dynamic
   (c) Active (d) Inactive
2. Without the enzymes the reactions would proceed at a very slow speed making life:
   (a) Possible (b) Troublesome
   (c) Difficult (d) Impossible
3. Enzymes are composed of hundreds of:
   (a) Nucleic acid (b) Nucleotides
   (c) Carboxylic acid (d) amino acids
4. The catalytic activity of enzymes is restricted to a small portion of the enzyme known as:
   (a) Active site (b) Catalytic site
   (c) Non binding site (d) Binding site
5. The reactant which is attached to the active site of enzyme is called as a:
   (a) Substance (b) Reactant particle
   (c) Food particle (d) Substrate
6. The non-protein part of enzyme is known as:
   (a) Prosthetic group (b) Co-factor
   (c) Co-enzyme (d) Coordinated part
7. If the non-protein part is loosely attached to the protein part it is known as:
   (a) Holoenzyme (b) Co-enzyme
   (c) Apoenzyme (d) Co-factor
8. Like enzymes, coenzymes can be used:
   (a) Only once (b) Only few times
   (c) Again and again (d) None of above
9. An activated enzyme consisting of polypeptide chain and a co-factor is known as:
   (a) Enzyme activation (b) Apoenzyme
   (c) Coenzyme (d) Holoenzyme
10. Pepsin is a powerful protein digesting enzyme and is produced in inactive form known as:
    (a) Pepsi (b) Pepsigen
    (c) Pepsinogen (d) Ptyalin
11. Enzymes are very _____ in their function.
    (a) Precise (b) Exact
    (c) Specific (d) General
12. An enzyme is a three dimensional:
    (a) Fibrous protein (b) Straight protein
    (c) Branched protein (d) Globular protein
13. An enzyme and its substrate react with each other through definite charge bearing sites called:
    (a) Passive sites (b) Charged sites
    (c) Active sites (d) Binding sites
14. The charge and shape of the active site is formed by some amino acids present in the _____ chain of the enzyme.
    (a) Globular (b) Polypeptide
    (c) Polynucleotide (d) Straight
15. The binding site helps the enzyme in the recognition and binding of a proper substrate to produce:
    (a) Enzyme substrate complex (b) ES complex

(c) Enzyme product complex (d) Both (a) and (b)

16. **Enzyme activity requires:**
(a) Gaseous media (b) Semi-solid media
(c) Aqueous media (d) None of these

17. **Lock and Key Model was proposed by:**
(a) Peter Fleming (b) Koshland
(c) Francis Crick (d) Emil Fischer

18. **According to Lock and Key Model active site is a:**
(a) Specific structure (b) General structure
(c) Rigid structure (d) Globular structure

19. **Induce Fit Model was proposed by:**
(a) Koch (b) Koshland
(c) Newland (d) Emil Fischer

20. **The functional specificity of every enzyme is the consequence of its specific chemistry and:**
(a) Configuration (b) Catalytic power
(c) Physics (d) Amino acids

21. **By increasing the enzymes molecules, an increase in the number of _____ takes place.**
(a) Binding sites (b) Active sites
(c) Catalytic sites (d) Passive sites

22. **At low concentration of substrate the reaction rate is directly proportional to the:**
(a) Substrate available (b) pH available
(c) Enzyme available (d) all of above

23. **All enzymes can work at their maximum rate at a specific temperature called:**
(a) Minimum ranged temperature (b) Optimum temperature
(c) Maximum ranged temperature (d) Specified temperature

24. **For enzymes of human body the optimum temperature is:**
(a) 51°C (b) 37°C
(c) 98°C (d) 44°C

25. **If the vibrations due to increase in heat energy become too violent, globular structure essential for enzyme activity is lost and enzyme is said to be:**
(a) Dead (b) Denatured
(c) Inactive (d) Destructured

26. **A slight change in pH can change the _____ of the amino acids at the active site.**
(a) Configuration (b) Shape
(c) Ionization (d) Chemistry

27. **The optimum pH for pepsin enzyme is:**
(a) 2.5 (b) 2.00
(c) 7.60 (d) 4.50

28. **7.00-8.00 is the optimum pH value for:**
(a) Pancreatic lipase (b) Arginase
(c) Irreparable (d) irreversible

Answers

1.	c	2.	d	3.	d	4.	a
5.	d	6.	b	7.	b	8.	c
9.	d	10.	c	11.	c	12.	d
13.	c	14.	b	15.	d	16.	c
17.	d	18.	c	19.	b	20.	a
21.	b	22.	a	23.	b	24.	b
25.	b	26.	c	27.	b	28.	c

GASEOUS EXCHANGE

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

1. At all levels of activities in living organisms an uninterrupted supply of _____ is required.
   (a) Oxygen (b) Haemoglobin
   (c) Energy (d) All of above
2. Respiration is one of the most important metabolic activities of _____.
   (a) Plants (b) Microorganisms
   (c) Animals (d) All organisms
3. Respiration occurs at:
   (a) Cellular level (b) Organismic level
   (c) Both (a) and (b) (d) Sea level
4. Organismic respiration is also known as:
   (a) Inhalation (b) Breathing
   (c) Intake (d) Exhalation
5. ATP is produced during:
   (a) Organismic respiration (b) Both (a) and (c)
   (c) Cellular respiration (d) None of above

ADVANTAGES AND DISADVANTAGES OF GAS EXCHANGE IN AIR AND IN WATER

6. Exchange of gases during organismic respiration is carried out only by:
   (a) Diffusion (b) Active transport
   (c) Osmosis (d) Both (a) and (c)
7. Oxygen content of fresh air is about:
   (a) 10 ml per litre (b) 200 ml per litre
   (c) 80 ml per litre (d) 120 ml per litre
8. Breathing is directly involved in the exchange of:
   (a) Gases (b) Oxygen
   (c) CO_2 (d) Oxygen and CO_2
9. Water is _____ times more viscous than air:
   (a) 20 (b) 70
   (c) 50 (d) 80

GASEOUS EXCHANGE IN PLANTS

10. The main source of exchange of gases in plants is:
    (a) Lenticels (b) Epidermis
    (c) Cuticle (d) Stomata
11. The cork tissue has special pores involved in gaseous exchange, called:
    (a) Stomata (b) Cortical pores
    (c) Lenticels (d) Epidermal pores
12. Air spaces between mesophyll cells of a leaf comprise _____ of total volume.
    (a) 30% (b) 40%
    (c) 20% (d) 50%
13. Photorespiration takes place in:
    (a) Day (b) Rain
    (c) Night (d) Cloud
14. Photorespiration in plants takes place when:
    (a) Carboxylase is active (b) O_2 is high
    (c) Light is low (d) CO_2 is high
15. Infact photorespiration is reverse of:

(a) Photosynthesis (b) Calvin cycle
(c) Dark reaction (d) Both (b) and (c)

16. In peroxisome the glycolate is converted into:
(a) Glycine (b) Glutamic acid
(c) Glutamine (d) Glucose

RESPIRATORY ORGANS IN REPRESENTATIVE AQUATIC AND TERRESTRIAL ANIMALS

17. Hydra respires through:
(a) Coelenteron (b) Lungs
(c) Skin (d) None of above

18. In earthworm the exchange of gasses mainly occurs through:
(a) Skin (b) Lungs
(c) Blood (d) All of above

19. In cockroach the main tracheal trunk communicates with exterior by 10 pairs of paired apertures called:
(a) Glottis (b) Spiracles
(c) Tracheoles (d) Bronchioles

20. Four to five pairs of gills in fish are placed in bronchial cavities and are covered by:
(a) Operculum (b) Epiglottis
(c) Spiracles (d) Tentacles

21. In fish the heart pumps blood directly to:
(a) All parts of the body (b) Gills
(c) Lungs (d) Kidneys

22. The heart of fish is:
(a) Double circuit (b) Triple circuit
(c) Single circuit (d) Partly single & partly double circuit

23. In frog respiration occurs through:
(a) Buccal chamber (b) Skin
(c) Lungs (d) All of above

24. In birds, during respiration the flow of air is:
(a) Three way (b) One way
(c) Two way (d) Four way

25. Parabronchi are thin walled ducts present in the respiratory system of:
(a) Man (b) Fishes
(c) Birds (d) Cockroach

26. In most birds the number of air sacs is:
(a) Five (b) Three
(c) Eight (d) Nine

RESPIRATION IN MAN

27. Each nasal cavity is lined with mucous membrane of:
(a) Ciliated epithelium (b) Flagellated epithelium
(c) Flagellated endothelium (d) Ciliated endothelium

28. Each nasal cavity is sub-divided into:
(a) Four passage ways (b) Three passage ways
(c) Seven passage ways (d) Two passage ways

29. The nasal cavity leads into the:
(a) Throat (b) Pharynx
(c) Throat or larynx (d) Both (a) & (b)

30. Air is channelized from the:
(a) Throat to larynx (b) Pharynx to larynx
(c) Larynx to pharynx (d) Both (a) & (b)

31. **Voice is produced in humans by the vibration of:**
(a) Epiglottis (b) Vocal cords
(c) Glottis (d) Operculum

32. **The larynx is also called:**
(a) Magic box (b) Sound box
(c) Food box (d) Air box

33. **Larynx is a complex cartilaginous structure surrounding the upper end of the:**
(a) Glottis (b) Bronchi
(c) Trachea (d) Pharynx

34. **Bronchus divides and subdivides into:**
(a) Tracheoles (b) Bronchioles
(c) Bronchi (d) None of above

35. **Bronchioles are made up of circular:**
(a) Smooth muscles (b) Skeletal muscles
(c) Cardiac muscles (d) Both (a) and (b)

36. **The functional unit of human lung is:**
(a) An air sac (b) Bronchus
(c) Alveolus (d) Both (a) & (c)

37. **The floor of chest cavity in man is called:**
(a) Abdomen (b) Lung
(c) Diaphragm (d) Thorax

38. **Lungs are covered with double layered thin membranous sacs called:**
(a) Epicardium (b) Pleura
(c) Plural (d) Myocardium

39. **Diaphragm is a sheet of:**
(a) Skeletal muscles (b) Smooth muscles
(c) Cardiac muscles (d) Connective tissues

40. **Chest cavity is bounded by:**
(a) Ribs (b) Muscles
(c) Both ribs and muscles (d) None of above

MECHANICS OF VOLUNTARY AND INVOLUNTARY REGULATION OF BREATHING IN MAN

41. **Breathing is a mechanical process consisting of two phases:**
(a) Expiration and exhalation
(b) Inspiration and exhalation
(c) Inspiration and ventilation
(d) Ventilation and exhalation

42. **In humans, the breathing rate at rest occurs at a frequency of:**
(a) 20-25 times/minute (b) 25-30 times/minute
(c) 15-20 times/minute (d) 15-25 times/minute

43. **On relaxation of muscles the shape of diaphragm is:**
(a) Dome like (b) Flat
(c) Balloon like (d) None of above

44. **The muscles present between the ribs are called:**
(a) Skeletal muscles (b) Smooth muscles
(c) Intercostal muscles (d) Intracostal muscles

45. **Respiratory distress syndrome is common especially in infants with a gestation age of less than:**
(a) 5 months (b) 9 months
(c) 4 months (d) 7 months

TRANSPORT OF RESPIRATORY GASES

46. **Blood in the lungs is separated from the alveolar air by extremely thin membranes of:**

(a) Alveoli (b) Capillaries
(c) Both (a) and (b) (d) Bronchioles

47. **In humans the respiratory pigment present in blood is called:**
(a) Haemoglobin (b) Oxyhaemoglobin
(c) Myoglobin (d) Both (a) and (c)

48. **The colour of normal haemoglobin is:**
(a) Red (b) Bright red
(c) Dark red (d) Purple red

49. **In red blood corpuscles an enzyme is present named:**
(a) Bicarbonic anhydrase
(b) Carbonic anhydrase
(c) Carbonic dehydrogenase
(d) Bicarbonic dehydrogenese

50. **Haemoglobin can absorb maximum oxygen at:**
(a) High altitude (b) Depth of sea
(c) Sea level (d) None of above

51. **Blood contains _____ oxygen when haemoglobin is 98% saturated per 100 ml of blood:**
(a) 16.6 ml (b) 19.6 ml
(c) 18.6 ml (d) 17.6 ml

52. **The capacity of haemoglobin to combine with oxygen depends upon:**
(a) CO_2 (b) pH
(c) Temperature (d) All of above

53. **Carboxyhaemoglobin is formed when carbon dioxide combines with:**
(a) Carboxyl group of haemoglobin
(b) Amino group of haemoglobin
(c) Both (a) and (b)
(d) None of above

54. **The percentage of carbon dioxide carried as bicarbonate ion in the blood is:**
(a) 20% (b) 70%
(c) 54% (d) 50%

55. **On splitting carbonic acid produces:**
(a) Hydrogen ions and bicarbonate ions
(b) Hydronium ions and bicarbonate ions
(c) Hydronium ions and carbonate ions
(d) Hydrogen ions and carbonate ions

56. **Small amount of CO_2 is also carried by corpuscles combines with:**
(a) Kalium (b) Natrium
(c) Magnesium (d) Calcium

RESPIRATORY DISORDERS

57. **Smoking especially in young adults is the most potential threat of:**
(a) Hepatic cancer (b) Lung cancer
(c) Renal cancer (d) Nasal cancer

58. **More than ten compounds of tar of tobacco smoke are involved to cause:**
(a) T.B (b) Asthma
(c) Cancer (d) Emphysema

59. **Tuberculosis is caused by:**
(a) Escherichia coli (b) Hyphomicrobium
(c) Epulopiscium fishelsoni (d) Mycobacterium tuberculosis

60. **Malnutrition and poor living conditions facilitate Mycobacterium to:**
(a) Disperse (b) Infect
(c) Grow (d) All of above

61. **The irritant substances of smoke generally cause:**

(a) Whooping cough (b) Smokers cough
(c) Dry cough (d) Black cough

62. **Myoglobin is also known as:**
(a) Oxyhaemoglobin (b) Carboxyhaemoglobin
(c) Muscle haemoglobin (d) Blood haemoglobin

63. **The structure of myoglobin is:**
(a) Two polypeptide chains associated with an iron containing ring.
(b) One peptide chain associated with an iodine containing tetrahedral structure.
(c) One polypeptide chain associated with an iodine containing tetrahedral structure.
(d) One polypeptide chain associated with an iron containing ring structure.

64. **Aquatic mammals are also called:**
(a) Cetaceans (b) Metatheria
(c) Crustaceans (d) Eutheria

65. **How much air lungs can hold when they are fully inflated?**
(a) 4 litres (b) 5 litres
(c) 6 litres (d) 3.5 litres

66. **The constituent part of carbon dioxide after exhalation is:**
(a) 3% (b) 4.5%
(c) 3.5% (d) 4%

Answers

1.	c	2.	d	3.	c	4.	b
5.	c	6.	a	7.	b	8.	a
9.	c	10.	d	11.	c	12.	b
13.	a	14.	b	15.	b	16.	a
17.	c	18.	a	19.	b	20.	a
21.	b	22.	c	23.	d	24.	b
25.	c	26.	d	27.	a	28.	b
29.	d	30.	d	31.	b	32.	c
33.	c	34.	c	35.	a	36.	c
37.	c	38.	b	39.	a	40.	d
41.	b	42.	c	43.	a	44.	d
45.	d	46.	c	47.	b	48.	a
49.	b	50.	c	51.	a	52.	c
53.	b	54.	b	55.	d	56.	a
57.	b	58.	c	59.	d	60.	
61.	b	62.	c	63.			
65.	b	66.	d				

HOMEOSTASIS

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

CONCEPTS IN HOMEOSTASIS

1. **The protection of internal environment from the harms of fluctuations in external environment is called as:**
   (a) Homeostasis (b) Thermoregulation
   (c) Osmoregulation (d) Excretion
2. **There are three components for the control system in a living organism to maintain homeostatic balance which are receptors, control center and:**
   (a) Coordinator (b) Effector
   (c) Regulator (d) Impulse
3. **The regulation of amount of water and solutes in the body is termed as:**
   (a) Thermoregulation (b) Homeostasis
   (c) Osmoregulation (d) All of above
4. **The maintenance of internal temperature of body within a tolerable range is termed as:**
   (a) Thermostat (b) Osmoregulation
   (c) Thermoregulation (d) Pyrolysis
5. **Homeostasis is the central requirement in the maintenance of:**
   (a) Organism (b) Ecosystem
   (c) Species (d) All of above
6. **In living system, there is a set point in temperature regulated or:**
   (a) Endothermic animals
   (b) Heterothermic animals
   (c) Ectothermic animals
   (d) Poikilothermic animals
7. **Detection of change and signalling for effector's response to control system is:**
   (a) Reciprocal mechanism
   (b) Negative feedback mechanism
   (c) Feedback mechanism
   (d) Both (a) and (c)
8. **Homeostasis keeps the internal fluctuations in a narrow range with various control systems compared to:**
   (a) Narrow external fluctuations
   (b) Wider external fluctuations
   (c) Moderate external fluctuations
   (d) None of above

OSMOREGULATION

9. **A more concentrated extracellular environment than a cell is termed as:**
   (a) Peritonic (b) Isotonic
   (c) Hypertonic (d) Hypotonic
10. **Some desert mammals do survive without drinking water such as:**
   (a) Kangaroo rat (b) Lemmings
   (c) Grizzly bears (d) Camel
11. **The environment where animals produce large volumes of diluted urine is the:**
   (a) Terrestrial (b) Hypotonic aquatic
   (c) Hypertonic aquatic (d) Isotonic aquatic
12. **The fishes which drink large amount of sea water and excrete concentrated urine are the:**
   (a) Bony fishes (b) Jawless fishes

(c) Cartilaginous fishes (d) Lobe-finned fishes

13. **Most cartilaginous fishes possess salt excreting organs known as:**
(a) Thyroid glands (b) Pituitary glands
(c) Adrenal glands (d) Rectal glands

14. **The fishes which are isotonic to the surrounding sea water are the:**
(a) Bony fishes (b) Hag fishes
(c) Cartilaginous fishes (d) Lung fishes

15. **Which of the following has enabled the animals and plants to distribute themselves in wide range of habitats?**
(a) Thermoregulation (b) Excretion
(c) Osmoregulation (d) All of above

16. **Which of the following have adapted successfully to terrestrial mode of life?**
(a) Arthropods and Mammals
(b) Arthropods and Reptiles
(c) Arthropods and Birds
(d) Arthropods and Vertebrates

17. **Plants growing under moderate conditions of the environment are known as:**
(a) Sciophytes (b) Xerophytes
(c) Hydrophytes (d) Mesophytes

18. **Plants which are characterized by having adaptations of small and thick leaves to limit water loss and their stems are photosynthetic, are called:**
(a) Sammophytes (b) Xerophytes
(c) Halophytes (d) Mesophytes

19. **Cartilaginous fishes retain trimethylamine oxide for protection against:**
(a) Uric acid (b) Ammonia
(c) Urea (d) Cholesterol

20. **Fresh water protozoa, Amoeba and Paramecium pump out excess water by structures:**
(a) Nephridia (b) Protonephridia
(c) Nephrons (d) Contractile vacuoles

21. **Xerophytes have the adaptations for reduced rate of:**
(a) Transpiration (b) Translocation
(c) Growth (d) Absorption

22. **The animals which do not require actively to adjust their internal osmotic state are known as:**
(a) Osmoregulators (b) Thermoregulators
(c) Osmoconformers (d) Excretophores

23. **Which of the following plant is not a mesophyte?**
(a) Rose (b) Cactus
(c) Mango (d) Brassica

24. **Hypotonic environment osmotically causes entry of water into the cell and renders the cell solutions:**
(a) Concentrated (b) Isotonic
(c) Diluted (d) Disturbed

EXCRETION

25. **Which of the following is the main contributing organ in plants for the elimination of wastes also called as an excretophore?**
(a) Fruit (b) Stem
(c) Root (d) Leaves

26. **Photosynthesis and respiration have one thing common as a by-product:**
(a) Water (b) O_2
(c) CO_2 (d) All of above

27. **Ebony is a tree which deposits strange chemicals in old xylem of their:**
(a) Roots (b) Branches and trunks

(c) Leaves (d) Branches only

28. **The removal of amino group from an amino acid and leading to the formation of ammonia is called:**
(a) Decarboxylation (b) Oxidation
(c) Deamination (d) Reduction

29. **Which of the following excretory product requires minimum water for its elimination?**
(a) Uric acid (b) Ammonia
(c) Urea (d) Creatine

30. **A large amount of nitrogenous wastes in animals is produced by the metabolism of:**
(a) Purines (b) Purines and pyrimidines
(c) Pyrimidines (d) Amino acids

31. **Which of the following is most toxic nitrogenous wastes in animals?**
(a) Trimethylamine oxide (b) Uric acid
(c) Urea (d) Ammonia

32. **Which of the following habitat favours the excretion of ammonia?**
(a) Desert (b) Fresh water
(c) Marine water (d) Grassland

33. **Uric acid is the chief nitrogenous wastes in vertebrates like birds and:**
(a) Fishes (b) Mammals
(c) Reptiles (d) Amphibians

34. **One gram of ammonia nitrogen for excretion requires:**
(a) 1 ml of water (b) 250 ml of water
(c) 50 ml of water (d) 500 ml of water

35. **One gram of urea nitrogen for excretion requires:**
(a) 1 ml of water (b) 250 ml of water
(c) 50 ml of water (d) 500 ml of water

36. **One gram of uric acid nitrogen for excretion requires:**
(a) 1 ml of water (b) 250 ml of water
(c) 50 ml of water (d) 500 ml of water

37. **The animals excreting urea as the nitrogenous waste are called as:**
(a) Ureotelic (b) Ammonotelic
(c) Uricotelic (d) Excretophores

38. **Uric acid is produced from the breakdown of:**
(a) Nitric acids (b) Amino acids
(c) Fatty acids (d) Nucleic acids

39. **The reptiles and birds inhabit and environment so excrete:**
(a) Urea (b) Ammonia
(c) Uric acid (d) Xanthine

40. **The generation of wastes is primarily done at metabolic level and these are called:**
(a) Metabolic wastes (b) Common wastes
(c) Nitrogenous wastes (d) All of above

41. **The elimination of wasteful metabolites mainly of nitrogenous nature is called as:**
(a) Excretion (b) Excretophore
(c) Egestion (d) All of above

42. **Creatinine is produced from muscle:**
(a) Glycogen (b) Glucose
(c) Creatine (d) Lactic acid

43. **Animals excreting uric acid are called:**
(a) Ureotelic (b) Ammonotelic
(c) Uricotelic (d) Excretotelic

44. **Which of the following organelle is used to store useful and harmful substances in plant cells?**
(a) Contractile vacuoles (b) Digestive vacuoles
(c) Vacuoles (d) Lysosomes

45. Which of the following plants secrete waste compounds in the soil and use them as chemical weapons against other competing plants?
(a) Leguminous plants (b) Coniferous plants
(c) Aquatic plants (d) Citrus plants

46. Elephants excrete nitrogenous wastes in the form of:
(a) Creatine (b) Allantoin
(c) Xanthine (d) Urea

EXCRETION IN REPRESENTATIVE ANIMALS

47. Hydra excrete its waste products in the:
(a) Isosmotic surroundings
(b) Hypotonic surroundings
(c) Hypertonic surroundings
(d) None of above

48. Flatworms have simple tubular excretory system called:
(a) Metanephridium (b) Nephridium
(c) Protonephridium (d) Nephrostome

49. A protonephridium is a network of closed tubules without:
(a) Nephridiopores (b) Internal openings
(c) Excretory ducts (d) Flame cells

50. Protonephridia have branches which are capped by a cellular setup termed as:
(a) Flame cells (b) Interstitial cells
(c) Bulb cells (d) Flickering cells

51. Earthworm is an ideal example of tubular excretory system called:
(a) Protonephridium (b) Metanephridium
(c) Nephridia (d) Vasa recta

52. Which of the following group of animals excrete nitrogenous wastes with faeces?
(a) Insects (b) Molluscs
(c) Crustaceans (d) Flatworms

53. In cockroach the, Malpighian tubules remove nitrogenous wastes from:
(a) Haemocyanin (b) Haemoglobin
(c) Haemolymph (d) Lymph

EXCRETION IN VERTEBRATES

54. The basic functional structure in the kidney is:
(a) Nephron (b) Bowman's capsule
(c) Neuron (d) Glomerulus

55. The end-product of haemoglobin breakdown and metabolites of various hormones is the:
(a) Urea (b) Bilirubin
(c) Creatinine (d) Uric acid

56. Metabolic wastes also include the toxins produced within the body and ingested into the body such as:
(a) Food additives (b) Drugs
(c) Pesticides (d) All of above

57. Presence of wastes in the body causes serious hazards, thus are eliminated by:
(a) Respiratory system (b) Digestive system
(c) Excretory system (d) All of above

58. In man, primary structures for eliminating waste products are:
(a) Heart and kidneys (b) Liver and kidneys
(c) Kidneys and skin (d) Kidneys and rectum

59. The removal of water and salts from sweat glands is for the purpose of:
(a) Osmoregulation (b) Thermoregulation
(c) Protection against microorganisms
(d) Excretion

60. **Sebum produced by sebaceous glands is for the purpose of:**
(a) Protection against microorganisms
(b) Osmoregulation
(c) Thermoregulation
(d) Excretion

61. **Two ammonia and one carbon dioxide molecules are shunted into urea cycle to generate one molecule of:**
(a) Urea (b) Citrulline
(c) Uric acid (d) Ornithine

62. **The ancestors of vertebrates are:**
(a) Invertebrate chordates
(b) Invertebrates
(c) Chordates
(d) All of above

63. **Principal excretory product is the:**
(a) Ammonia (b) Uric acid
(c) Urea (d) Creatinine

64. **In the human liver, citrulline and ammonia chemically combine together to form:**
(a) Arginine (b) Xanthine
(c) Creatinine (d) Hypoxanthine

65. **Detoxification of food additives, pesticides and drugs is an important function of human:**
(a) Kidney (b) Large intestine
(c) Pancreas (d) Liver

66. **The metabolic pathways involved in the production of urea are termed as:**
(a) Ammonia cycle (b) Citric acid cycle
(c) Calvin cycle (d) Urea cycle

67. **The central station of metabolism and consequently the body's central metabolic clearing house is:**
(a) Spleen (b) Liver
(c) Kidney (d) Urinary bladder

URINARY SYSTEM

68. **The nephrons have extensive blood supply via the:**
(a) Hepatic arteries (b) Renal veins
(c) Renal arteries (d) Pulmonary arteries

69. **The central cavity of the kidney is called:**
(a) Hilum (b) Medulla
(c) Pelvis (d) Cortex

70. **The duct which carries urine from kidney is called:**
(a) Ureter (b) Urethra
(c) Urinary bladder (d) Penis

71. **The nephrons which are arranged along the border of cortex and medulla with their tubular system looping deep in inner medulla are called:**
(a) Juxtamedullary nephrons
(b) Medullary nephrons
(c) Juxtacortical nephrons
(d) Cortical nephrons

72. **In each nephron, inner end forms a cup-shaped swelling called:**
(a) Glomerulus (b) Vasa recta
(c) Bowman's capsule (d) Pelvis

73. **In juxtamedullary nephrons, additional capillaries extend down to form a loop of vessels called:**
(a) Loop of Henle (b) Vasa recta
(c) Glomerulus (d) All of above

74. The filtrate appearing in glomerulus is called as:
(a) Glomerular filtrate (b) Crude filtrate
(c) Bowman's filtrate (d) Fine filtrate

75. The active uptake of sodium in the ascending limb or thick loop of Henle is promoted by the action of:
(a) ADH (b) Aldosterone
(c) Cortisol (d) All of above

76. The active transport of water from filtrate in collecting tubules back to kidney is controlled by the hormone:
(a) ICSH (b) LH
(c) ADH (d) FSH

77. Urine leaves the body, during urination from urinary bladder through a tube called:
(a) Ureter (b) Penis
(c) Seminal vesicle (d) Urethra

78. The blood vessels in kidney, subdivide again into another network of capillaries the:
(a) Renal capillaries (b) Vasa recta
(c) Peritubular capillaries (d) Efferent capillaries

79. Bowman's capsule is around a ball of capillaries called:
(a) Glomerulus (b) Peritubular capillaries
(c) Vasa recta (d) Medulla

KIDNEY PROBLEMS AND CURES

80. High level of circulating calcium in blood is the major cause of:
(a) Hypocalcemia (b) Hypercalcemia
(c) Hyperoxaluria (d) Hypoxaluria

81. Oxalates are abundantly present in:
(a) Green vegetables (b) Gauva
(c) Tomatoes (d) Both (a) and (c)

82. The incidence of calcium oxalate type stones is:
(a) 40% (b) 70%
(c) 15% (d) 10%

83. The incidence of calcium phosphate stones is:
(a) 10% (b) 20%
(c) 15% (d) 30%

84. The incidence of uric acid stones is:
(a) 10% (b) 40%
(c) 15% (d) 70%

85. The procedure of non-surgical removal of kidney stones is called:
(a) Biopsy (b) Lithosere
(c) Lithography (d) Lithotripsy

86. Lithotripsy is used to breakup stones that form in:
(a) Kidney (b) Gall bladder
(c) Ureter (d) All of above

87. The increase in urea causes complications of increase in:
(a) Blood pressure (b) Anaemia
(c) Uremia (d) Both (a) and (b)

88. There are two types of dialysis:
(a) Hemodialysis and peritoneal dialysis
(b) Hemodialysis and abdominal dialysis
(c) Hemodialysis and thoracic dialysis
(d) Kidney dialysis and blood dialysis

89. Hemodialysis means:
(a) Removal of water from blood

(b) Removal of urea from kidney
(c) Removal of salts from blood
(d) Cleaning the blood

90. **High degree renal failure is also called as:**
(a) Uremia (b) End-stage renal disease
(c) Hypercalcemia (d) Both (a) and (c)

THERMOREGULATION

91. **Most plants have adapted to survive in heat stress by synthesizing large quantities of special proteins called:**
(a) Heat absorbing proteins
(b) Heat shock proteins
(c) Heat resistant proteins
(d) Heat dissipating proteins

92. **Plants respond to cold stress by increasing proportion of:**
(a) Saturated fatty acids
(b) Unsaturated fatty acids
(c) Both saturated and unsaturated fatty acids
(d) Polysaturated fatty acids

93. **Which of the following group of animals is not poikilothermic?**
(a) All invertebrates (b) Reptiles
(c) Amphibians (d) Mammals

94. **Homeotherms include:**
(a) Birds and fishes (b) Fishes and amphibians
(c) Birds and amphibians (d) Amphibians and reptiles

95. **Which of the following option comes under endotherms?**
(a) Flying insects (b) Bats
(c) Fishes (d) Humming bird

96. **The animals which generate their own body heat through heat production as by-product during metabolism are called:**
(a) Heterotherms (b) Ectotherms
(c) Endotherms (d) Both (a) and (c)

97. **Hormones may trigger heat production as do thyroid hormones and are termed as:**
(a) Non-shivering thermogenesis
(b) Shivering thermogenesis
(c) Both shivering and non-shivering thermogenesis
(d) Endothermogenesis

98. **Most land mammals respond to cold by raising their:**
(a) Furs (b) Arms
(c) Hairs (d) Both (a) and (c)

99. **Marine mammals such as whales and seals inhabit cold water by having a very thick layer of insulating fat are called:**
(a) Pelage (b) Blubber
(c) Brown fat (d) All of above

100. **In humans, thermostat responds to changes in temperature above and below a set point which is:**
(a) 40°C (b) 38°C
(c) 37°C (d) 98°C

101. **Some mammals possess brown fat, which is specialised for rapid production of:**
(a) Faeces (b) Heat
(c) Urine (d) Sweat

102. Pyrogens displace the set point of hypothalamus above the normal point of:
(a) 37°C (b) 40°C
(c) 39°C (d) 36°C

103. Plants use evaporative cooling to manage with high:
(a) Temperature (b) Wind pressure
(c) Rainfall (d) Water stress

Answers

1.	a	2.	b	3.	c	4.	c
5.	a	6.	a	7.	c	8.	b
9.	C	10.	a	11.	b	12.	a
13.	D	14.	b	15.	c	16.	d
17.	D	18.	b	19.	c	20.	d
21.	a	22.	c	23.	b	24.	c
25.	d	26.	a	27.	b	28.	c
29.	a	30.	b	31.	d	32.	b
33.	c	34.	d	35.	c	36.	a
37.	a	38.	d	39.	c	40.	a
41.	a	42.	c	43.	c	44.	c
45.	b	46.	d	47.	a	48.	c
49.	b	50.	a	51.	b	52.	a
53.	c	54.	a	55.	b	56.	d
57.	b	58.	b	59.	b	60.	a
61.	a	62.	a	63.	c	64.	a
65.	d	66.	d	67.	b	68.	c
69.	c	70.	a	71.	a	72.	c
73.	b	74.	a	75.	b	76.	c
77.	d	78.	c	79.	a	80.	b
81.	d	82.	b	83.	c	84.	a
85.	D	86.	d	87.	d	88.	a
89.	D	90.	D	91.	b	92.	b
93.	D	94.	C	95.	a	96.	a
97.	A	98.	A	99.	b	100.	c
101.	B	102.	A	103.	a		

CHROMOSOMES & DNA

Multiple Choice Questions (MCQs)

Select the correct answer and encircle it.

INTRODUCTION

1. **Chromosomes were first observed by:**
   (a) Walther Fleming (b) Louis Pasteur
   (c) Alexander Fleming (d) Strassburger
2. **Chromosomes were first seen in the dividing cells of:**
   (a) Frog larvae (b) Salamander larvae
   (c) Toad larvae (d) Trochophoree parvaee
3. **The number of pair of chromosomes in penicillium is:**
   (a) One (b) Eight
   (c) Four (d) Seven
4. **The number of chromosomes in corn is:**
   (a) 32 (b) 40
   (c) 80 (d) 20
5. **The number of pair of chromosomes in mouse is:**
   (a) 20 (b) 40
   (c) 23 (d) 16

TYPES OF CHROMOSOMES

6. **Which of the following is not found in chromosomes?**
   (a) Chromatids (b) Centromere
   (c) Secondary constriction (d) Centriole
7. **The term karyotype includes:**
   (a) Size and staining properties of chromosomes
   (b) Position of constricted regions along the arms of chromosomes
   (c) Number of chromosomes
   (d) All of above
8. **Which of the following is not usual shape of chromosome?**
   (a) i (b) k
   (c) j (d) v
9. **The type of chromosome in which centromere is present near the centre of chromatids is called:**
   (a) Metacentric (b) Submetacentric
   (c) Acrocentric (d) Telocentric
10. **The type of chromosome in which centromere is located at one end of chromatid is called:**
    (a) Submetacentric (b) Metacentric
    (c) Telocentric (d) Acrocentric

COMPOSITION OF CHROMOSOMES

11. **Which of the following component is not the part of chromosome?**
    (a) RNA (b) Protein
    (c) DNA (d) Tubulin
12. **The number of nucleotides in a typical human chromosome is about:**
    (a) 140 million (b) 14 crore
    (c) 1.4×10^8 (d) All of above
13. **The possible length of DNA from a single human chromosome may be:**
    (a) 20 cm (b) 5 cm
    (c) 40 cm (d) 15 cm
14. **Histones are positively charged due to abundance of basic amino acids like:**
    (a) Arginine (b) Lysine

(c) Glutamic acid (d) Both (a) and (b)

15. **Highly condensed portions of chromatin are called:**
(a) Euchromatin (b) Isochromatin
(c) Heterochromatin (d) Chromatin net

16. **The amount of DNA in chromosomes is:**
(a) 40% (b) 80%
(c) 60% (d) 90%

17. **Chromosome consists of a bead-like structure called as:**
(a) Nucleosome (b) Polysome
(c) Mesosome (d) Centrosome

THE CHROMOSOMAL THEORY OF INHERITANCE

18. **The role of chromosomes in heredity was first suggested in 1900 by:**
(a) Frederick Griffith (b) T.H. Morgan
(c) Walter Sutton (d) Carl Correns

19. **The chromosomal theory of inheritance was first formulated by:**
(a) T.H. Morgan (b) Sutton
(c) Carl Correns (d) Oswald Avery

20. **Experiments on Drosophila melanogaster were conducted by:**
(a) T.H. Morgan (b) Alfred Hershey
(c) Martha Chase (d) Friedrich Miescher

21. **The gene causing white eye trait in Drosophila resides on:**
(a) X-chromosome
(b) Both X and Y chromosome
(c) Y-chromosome
(d) Autosome No. 04

DNA AS HEREDITARY MATERIAL

22. **The first evidence of hereditary nature of DNA was provided by:**
(a) Frederick Griffith (b) Oswald Avery
(c) P.A. Levene (d) Friedrich Miescher

23. **Additional evidence regarding DNA as the hereditary material was provided in 1952 by:**
(a) Hershey and Chase
(b) Macleod and McCarty
(c) Wilkins and Franklin
(d) Watson and Crick

24. **Oswald Avery found that transforming activity is destroyed by:**
(a) Protein digesting enzyme
(b) Carbohydrate digesting enzyme
(c) RNA digesting enzyme
(d) DNA digesting enzyme

CHEMICAL NATURE OF DNA

25. **DNA was discovered in 1869 by:**
(a) Friedrich Miescher (b) Erwin Chargaff
(c) P.A. Levene (d) James D. Watson

26. **Basic structure of nucleic acid was determined by:**
(a) P.A. Levene (b) Friedrich Miescher
(c) Erwin Chargaff (d) Maurice Wilkins

27. **Which of the following nitrogenous base is not a pyrimidine?**
(a) Thymine (b) Cytosine
(c) Adenine (d) Uracil

28. **Which of the following is not a component of nucleotide?**
(a) Phosphate group (b) Nitrogenous base

(c) Five carbon sugar (d) Six carbon sugar

29. **The linkage between two nucleotides is called as:**
(a) Phosphodiester linkage
(b) Ester linkage
(c) Glycosidic linkage
(d) Peptide linkage

30. **X-ray diffraction analysis of DNA was conducted by:**
(a) Maurice Wilkins (b) Francis Crick
(c) James D. Watson (d) Rosalind Franklin

DOUBLE HELICAL STRUCTURE OF DNA

31. **In the double helix of DNA, the complementary nitrogenous bases of nucleotides are held together by:**
(a) Peptide bonds (b) Phosphodiester bonds
(c) Hydrogen bond (d) Hyperphobic bonds

32. **The diameter of DNA double helix is maintained at:**
(a) 3.4 nm (b) 0.34 nm
(c) 2.0 nm (d) 34 nm

33. **Double helical structure of DNA was proposed by:**
(a) Watson and Crick (b) Wilkins and Franklin
(c) Meselson and Stahl (d) Macleod and McCarty

DNA REPLICATION THE MESELSON - STAHL EXPERIMENT

34. **The type of model explaining DNA replication process in which primary structure of DNA is conserved but secondary structure is lost is called:**
(a) Conservative model (b) Semi-conservative model
(c) Dispersive model (d) Semi-dispersive model

35. **The model of DNA replication in which both strands break apart is called:**
(a) Dispersive (b) Semi-conservative
(c) Conservative (d) None of above

36. **The practical demonstration of semi-conservative model of DNA replication was provided by:**
(a) Hershey and Chase (b) Meselson and Stahl
(c) Franklin and Wilkins (d) Macleod and McCarty

37. **Meselson and Stahl used radioactive isotope of:**
(a) Phosphorus (b) Sulphur
(c) Iron (d) Nitrogen

38. **In semi-conservative DNA replication, after the second round of replication, DNA strands obtained were:**
(a) One light one heavy
(b) One light one intermediate
(c) All light
(d) One heavy one intermediate

THE REPLICATION PROCESS

39. **The true E. coli replicating enzyme is:**
(a) DNA polymerase I (b) RNA primase
(c) DNA polymerase II (d) DNA ligase

40. **DNA polymerase III works always in:**
(a) 5' → 3' direction (b) 5' → 2' direction
(c) 3' → 5' direction (d) 2' → 5' direction

41. **The strand of DNA which is elongated towards replication fork is:**
(a) Leading strand (b) Lagging strand
(c) Coding strand (d) Sense strand

42. **Okazaki fragment is a fragment of:**

(a) RNA (b) DNA
(c) Protein (d) Enzyme

43. In prokaryotes, the length of Okazaki fragments is about:
(a) 100-200 nucleotides (b) 1000-2000 nucleotides
(c) 700-900 nucleotides (d) 400-600 nucleotides

44. Okazaki fragments are synthesized by:
(a) Primase (b) Helicase
(c) Ligase (d) DNA polymerase III

WHAT IS A GENE?

45. In alkaptonuria, the patients produce urine containing:
(a) Homogentisic acid (b) Aspartic acid
(c) Acetic acid (d) Formic acid

46. Beadle and Tatum were working on:
(a) Drosophila (b) Pneumococcus
(c) Bacteriophage (d) Neurospora

47. Which of the following component is not found in minimal medium?
(a) Water (b) Sugar
(c) Salt (d) Hormone

48. The hypothesis tested by Beadle and Tatum in their experiment was:
(a) One gene/one enzyme hypothesis
(b) One gene/one polypeptide hypothesis
(c) One gene/many enzyme hypothesis
(d) Many genes/one enzyme hypothesis

49. The sequences of amino acids in insulin was described by:
(a) Beadle and Tatum (b) F. Sanger
(c) Watson and Crick (d) Vernon Ingram

50. The molecular basis of sickle cell anemia was worked out by:
(a) Philip Leader (b) Vernon Ingram
(c) Har Gobind Khorana (d) P.A. Levene

51. In sickle cell anemia, amino acid glutamic acid is replaced by:
(a) Serine (b) Isoleucine
(c) Valine (d) Methionine

52. The sequence of nucleotides that determines, the amino acid sequence of a protein is called:
(a) Codon (b) Polypeptide sequence
(c) Polynucleotide sequence (d) Gene

53. Which of the following is not a type of RNA?
(a) cRNA (b) mRNA
(c) tRNA (d) rRNA

TRANSCRIPTION

54. Only one strand of DNA is transcribed by RNA polymerase called as:
(a) Template strand (b) Coding strand
(c) Antisense strand (d) Both (a) and (c)

55. rRNA is synthesized by RNA polymerase:
(a) I (b) II
(c) III (d) All of above

56. mRNA is synthesized by RNA polymerase:
(a) I (b) II
(c) III (d) All of above

57. tRNA is synthesized by RNA polymerase:
(a) I (b) II
(c) III (d) All of above

58. One DNA template strand transcription starts at RNA polymerase binding site called as:
(a) Initiator (b) Binder
(c) Promoter (d) Starter

59. In prokaryotes which of the following sequence is present in –35 sequence in the promoter site:
(a) TATAAT (b) UAC
(c) 7 methyl GTP (d) TTGACA

60. The correct initiation of transcription process is brought about by one of the subunit of RNA polymerase named as:
(a) Sigma factor (b) Pi-factor
(c) Initiation factor (d) All of above

61. The cap which is added at 5' end of the newly formed mRNA is in the form of:
(a) Poly A (b) Poly U
(c) 5 methyl GTP (d) 7 methyl GTP

GENETIC CODE

62. Genetic code or codon is a combination of:
(a) Two nucleotides (b) Four nucleotides
(c) Three nucleotides (d) Sixteen nucleotides

63. Which of the following scientist is not listed for working on genetic code?
(a) Philip Leader (b) James D. Watson
(c) Har Gobind Khorana (d) Marshall Nirenberg

64. Which of the following is not a stop codon?
(a) UAA (b) UAG
(c) UGG (d) UGA

65. Which of the following is start codon?
(a) AUC (b) AUG
(c) GUA (d) UGA

66. Which of the following sequence codes for phenylalanine?
(a) AAA (b) CCC
(c) GGG (d) UUU

TRANSLATION

67. The sequence of three nucleotides along the tRNA molecule is called:
(a) Template codon (b) Antisense codon
(c) Anticodon (d) Sense codon

68. The formation of polypeptide chain from the information of mRNA is called:
(a) Transcription (b) Translation
(c) Replication (d) Transformation

69. Particular amino acid and a tRNA molecule binds together by the action of an enzyme named:
(a) Aminoacyl-tRNA synthetase
(b) tRNA synthetase
(c) RNA polymerase
(d) tRNA ligase

70. In polypeptide synthesis, the first amino acid is:
(a) Tryosine (b) Tryptophan
(c) Arginine (d) Methionine

71. Non-sense condons are recognised by:

(a) Initiation factors (b) Non-sense factors
(c) Elongation factors (d) Release factors

72. **Successive tRNA molecules with their attached amino acids appear at:**
(a) P site (b) T site
(c) A site (d) E site

MUTATIONS

73. **Which of the following disease is a case of point mutations?**
(a) Sickle cell anemia (b) Klinefelter's syndrome
(c) Down's syndrome (d) Turner's syndrome

74. **If mutations involve only one or a few base pairs in the coding sequence they are called as:**
(a) Transposition (b) Base mutation
(c) Point mutation (d) Gene mutation

75. **In phenylketonuria, phenylalanine is not degraded because of defective enzyme:**
(a) Phenylalanine Catalase
(b) Phenylalanine dehydrogenase
(c) Phenylalanine oxidase
(d) Phenylalanine hydroxylase

Answers

1.	a	2.	b	3.	a	4.	d
5.	a	6.	d	7.	d	8.	b
9.	a	10.	c	11.	d	12.	d
13.	b	14.	d	15.	c	16.	a
17.	a	18.	d	19.	b	20.	a
21.	a	22.	a	23.	a	24.	d
25.	a	26.	a	27.	c	28.	d
29.	a	30.	d	31.	c	32.	c
33.	a	34.	b	35.	a	36.	b
37.	d	38.	b	39.	c	40.	a
41.	a	42.	b	43.	b	44.	d
45.	a	46.	d	47.	d	48.	a
49.	b	50.	b	51.	c	52.	d
53.	a	54.	d	55.	a	56.	b
57.	c	58.	c	59.	d	60.	a
61.	d	62.	c	63.	b	64.	c
65.	b	66.	d	67.	c	68.	b
69.	a	70.	d	71.	d	72.	c
73.	a	74.	c	75.	d		

CELL CYCLE

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

INTRODUCTION

1. **Cell cycle comprises of following two phases:**
   (a) Period of growth and replication of DNA.
   (b) Period of growth and cell division.
   (c) Interphase and mitotic phase.
   (d) Interphase and replication of DNA.
2. **Which of the following involves cell cycle?**
   (a) Period of growth (b) Cell division
   (c) Replication of DNA (d) All of above

INTERPHASE

3. **Which of the following is not a phase of interphase?**
   (a) G_1-phase (b) G_2-phase
   (c) S-phase (d) G_o-phase
4. **Which of the following events take place in G_1-phase?**
   (a) Cell grows in size
   (b) Specific enzymes synthesized
   (c) DNA base units accumulated
   (d) All of above
5. **Synthesis of DNA and chromosomal doubling takes place in:**
   (a) S-phase (b) G_2-phase
   (c) G_1-phase (d) G_o-phase
6. **Which of the following event not take place in G_2-phase?**
   (a) Energy storage for chromosomal movements.
   (b) Synthesis of mitosis specific proteins.
   (c) Accumulation of DNA base units.
   (d) Synthesis of RNA and microtubule sub units.
7. **In case of human cell average time taken by s-phase is:**
   (a) 4.5 hours (b) 10 hours
   (c) 30 minutes (d) 9 hours
8. **The time taken by full cycle in yeast cell is about:**
   (a) 30 minutes (b) 60 minutes
   (c) 40 minutes (d) 90 minutes

MITOSIS

9. **The type of cell division which ensures same number of chromosomes in daughter cells as that in parent cells is:**
   (a) Meiosis (b) Mitosis
   (c) Amitosis (d) Binary fission
10. **During mitosis cell division is referred as:**
    (a) Cytokinesis (b) Anaphase
    (c) Karyokinesis (d) Diakinesis
11. **Which of the following sets of microtubules originate from each pair of centrioles?**
    (a) Astral microtbules (b) Polar microtubules
    (c) Kinetochore microtubules
    (d) All of above
12. **A network of very fine threads called chromatin can be visualized in cell during:**
    (a) Anaphase (b) Telophase

(c) Interphase (d) Prophase

13. **Which of the following event takes place at the end of prophases?**
(a) Nuclear envelope disappears.
(b) Nuclear material is released in cytoplasm.
(c) Nucleoli disappear and cytoplasm becomes viscous.
(d) All of above

14. **The centriole lies in:**
(a) Chromosome (b) Centrosome
(c) Nucleosome (d) Polysome

15. **The spindle fibres are composed of traces of RNA and a protein called:**
(a) Tubulin (b) Myosin
(c) Actin (d) Tropomyosin

16. **The number, size and shape of metaphase chromosome constitutes the:**
(a) Karyotype (b) Genotype
(c) Phenotype (d) All of above

17. **Centromere of the chromosome has special area with specific base arrangements and special proteins where kinetochore fibers of mitotic apparatus attach is called:**
(a) Primary constriction (b) Kinetochore
(c) Secondary constitution (d) Chromatid

18. **Unseparated replicas of each chromosome are known as:**
(a) Centromere (b) Plastid
(c) Chromatid (d) Homologous Chromosomes

19. **At cytokinesis phragmoplast a membranous structure is formed in a plant cell formed from vesicles derived from:**
(a) Golgi complex (b) Endoplasmic reticulum
(c) Mitochondria (d) Chloroplast

20. **Most critical phase of mitosis at which chromatids separate as independent structures (chromosomes) is the:**
(a) Prophase (b) Metaphase
(c) Anaphase (d) Telophase

21. **Which of the following is due to mitosis:**
(a) Regeneration healing of wounds and replacement of older cells.
(b) Development and growth of multicellular organisms.
(c) Tissue culture and cloning.
(d) All of above.

MEIOSIS

22. **The interphase of meiosis lacks:**
(a) G_1-phase (b) G_2-phase
(c) G_0-phase (d) S-phase

23. **The pairing of homologous chromosomes called synopsis talks place during:**
(a) Pachytene (b) Diplotene
(c) Zygotene (d) Leptotene

24. **During zygotene, each paired but not fused structure is called:**
(a) Bivalent (b) Tetrad
(c) Tetravalent (d) Both (a) and (b)

25. **The pairing of homologous chromosome is completed during:**
(a) Zygotene (b) Pachytene
(c) Diplotene (d) Diakinesis

26. **Crossing over between non-sister chromatids of homologous chromosomes takes place during:**
(a) Leptotene (b) Zygotene
(c) Pachytene (d) Diakinesis

27. **The phase of meiosis during which nucleoli disappear in the cell is called:**

(a) Leptotene (b) Diakinesis
(c) Pachytene (d) Diplotene

28. **Which of the following is not concerned with meiosis?**
(a) Crossing over
(b) Halving the number of chromosome
(c) Chromosome number remains same in daughter cells
(d) Random assortment of chromosomes

MEIOTIC ERRORS (NON-DISJUNCTION)

29. **One of the consequences of autosomal non-disjunction in man, during which 21st chromosome fails to segregate is called:**
(a) Down's syndrome (b) Turner's syndrome
(c) Mongolism (d) Both (a) and (c)

30. **The children with Down's syndrome have:**
(a) Flat broad face
(b) Protruding tongue and mental retardation
(c) Defective development of central nervous system
(d) All of above

31. **The individuals with klinefelter's syndrome have:**
(a) One extra autosome
(b) Additional sex chromosome
(c) One missing X-chromosome
(d) One missing Y-chromosome

32. **Males with 48 chromosomes (44 autosomes + XXXY) are suffered from:**
(a) Down's syndrome (b) Klinefelter's syndrome
(c) Jacob's syndrome (d) Turner's syndrome

33. **Males with 47 chromosomes (44 autosomes + XYY) are suffered from:**
(a) Down's syndrome (b) Turner's syndrome
(c) Jacob's syndrome (d) Patav syndrome

34. **The individuals with one missing X-chromosome with only 45 chromosomes (44 autosomes + X) are suffered from:**
(a) Jacob's syndrome (b) Klinefelter's syndrome
(c) Turner's syndrome (d) Down's syndrome

35. **Internal programme of events and sequence of morphological changes by which a cell commits suicide is called:**
(a) Necrosis (b) Metastasis
(c) Apoptosis (d) Cancer

36. **Cell death due to tissue damage is called:**
(a) Apoptosis (b) Necrosis
(c) Phagocytosis (d) Chlorosis

Answers

1.	c	2.	d	3.	d	4.	d
5.	a	6.	c	7.	b	8.	d
9.	b	10.	a	11.	d	12.	c
13.	d	14.	b	15.	a	16.	a
17.	b	18.	c	19.	a	20.	c
21.	d	22.	b	23.	c	24.	d
25.	b	26.	c	27.	b	28.	c
29.	d	30.	d	31.	b	32.	b
33.	c	34.	c	35.	c	36.	b

VARIATION & GENETICS

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

1. Genetic basis of ABO blood group system was explained by:
   (a) Landsteiner (b) Levine
   (c) Bernstein (d) Carl Correns
2. The dominance relations of 4 O'clock plant can be described in terms of:
   (a) Complete dominance (b) Incomplete dominance
   (c) Partial dominance (d) Both (b) and (c)
3. Which of the following cross is carried to check the genotype of an individual showing a dominant phenotype?
   (a) Check cross (b) Test cross
   (c) Criss cross (d) Self cross
4. Rh factor or antigen was first studied in:
   (a) Man (b) Owl
   (c) Monkey (d) Fish
5. An exchange of segments between non-sister chromatids of homologous chromosomes during meiosis is termed as:
   (a) Crossing over (b) Hopping
   (c) Taking over (d) Segregation
6. All chromosomes other than sex chromosomes are called:
   (a) Linked chromosomes (b) Autosomes
   (c) Autophagosommes (d) Dictyosomes
7. X and Y linked genes are also called as:
   (a) Sex genes (b) Dominant genes
   (c) Autosomal genes (d) Pseudoautosomal genes
8. Tritanopia is blindness of:
   (a) Red colour (b) Green colour
   (c) Blue colour (d) Pink colour
9. Normal fruit flies have:
   (a) White eyes (b) Bright red eyes
   (c) Light red eyes (d) Black eyes
10. Allele for whiteness in Drosophila is:
    (a) Recessive (b) Codominant
    (c) Dominant (d) Partially dominant

ANSWERS

1.	c	2.	d	3.	b	4.	c
5.	a	6.	b	7.	d	8.	c
9.	b	10.	a				

BIOTECHNOLOGY

Multiple Choice Questions (MCQs)

Circle the best suitable choice among the givens.

1. In a cell the process of DNA replication is carried out by an enzyme DNA:
   (a) Ligase (b) Polymerase
   (c) Helicase (d) Primase
2. Plasmid pSC 101 has an antibiotic resistance gene for:
   (a) Penicillin (b) Streptomycin
   (c) Tetracycline (d) Ampicillin
3. The means by which recombinant DNA is introduced into a host cell is called:
   (a) Scalar (b) Transmitter
   (c) Vector (d) Carrier
4. Cell suspension cultures of Digitalis lanata produce:
   (a) Digitoxin (b) Resochin
   (c) Quinine (d) Polludrin
5. The crossing of different varieties of plants or even species is called:
   (a) Crossing over (b) Blending
   (c) Mixing (d) Hybridization
6. Meristem is a:
   (a) Pathogen free region (b) Virus free region
   (c) Bacteria free region (d) Fungus free region
7. A very useful method of DNA finger printing is:
   (a) Cloning (b) Genetic engineering
   (c) Transformation (d) PCR
8. Soyabeans have been made resistant to a common:
   (a) Insecticide (b) Herbicide
   (c) Fungicide (d) Pesticide
9. About three billion base pairs are present in the genome of a:
   (a) Horse (b) Dog
   (c) Man (d) Monkey
10. Urine is preferably used as a vehicle for biotechnology product than:
   (a) Blood (b) Milk
   (c) Plasma (d) Tissue fluid

Answers.

1.	b	2.	c	3.	c	4.	a
5.	d	6.	b	7.	d	8.	b
9.	c	10.	b				

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NUCLEIC ACIDS

☛ Against each question four answers are given, out of which one is correct. Choose the correct answer.

1. A nucleoside consists of:
(A) Nitrogenous base
(B) Purine or pyrimidine base + sugar
(C) Purine or pyrimidine base + phosphorous
(D) Purine + pyrimidine base + sugar + phosphorous

2. A nucleotide consists of:
(A) A nitrogenous base like choline
(B) Purine + pyrimidine base + sugar + phosphorous
(C) Purine or pyrimidine base + sugar
(D) Purine or pyrimidine base + phosphorous

3. A purine nucleotide is:
(A) AMP
(B) UMP
(C) CMP
(D) TMP

4. A pyrimidine nucleotide is:
(A) GMP
(B) AMP
(C) CMP
(D) IMP

5. Adenine is:
(A) 6-Amino purine
(B) 2-Amino-6-oxypurine
(C) 2-Oxy-4-aminopyrimidine
(D) 2, 4-Dioxypyrimidine

6. 2, 4-Dioxypyrimidine is:
(A) Thymine
(B) Cystosine
(C) Uracil
(D) Guanine

7. The chemical name of guanine is:
(A) 2,4-Dioxy-5-methylpyrimidine
(B) 2-Amino-6-oxypurine
(C) 2-Oxy-4-aminopyrimidine
(D) 2, 4-Dioxypyrimidine

8. Nucleotides and nucleic acids concentration are often also expressed in terms of:
(A) ng
(B) mg
(C) meq
(D) OD at 260 nm

9. The pyrimidine nucleotide acting as the high energy intermediate is:
(A) ATP
(B) UTP
(C) UDPG
(D) CMP

10. The carbon of the pentose in ester linkage with the phosphate in a nucleotide structure is:
(A) C1
(B) C3
(C) C4
(D) C5

11. Uracil and ribose form:
(A) Uridine
(B) Cytidine
(C) Guanosine
(D) Adenosine

12. The most abundant free nucleotide in mammalian cells is:
(A) ATP
(B) NAD
(C) GTP
(D) FAD

13. The mean intracellular concentration of ATP in mammalian cell is about:
(A) 1 mM
(B) 2 mM
(C) 0.1 mM
(D) 0.2 mM

14. The nucleic acid base found in mRNA but not in DNA is:
(A) Adenine
(B) Cytosine
(C) Guanine
(D) Uracil

15. In RNA molecule 'Caps'
(A) Allow tRNA to be processed
(B) Are unique to eukaryotic mRNA
(C) Occur at the 3' end of tRNA
(D) Allow correct translation of prokaryotic mRNA

16. In contrast to eukaryot ic mRNA, prokaryotic mRNA:
(A) Can be polycistronic
(B) Is synthesized with introns
(C) Can only be monocistronic
(D) None of the above

17. The size of small stable RNA ranges from:
(A) 0–40 nucleotides
(B) 40–80 nucleotides
(C) 90–300 nucleotides
(D) More than 320 nucleotides

18. The number of small stable RNAs per cell ranges from:
(A) 10–50,000
(B) 50,000–1,00,000

(C) 1,00,000–10,00,000
(D) More than one million

19. Molecular weight of heterogeneous nuclear RNA (hnRNA) is:
(A) More than 107
(C) 104 to 105

20. In RNA molecule guanine content does not necessarily equal its cytosine content nor does its adenine content necessarily equal its uracil content since it is a:
(A) Single strand molecule
(B) Double stranded molecule
(C) Double stranded helical molecule
(D) Polymer of purine and pyrimidine ribonucleotides

21. The nitrogenous base present in the RNA molecule is:
(A) Thymine
(B) Uracil
(C) Xanthine
(D) Hypoxanthine

22. RNA does not contain:
(A) Uracil
(B) Adenine
(C) Thymine
(D) Ribose

23. The sugar moiety present in RNA is:
(A) Ribulose
(B) Arabinose
(C) Ribose
(D) Deoxyribose

24. In RNA molecule:
(A) Guanine content equals cytosine
(B) Adenine content equals uracil
(C) Adenine content equals guanine
(D) Guanine content does not necessarily equal its cytosine content.

25. Methylated purines and pyrimidines are characteristically present in:
(A) mRNA
(B) hnRNA
(C) tRNA
(D) rRNA

26. Thymine is present in:
(A) tRNA
(B) Ribosomal RNA
(C) Mammalian mRNA
(D) Prokaryotic mRNA

27. The approximate number of nucleotides in tRNA molecule is:
(A) 25 (B) 50
(C) 75 (D) 100

28. In every cell, the number of tRNA molecules is at least:
(A) 10
(B) 20
(C) 30
(D) 40

29. The structure of tRNA appears like a
(A) Ribo 106
(B) Less than 104
(C) Clover leaf
(D) Coil

30. Although each specific tRNA differs from the others in its sequence of nucleotides, all tRNA molecules contain a base paired stem that terminates in the sequence CCA at:
(A) 3' Termini
(B)5' Termini
(C) Anticodon arm

31. Transfer RNAs are classified on the basis of the number of base pairs in:
(A) Acceptor arm
(B) Anticodon arm
(C) D arm
(D) Extra arm

32. In tRNA molecule D arm is named for the presence of the base:
(A) Uridine
(B) Pseudouridine
(C) Dihydrouridine
(D) Thymidine

33. The acceptor arm in the tRNA molecule has:
(A) 5 Base pairs
(B) 7 Base pairs
(C) 10 Base pairs
(D) 20 Base pairs

34. In tRNA molecule that anticodon arm possesses
(A) 5 Base pairs
(B) 7 Base pairs
(C) 8 Base pairs
(D) 10 Base pairs

35. The T ψ C arm in the tRNA molecule possesses the sequence
(A) T, pseudouridine and C
(B) T, uridine and C
(C) T, dihydrouridine and C
(D) T, adenine and C

Answers

1.	B	2.	B	3.	A	4.	C	5.	A
6.	C	7.	B	8.	D	9.	C	10.	D
11.	A	12.	A	13.	A	14.	D	15.	B
16.	A	17.	C	18.	C	19.	A	20.	A
21.	B	22.	C	23.	C	24.	D	25.	C
26.	A	27.	C	28.	B	29.	C	30.	A
31.	D	32.	A	33.	B	34.	A	35.	A

IMMUNOLOGY

Against each question four answers are given, out of which one is correct. Choose the correct answer.

1. Which of the following is called serum Hepatitis?
   (A) HCV
   (B) HAV
   (C) HBV
   (D) HIV
2. Which of the following was a non-neural vaccine for rabies?
   (A) HEPV
   (B) Card vaccine
   (C) BPL
   (D) Simple
3. Which type of antibodies will associate in blood cell coagulation?
   (A) IgE
   (B) IgA
   (C) IgM
   (D) IgG
4. In a antigen haptens are
   (A) Immunogenic
   (B) Non-immunogenic
   (C) Antigenic
   (D) None of these
5. The antibody that is first formed after infection is
   (A) IgG
   (B) IgM
   (C) IgD
   (D) IgE
6. Antibodies in our body are produced by
   (A) B-lymphocytes
   (B) T-lymphocytes
   (C) Monocytes
   (D) RBC's
7. The points at which crossing over has taken place between homologus chromosomes are called
   (A) Chiasmata
   (B) Synaptonemal complex
   (C) Centromeres
   (D) Protein axes
8. How much of globulin is present in human serum?
   (A) 8%
   (B) 12%
   (C) 16%
   (D) 4%
9. The substance which acts as ant imetabolites are called
   (A) Activators
   (B) Substrates
   (C) Inhibitor
   (D) Cofactor
10. Enzymes are chemically _____.
    (A) Lipids
    (B) Proteins
    (C) Carbohydrates
    (D) None of these
11. Monoclonal antibodies are produced by _____
    (A) Hybridoma technology
    (B) Biotechnology
    (C) Fermentation Technology
    (D) None of these
12. First line of body defence is _____.
    (A) Antibody molecules
    (B) Unbroken skin
    (C) Antigen molecules
    (D) Phagocytic cells
13. What is the strength of the bond between antigen and antibody?
    (A) Affinity
    (B) Avidity
    (C) Covalent
    (D) None of these
14. Syphillis is caused by _____.
    (A) Staphylococcus aureuss
    (B) Yersinia psdtis
    (C) Treponema pallidum
    (D) Streptococcus syphilitis
15. Nergibodies produced by rabies virus show characteristic _____ inner granues.
    (A) Basophilic
    (B) Eosinophilic
    (C) Neutrophilic
    (D) Acidophilic

Answers

1.	C	2.	A	3.	C	4.	B	5.	B
6.	A	7.	A	8.	A	9.	C	10.	B
11.	A	12.	B	13.	B	14.	C	15.	A

DICTIONARY OF BIOLOGY

A

- **abaxial**: the side away from the axis, e.g. the lower surface of a leaf.
- **abort**: to abandon development of a structure of organ.
- **abscission**: (adjective abscissile): a plant's normal shedding of an organ that is mature or aged, e.g. a ripe fruit or an old leaf.
- **-aceae**: the suffix added to the stem of a generic name to form the name of a family.
- **achene**: a dry 1-seeded indehiscent fruit; e.g. members of the Ranunculaceae.
- **acicular**: slender or needle-shaped.
- **actinomorphic**: regular; radially symmetrical; may be bisected into similar halves in at least two planes. Generally applies to flowers in which the perianth segments within each whorl are alike in size and shape; cf. irregular, regular, zygomorphic.
- **aculeate**: armed with prickles; e.g. the stem of a rose.
- **acuminate**: tapering gradually to a point.
- **acute**: sharply pointed; converging edges making an angle of less than 90°; cf. obtuse.
- **adaxial**: the side next to the axis; e.g. the upper surface of a leaf.
- **adnate**: fused to an organ of a different kind; e.g. a stamen fused to a petal; cf. connate.
- **adventitious**: a structure produced in an abnormal position; e.g. an adventitious bud produced from a stem rather than from the axil of a leaf.
- **adventive**: introduced accidentally (usually referring to weeds).
- **aerial**: of the air; growing or borne above the surface of the ground.
- **aestivation**: the arrangement of sepals and petals or their lobes in an unexpanded flower bud; cf. vernation arrangement of leaves in a bud.
- **affinis (aff.)**: with affinity to others, akin to; often used for a provisionally recognized but unnamed taxon considered close to that name, perhaps a hybrid or extreme variant.
- **aggregate fruit**: a cluster of fruits formed from the free carpels of one flower, e.g. blackberry; cf. multiple fruit.
- **agricultural weed**: see weed.
- **-ales**: suffix to the stem of a generic name or descriptive name to indicate that it applies to a taxon of the rank of order.
- **alien**: differing in nature, foreign; a plant introduced from elsewhere (exotic, introduced, non-native, non-indigenous).
- **alkaloid**: molecule with a nitrogenous base, many used as drugs; e.g. morphine, quinine, strychnine.
- **alternate**: (as adjective) leaves or flowers borne singly at different levels along a stem includes spiralled parts; or (as verb) when something occurs between something else, e.g. stamens alternating with petals; cf. opposite.
- **amphitropous**: when the ovule is bent so that both ends are near each other; cf. anatropous, campylotropous, orthotropous.
- **amplexicaul**: with the base dilated and clasping the stem, usually of leaves.
- **anastomosing**: when veins are joined by cross-veins to form a network.
- **anatropous**: when an ovule is inverted so that the micropyle faces the placenta (this is the most common ovule orientation in flowering plants); cf. amphitropous, campylotropous, orthotropous.
- **androdioecious**: of plants, having bisexual flowers and male flowers on separate individuals; cf. andromonoecious, polygamodioecious, polygamomonoecious, polygamous.
- **androecium**: male parts of flower; the stamens of a flower collectively; cf. gynoecium.
- **androgynophore**: a stalk bearing both the androecium and gynoecium of a flower above the level of insertion of the perianth.
- **androgynous**: with male and female flowers in the same inflorescence.
- **andromonoecious**: of plants, having bisexual and male flowers on the same individual; cf. andromonoecious, polygamodioecious, polygamomonoecious, polygamous.
- **angiosperms**: 'flowering plants'; plants with developing seeds enclosed in an ovary.
- **annual**: a plant that completes its life cycle and dies within one year.
- **anterior**: away from the axis; usually abaxial.
- **anther**: pollen-bearing part of the stamen.
- **anthesis**: time of flowering; the stage at which the pollen is released from the anthers inside the bud onto the pollen presenter, usually corresponding with flower opening.
- **antrorse**: directed towards or upwards, e.g. of hairs on a stem; cf. retrorse.
- **apex** (apical): the tip; the point furthest from the point of attachment; plural apices.
- **apiculate**: terminating in a short sharp flexible point; less abrupt than mucronate.
- **apocarpous**: of a gynoecium consisting with one or more carpels which are free from one another (or almost so); e.g. Ranunculaceae, Dilleniaceae.
- **apomixis**: reproduction, where viable seed or spores are produced without fertilization. A plant produced in this way is an apomict.

- **appendage**: a secondary part attached to the main structure; an external growth that seldom has any obvious function.
- **appressed**: pressed closely, but not fused; e.g. leaves against a stem.
- **aquatic**: plants whose natural habitat is water; i.e. living in or on water for all or a substantial part of the organism's life span, generally restricted to fresh or inland waters.
- **arborescent**: tree-like in growth or general appearance.
- **arboretum**: (plural arboreta) a taxonomically arranged collection of trees.
- **areole**: (from areola) a space between the threads of a net; e.g. that part of a leaf surface defined by each of the elements of a vein network; as with cacti, the area between the veinlets of a leaf or the region of a cactus bearing the flowers and/or spines.
- **aril** (adjective arillate): a membranous or fleshy appendage (formed by expansion of the funicle) which partly or wholly covers a seed; e.g. the fleshy outer layer of lychee fruit and as found in Sapindaceae.
- **aristate**: with a stiff, bristle-like awn or tip.
- **article**: a segment of a jointed stem or of a fruit with constrictions between the seeds; an organ part that separates easily from the rest of the organ at a joint or articulation.
- **articulate**: jointed; separating freely, leaving a clean scar; e.g. the fronds of certain ferns where they join the rhizome.
- **ascending**: spreading horizontally, then becoming erect.
- **asexual**: of reproduction that does not involve the gametes; i.e. vegetative reproduction.
- **attenuate**: narrowing gradually.
- **auricle** (adjective auriculate): ear-shaped lobe.
- **awn**: fine bristle-like appendage; e.g. terminating or on the back of glumes and/or lemmas of some grass spikelets.
- **axil**: the upper angle between one part of a plant and another; e.g. the stem and a leaf.
- **axile**: on an axis; of a placenta, on the central axis of the ovary.
- **axillary**: borne in or arising from the axil of a leaf.*
- **axis**: a line passing through the centre of something; it usually refers to the main stem of a whole plant or inflorescence.

B

- **bark**: the protective external layer of tissue on the stems and roots of trees and shrubs; includes all of the living and non-living tissue external to the cambium.
- **basal**: at the base, situated or attached at the base.
- **basifixed**: something attached by its base; e.g. an anther attached to the filament.
- **basipetal**: developing sequentially from the apex towards the base (i.e. with the youngest towards the base); e.g. of flowers in an inflorescence.
- **beak**: a pointed projection.
- **berry**: an indehiscent fruit, with the seeds immersed in the pulp, e.g. tomato.
- **biennial**: plant which completes its life cycle and dies within the second year; usually also forms a basal rosette of leaves the first year and flowers and fruits the second year.
- **bifid**: forked; cut in two for about half its length.
- **bilabiate**: having two lips; e.g. the form of the petals in many irregular flowers.
- **bilateral**: arranged on opposite sides; e.g. leaves on a stem.
- **binomial**: making use of names consisting of two words to form the scientific name (or combination) in a Latin form. For example, where the first is the name of the genus to which the species belongs, and the second is the epithet given to that species to distinguish it from others in the same genus.
- **binomial nomenclature**: the system of nomenclature in which the scientific name of a species (and not of a taxon at any other rank) is a combination of two names, the first name being the generic name. The second name is referred to botanically as the specific epithet. Note that the two names constitute the species name, not just the second word.
- **bipinnate**: twice pinnate; e.g. of a compound leaf with individual leaflets pinnately divided.
- **bipinnatisect**: a pinnatisect leaf with deeply dissected segments.
- **bisexual**: bearing both male and female reproductive organs; usually, flowers with both stamens and carpels; hermaphrodite.
- **bole**: the trunk of a tree, usually below the lowest branch; cf. canopy.
- **blade**: the lamina or flattened part of a leaf, excluding the stalk.
- **bloom**: a fine white or bluish waxy powder occurring on plant parts, usually stems, leaves and fruits. It is easily removed by rubbing.
- **bract**: modified leaf associated with flower or inflorescence, differing in shape, size or colour from other leaves (and without an axillary bud).
- **bracteole**: small bracts borne singly or in pairs on the pedicel or calyx.
- **branchlet**: a small branch.
- **bristle** (adjective: bristly): straight stiff hair (smooth or with minute teeth) or upper part of an awn (when the latter is bent and has a lower, stouter, and usually twisted part, called the column).
- **bryophyte**: a botanical group including mosses and liverworts. Technically a classification of plants including three classes: hornworts (Anthocerotae), liverworts (Hepaticae) and mosses (Musci).
- **bulb**: thick storage organ, usually underground, consisting of a stem and leaf bases (the inner ones fleshy).

- **bulbel**: a bulb arising from another bulb.*
- **bulbil**: small deciduous bulb or tuber formed in the axil of a leaf or pinna; a means of vegetative propagation.
- **bulblet**: a bulb arising from another bulb; a bulbil.
- **bullate**: blistered or puckered.
- **burr**: loosely, a prickly fruit; a rough or prickly propagule consisting of a seed or fruit and associated floral parts or bracts.
- **buttress root**: a root growing from the above-ground stem or trunk, and providing support, as in the case of Ficus macrophylla, the Moreton Bay Fig.

C

- **caducous**: falling off early; cf. persistent.
- **caespitose**: tufted; e.g. the growth form of some grasses.
- **callus** (plural calli): generally, a protruding mass of tissue; in orchids, fleshy outgrowths from the labellum which can be variously shaped from papillae to plates; in grasses, hardened extension from the base of a floret (formed from the rachilla joint and/or the base of the lemma) which may or may not elongate and is often covered in hairs or bristles.
- **calyptra**: a hood or lid; see operculum.
- **calyx** (plural calyces): the outer whorl of a flower, usually green; the sepals of one flower collectively.
- **calyx tube**: a tube formed by the fusion of the sepals (calyx), at least at the base.
- **campanulate**: bell-shaped.
- **campylotropous**: when the ovule is oriented transversely (i.e. with its axis at right angles to its stalk) and with a curved embyro sac; cf. amphitropous, anatropous, orthotropous.
- **canaliculate**: channelled; with a longitudinal groove.
- **canopy**: the branches and foliage of a tree; crown; cf. trunk.
- **capillary**: (noun) a tube, pore or passage with a narrow internal cross-section; (adjective) slender, hair-like.
- **capitate**: with knob-like head; of an inflorescence, with the flowers unstalked and aggregated into a dense cluster; of a stigma, like the head of a pin.
- **capitulum**: a dense cluster of sessile, or almost sessile, flowers or florets; a head.
- **capsule**: a dry fruit formed from two of more united carpels and dehiscing when ripe (usually by splitting into pieces or opening at summit by teeth or pores).
- **carina** (adjective carinate): keel.
- **carpel**: a female organ borne at the centre of a flower, consisting of an ovary, a style and a stigma. The gynoecium is the collective term for all the carpels of a single flower.
- **cartilaginous**: hard and tough; gristly.
- **caryopsis**: a dry, indehiscent, one-seeded fruit in which the seed coat is closely fused to the fruit wall, as in most grasses.
- **casual alien**: a plant that appears with no apparent human assistance but does not develop a sustained population(s). Plants that persist only by new introductions; cf. alien.
- **catkin**: a spike, usually pendulous, in which the mostly small flowers are unisexual and without a conspicuous perianth; e.g. willows, poplars, oaks and casuarinas. The individual flowers often have scaly bracts; they are generally wind-pollinated. The catkins are usually shed as a unit.
- **caudate**: having a narrow tail-like appendage.
- **cauline**: borne on an aerial stem, e.g. leaves, flower or fruits (when applied to the latter two organs, usually referring to older stems; = cauliflorous).
- **cell**: (1) basic (microscopic) unit of plant structure, generally consisting of compartments in a viscous fluid surrounded by a wall; (2) cavity of an anther or ovary.
- **centrifixed**: of a two-branched organ attached by its centre, e.g. a hair, or anther.
- **chartaceous**: with a papery texture.
- **chamber**: cavity of an ovary.
- **chasmogamous**: of flowers that are pollinated when the perianth is open; cf. cleistogamous.
- **chimera**: an individual composed of two or more genetically different tissues, most commonly as a result of a graft and sometimes within the individual, by mutations and irregularities that occur during cell division.
- **chlorophyll**: a green pigment in chloroplasts, essential for photosynthesis.
- **chloroplast**: an organelle present in plant cells that contains chlorophyll.
- **cilia** (singular cilium, adjective ciliate): generally, hairs more or less confined to the margins of an organ, like eye-lashes; in motile cells, minute, hair-like protrusions which aid motility.
- **circinate** (circinnate): spirally coiled with the tip innermost; e.g. the developing fronds of most ferns.
- **cladode**: a photosynthetic stem, often leaf-like and usually with foliage leaves either absent or much reduced; cf. phyllode.
- **class**: the principal category for taxa in a rank between division and order.
- **clathrate**: latticed or pierced with apertures.
- **clavate**: club-shaped.
- **claw**: (1) narrow, stalk-like basal portion of petal, sepal of bract; (2) in Melaleuca, the united portion of a stamen bundle.
- **cleistogamous**: of flowers that self-pollinate and never open fully, or self-pollinate before opening; cf. chasmogamous.
- **climber**: a plant growing more or less erect by leaning or twining on another structure for support.
- **cline** (adjective clinal): continuous morphological variation in form within a species or sometimes between two species.

- **clone**: plants derived from the vegetative reproduction of an individual, all having the same genetic constitution.
- **coalescent**: plant parts fused or grown together to form a single unit.
- **columella**: in flowering plants, the central axis of the cone or fruit, e.g. in Callitris.
- **column**: (1) structure extending above ovary and incorporating the style and stamens; gynostemium; e.g. in orchids; (2) in grasses, the lower, stouter, and usually twisted part of an awn, distinct from the slender upper part or bristle.
- **columnar**: shaped like a column.
- **commercial name**: a name often of no botanical standing and not governed by the ICNCP. The term generally applies to names such as Trademark Names, names covered by Plant Breeders Rights, Patents and Promotional Names; often used to enhance the sale of a plant.
- **community**: an assemblage, in nature, of plants that characteristically occur together.
- **compound**: composed of several parts, e.g. a leaf with leaflets, a gynoecium with several carpels, or an inflorescence made up of smaller inflorescences.
- **compressed**: flattened lengthwise, either laterally (from side to side) or dorsally (from front to back).
- **concolorous**: the same colour throughout.
- **cone**: a fruit, usually woody, ovoid to globular, including scales, bracts or bracteoles arranged around a central axis, e.g. in gymnosperms, especially conifers and Casuarina.
- **conflorescence**: of an inflorescence when the overall structure substantially differs from that of its individual flowers; e.g. the bottlebrush multiple -flower head of callistemons.
- **connate**: fused to another organ (or organs) of the same kind; e.g. petals in a floral tube; cf. adnate.
- **connective**: the part of an anther that connects the anther cells.
- **connivent**: coming into contact or converging.
- **conspecific**: belonging to the same species.
- **contiguous**: adjoining, touching, but not united.
- **contorted**: twisted out of the normal shape.
- **convolute**: referring to the arrangement of floral or foliar organs in a bud when each organ or segment has one edge overlapping the adjacent organ or segment; a form of imbricate arrangement; contorted.
- **cordate**: heart-shaped, with the notch lowermost; of the base of a leaf, like the notched part of a heart.
- **coriaceous**: leathery; stiff and tough, but somewhat flexible.
- **corm**: fleshy, swollen stem base, usually underground, storing food reserves, with buds naked or covered by very thin scales; a type of rootstock.
- **corolla**: collective term for the petals of a flower.
- **corona** (adjective:coronate): literally, crown; (1) in flowering plants, ring of tissue arising from the corolla or perianth of a flower and standing between the perianth lobes and the stamens; e.g. the daffodil trumpet, passionfruit; (2) in grasses, a hardened ring of tissue surmounting the lemma in some species.
- **corymb** (adjective corymbose): inflorescence with branches arising at different points but reaching about the same height, giving the flower cluster a flat-topped appearance.
- **costa** (adjective costate): a rib.
- **cotyledon**: primary leaf or leaves of an embryo, becoming the seed leaf or leaves.
- **crenate**: with blunt or rounded teeth, scalloped.
- **crenulate**: minutely scalloped.
- **crisped**: finely curled. A term generally applied to the edges of leaves and petals.
- **crown**: see canopy.
- **cross**: to make something interbreed; the act of hybridization.
- **cruciform**: cross-shaped.
- **crustaceous**: hard, thin and brittle.
- **cryptogams**: ferns, bryophytes, algae and fungi (including lichenized fungi); 'lower plants'; plants producing spores, and without stamens, ovaries or seeds, literally plants whose sexual reproductive organs are not conspicuous cf. phanerogam.
- **culm**: in grasses, sedges, rushes, and some other monocotyledons, an aerial stem bearing the inflorescence; strictly, from the base of the plant to the lowest involucral bract (or base of the inflorescence).
- **cultigen**: a plant whose origin or selection is primarily due to intentional human activity.
- **cultivar**: the term cultivar is derived from cultivated variety and denotes an assemblage of cultivated plants clearly distinguished by one or more characters (morphological, physiological, cytological, chemical or other); when reproduced (sexually or asexually), the assemblage retains its distinguishing characters. A cultivar may arise in cultivation or be introduced from the wild. It is a variant of horticultural interest or value. Cultivar names are written with single quotation marks around them e.g. 'Blue Carpet', 'Alba'. All new names established after 1 January 1959, must be in common language (that is, not in Latin) but names established in Latin prior to this date are retained in Latin form.
- **cultivar epithet**: the defining part of a name that denominates a cultivar. Cultivars are designated by fancy (q.v.) epithets appended either to the scientific name or to the common name of the taxon to which they belong; they are not italicized but placed in single quotation marks, for example Rubus nitidoides 'Merton Early'. 'Merton Early' is the cultivar epithet.
- **cuneate**: wedge-shaped; with straight sides converging at base.

- **cuspidate**: tipped with a cusp.
- **cutting**: a piece of plant, usually an apical tip of shoot structure but may be root or leaf, cut from plant and used for vegetative propagation.
- **cyathium**: an inflorescence of unisexual flowers surrounded by involucral bracts, e.g. the flowers of Euphorbia.*
- **cyme** (adjective cymose): inflorescence in which the main axis and all lateral branches end in a flower (each lateral may be repeatedly branched).
- **cypsela**: a dry, indehiscent, one-seeded fruit formed from an inferior ovary.

D

- **deciduous**: falling seasonally, e.g. bark, leaves, petals; cf. persistent.
- **decorticate**: to shed or peel off the outer bark of a tree.
- **decumbent**: with branches growing horizontally but turned up at the ends.
- **decurrent**: extending downwards beyond the point of exsertion, e.g. when the base of a leaf is prolonged downwards along the stem in a raised line or narrow wing.
- **decussate**: opposite, with successive pairs borne at right angles to the last; generally applied to the arrangement of leaves.
- **definite**: of a constant number; e.g. twice as many stamens as the petals or sepals (or less), or an inflorescence ending in a flower or an aborted floral bud, typically a cymose inflorescence; cf. indefinite.
- **deflexed**: bent downwards; cf. inflexed.
- **dehiscent**: breaking open at maturity to release contents. Generally refers to the release of seed from some fruits; also pollen from anthers.
- **deltoid**: with the shape of the Greek letter, i.e. like an equilateral triangle.
- **dendroid**: tree-like, branching like a tree.
- **dentate**: toothed.
- **denticulate**: finely toothed.
- **determinate**: limited, usually in growth.
- **dichasium**: a cymose inflorescence with all branches below the terminal flower in regular opposite pairs; cf. monochasium.
- **dicotyledon**: a flowering plant whose embryo has two (rarely more) cotyledons (seed leaves) (common usage - dicot.) cf. monocotyledon (common usage - monocot.).
- **dichotomous**: forking into two equal branches, resulting from an equal division of the growing tip.
- **digitate**: with segments spreading from a common centre, like the fingers of a hand; see also palmatisect.
- **dimorphic** (dimorphous): of 2 different kinds (in respect to shape and/or size), e.g. stamens, fronds, leaves.
- **dioecious**: of plant, when male and female reproductive structures develop on different individuals; of infloresence, male and female flowers in separate infloresences; cf. monoecious.
- **diploid**: with two full sets of chromosomes in the nucleus of a cell; having two complements of haploid chromosomes, that is the two complete sets of chromosomes, one from each of the parental gamete. This is expressed symbolically as 2n, where n = the gamete number of chromosomes.
- **disk** (disc): a plate or ring of structures derived from the receptacle, and occurring between whorls of floral parts: in daisies, the central part of capitulum, hence disk flowers or florets.
- **discolorous**: of leaves, with upper and lower surfaces of a different colour.
- **disjunct**: occurring in widely separated geographic areas, distinctly separate; applies to a discontinuous range in which one or more populations are separated from other potentially interbreeding populations far enough as to preclude gene flow between them.
- **dissected**: deeply divided; cut into many segments.
- **distal**: remote from the point of origin or attachment; the free end; cf. proximal.
- **distichous**: arranged in two opposite rows (and hence in the same plane).
- **distinct**: separate or free, not united.
- **diurnal**: of the day; occurring or opening in the daytime.
- **divaricate**: wide-spreading.
- **divergent**: spreading in different directions, generally upward.
- **division**: the term used for the rank below kingdom in the taxonomic hierarchy.
- **domatia**: pits formed at the junction of two veins on the undersurface of leaves (mostly of rainforest plants); often modified appendages that shelter parasites and other micro-organisms.
- **dorsal**: the back; at the back; in particular, away from the axis in a lateral organ or away from the substratum in a prostrate plant.
- **dorsifixed**: attached at or by the back, e.g. anthers on a filament.
- **dorsiventral**: having structurally different upper and lower surfaces, e.g. some leaves.
- **drupe**: a succulent fruit formed from one carpel; the single seed is enclosed by a stony layer of the fruit wall; kernel; e.g. peaches, olives and the fruit of Nitraria billardieri.

E

- **ecological amplitude**: the range of environmental conditions in which an organism can survive.
- **elaisome**: oily body attached to the seed.
- **ellipsoid**: a 3-dimensional shape, elliptical in all sections through the long-axis.
- **elliptical** (elliptic): planar, shaped like a flattened circle, symmetrical about both the long and the short axis; about

twice as long as broad, tapering equally both to the tip and the base; oval.

- **emarginate**: notched at apex (notch usually broad and shallow).
- **embryo**: young plant contained by a seed.
- **endemic**: having a natural distribution restricted to a particular geographic region; cf. native.
- **endocarp**: the innermost layer of the wall of a fruit; in a drupe, the stony layer surrounding the seed.
- **endosperm**: nutritive tissue in a seed; albumen.
- **ensiform**: shaped like the blade of a sword.
- **entire**: having a smooth margin, not lobed, divided or toothed (it may be wavy or scalloped, but not incised).
- **ephemeral**: short-lived.
- **epicalyx**: an involucre resembling an outer calyx; e.g. as seen in Hibiscus.
- **epicarp**: the outer layer of the wall of a fruit, i.e. the 'skin'.
- **epicormic**: said of buds shoots or flowers developing from the old wood of trees, especially after injury or fire.
- **epicotyl**: the part of the plant axis or stem between the cotyledonary node and first foliage leaves.
- **epidermis**: an organ's outermost layer of cells, usually only one cell thick.
- **epigynous**: borne on the ovary; describes floral parts when attached above the level of the ovary and arising from tissue fused to the ovary wall; cf. hypogynous, perigynous.*
- **epilithic**: see lithophytic.
- **epipetalous**: of stamens that are attached to the petals.
- **epitepalous**: of stamens that are attached to the tepals.
- **epiphyte** (adjective epiphytic): one plant growing on another without deriving nourishment from it (i.e. not parasitic); cf. parasite. Loosely, and incorrectly, applied to plants that are not terrestrial (i.e. they may grown on various inorganic or organic surfaces), and often to orchids, which are rock-dwelling (and therefore strictly lithophytic).
- **epithet**: the adjectival component in a binomial; final word or combination of words in a name of more than one word (other than a term denoting rank) that denominates an individual taxon.
- **equitant**: of a leaf when folded lengthwise with edges adhering except at the base, where it clasps another leaf on the opposite side of the stem.*
- **erect**: upright, more or less perpendicular to the ground or point of attachment.
- **ericoid**: with leaves like the European heath (Erica), small and sharply pointed.
- **erose**: with the margin irregular as though nibbled or worn away.
- **even-pinnate**: having an even number of leaflets in a compound leaf, = paripinnate.
- **evergreen**: not deciduous, having leaves all the year round.
- **ex**: in nomenclature, indicating that the preceding author proposed the name but did not legitimately publish it, and that the succeeding author referred to the first author when legitimately publishing the name.
- **exocarp**: the outer layer of the pericarp, often the skin of fleshy fruits.
- **exotic**: not native; introduced from another region or country.
- **exserted**: projected beyond, e.g. the stamens beyond the corolla tube.
- **exstipulate**: without stipules.
- **extrorse**: of anther locules, opening towards the outside of the flower; cf. introrse, latrorse.

F

- **F1 hybrid**: a single cross; a plant breeding term for the result of a repeatable cross between two pure bred lines.
- **F2 hybrid**: a plant breeding term for the result of a plant arising from a cross between two F1 hybrids; may also refer to self-pollination in a population of F1 hybrids.
- **facultative**: of parasites, optional; cf. obligate.
- **falcate**: curved like the blade of a scythe.
- **family**: a formal group of one or more genera with features and/or ancestry in common; the term for the principal rank between order and genus.
- **fascicle**: (adjective fasciculate) cluster, e.g. a tuft of leaves all arising from the same node.
- **fastigiate**: parallel, clustered and erect, e.g. the arrangement of branches in the Lombardy Poplar.
- **felted**: covered with very dense, interlocked and matted hairs with the appearance or texture of felt or woollen cloth.
- **ferruginous**: rust-coloured.
- **fertile**: capable of producing fruit; of flowers when they produce seed or of anthers containing pollen.
- **fertilization**: union of male and female gametes.
- **filament**: (1) stalk of a stamen; (2) thread, one or a few cells thick.
- **filamentous**: consisting of filaments or fibres.
- **filiform**: thread-like.
- **fimbriate**: fringed.
- **fissure**: split or crack, often referring to fissured bark.
- **flabellate**: fan-shaped.
- **flaccid**: limp; tending to wilt; cf. turgid.
- **flexuous** (flexuose): bent alternately in different directions; zig-zag.
- **floccose**: with a soft and woolly covering of hairs.
- **flora**: (1) all the plants growing in a certain region or country; (2) an enumeration of them, generally with a guide to their identification (e.g. the present volume, the Flora of Victoria, the Flora of New South Wales and so on). In this case 'flora' is written with a capital F.
- **floral leaves**: the upper leaves at the base of the flowering branches.

- **floral tube**: tube bearing the perianth and stamens, consisting of tissue derived from the receptacle and/or perianth and/or stamens; hypanthium.
- **floret**: a small flower; usually refers to the flowers of the daisy and grass families.
- **flower**: the sexual reproductive structure of the angiosperms, typically with a gynoecium, androecium, perianth and an axis.
- **follicle**: a dry fruit formed from one carpel, splitting along a single suture, to which the seeds are attached; cf. pod (of legume).
- **forest**: vegetation dominated by trees with single trunks (including closely arranged trees with or without an understorey of shrubs and herbs).
- **forma** (in common usage, form): a taxonomic category subordinate to species and within the taxonomic hierarchy, below variety (varietas), usually differentiated by a minor character.
- **free**: not united with others of the same organ; not attached at one end.
- **free central**: of placentation, ovules attached to a free-standing column in the centre of a unilocular ovary.
- **frond**: a leaf of a fern, cycad or palm.
- **fruit**: seed-bearing structure in angiosperms formed from the ovary, and sometimes associated floral parts, after flowering.
- **funicle** (funiculus): the stalk of an ovule.
- **funnelform**: with a form gradually widening from the base to apex; funnel-shaped.
- **fused**: joined together.
- **fusiform**: 3-dimensional, narrowing gradually from the middle towards each end; spindle-shaped.

G

- **gamete**: (in ferns, gymnosperms and angiosperms) a cell or nucleus that fuses with another of the opposite sex in sexual reproduction.
- **gametophyte**: plant that bears gametes; in ferns, usually a small but discrete plant very different from the sporophyte (which is normally considered the fern plant); in gymnosperms and angiosperms, a microscopic structure (part of the reproductive apparatus) not recognizable as a discrete plant.
- **gene pool**: the range of genetic variation found in a population.
- **genus** (plural genera): a group of one or more species with features and/or ancestry in common. Genus is the principal category of taxa intermediate in rank between family and species in the nomenclatural hierarchy.
- **generic name**: the name of a genus, e.g. Acacia, Eucalyptus.
- **genotype**: the genetic make-up of an individual.
- **germination**: (1) of seeds, describing the complex sequence of physiological and structural changes that occur from resting to growth stage. (2) of a pollen grain; production of a pollen tube when contacting a stigma receptive to it; (3) of a spore of fungi/bacterium; change of state - from resting to vegetative.
- **gibbous** (gibbose): when part of an organ is swollen; usually with a pouch-like enlargement at base.
- **glabrescent**: becoming glabrous, almost glabrous.
- **glabrous**: without surface ornamentation such as hairs, scales or bristles.
- **gland**: a secretory structure within or on the surface of a plant; (loosely) a smooth, usually shining, bead-like outgrowth.
- **glandular hair**: hairs tipped with a gland.
- **glaucous**: with a whitish bloom, blue-green in colour; e.g. the surface of the young leaves of many eucalypts.
- **globose** (globular): nearly spherical.
- **globulose**: small or nearly spherical.
- **glochid**: a barbed hair or bristle, e.g. the fine hairs in Opuntia.
- **glumes**: bracts subtending the floret(s) of a sedge, or similar plant; in grasses forming the lowermost organs of a spikelet (there are usually 2 but 1 is sometimes reduced; or rarely, both are absent).
- **glutinous**: sticky.
- **graft**: (1) of a plant, the artificial union of plant parts; (2) a plant shoot suitable for grafting; loosely means a scion, sucker, or branch; (3) an old word for a spade's depth of soil; (4) a kind of spade used for digging drains.
- **graft chimaera**: a taxon whose members consist of tissue from two or more different plants in intimate association originated by grafting. The addition sign "+" is used to indicate a graft-chimaera either as a part of a formula (e.g. Crataegus monogyna + Mespilus germanica), or in front of an abbreviated name (e.g. + Crataemespilus gillottii).
- **granular**: of a surface, covered with small rounded protuberances.
- **grass**: a plant belonging to the family Poaceae.
- **grassland**: low vegetation dominated by grasses.
- **groundcover**: (1) of a plant, with a very flat and soil-hugging habit; (2) a term applied to describe a plant that covers the soil surface so densely that it smothers all beneath it.
- **Group**: a formal category equivalent to or below the rank of genus. It distinguishes: (1) an assemblage of two or more cultivars within a species or hybrid; (2) plants derived from a hybrid in which one or more of the parent species is not known or is of uncertain origin; and (3) a range of cultivated plants of a species or hybrid which may exhibit variation but share one or more characters, which makes it worth distinguishing them as a unit.
- **gymnosperm**: a seed-bearing plant with ovules borne on the surface of a sporophyll; includes, among others, conifers, Ginkgo, Gnetum and cycads.
- **gynobasic**: of a style, arising near the base of the gynoecium, e.g. between the lobes of the ovary.

- **gynoecium**: female parts of flower; the collective term for the carpels of a flower whether united or free; cf. pistil; androecium.
- **gynophore**: stalk supporting the gynoecium (above the level of insertion of the other floral parts).

H

- **habit**: the general external appearance of a plant, including size, shape, texture and orientation.
- **habitat**: the place where a plant lives; the environmental conditions of its home.
- **hair**: a single elongated cell or row of cells borne on the surface of an organ.
- **half-inferior**: of ovary, partly below and partly above the level of attachment of the other floral parts; cf. inferior, superior.
- **halophyte**: a plant adapted to living in highly saline habitats; a plant that accumulates high concentrations of salt in its tissues.
- **hand-pollination**: the controlled act of pollination that excludes the possibility of open-pollination.
- **haploid**: of chromosomes, and relative to the phase of an alternation of generations in which the duplicated chromosome set or diploid condition is reduced; the condition when the chromosomes are not duplicated, e.g. the complement of chromosomes in the nucleus of a gamete; a single basic set of chromosomes in the nucleus of a cell. This may be expressed symbolically as n, where n = the gamete number of chromosomes.
- **hastate**: like the head of a halbert, i.e. narrow and pointed but abruptly enlarged at the base into two acute diverging lobes; may refer only to the base of a leaf with such lobes; cf. sagittate.
- **haustorium**: in parasitic plants, a structure developed for penetrating the host's tissues.
- **head**: see capitulum.
- **heathland**: vegetation dominated by small shrubs which usually have ericoid leaves.
- **helicoid**: coiled; of a cymose inflorescence, when the branching is repeatedly on the same side (the apex is often recurved); cf. scorpioid.
- **herb**: a vascular plant that does not develop a woody stem; e.g. a violet.
- **herbaceous**: not woody; usually green, and soft in texture.
- **herbarium**: a collection of preserved, usually dried, plant material. Also a building in which such collections are stored.
- **hermaphrodite**: see bisexual.
- **heteromorphic**: of 2 or more distinct morphologies (e.g. of different size and shape).
- **hilum**: the scar on a seed coat where it separates from its stalk (funicle).
- **hip**: the fruit of a rose.
- **hippocrepiform**: horseshoe-shaped.
- **hirsute**: bearing coarse, rough, longish hairs.
- **hispid**: having long erect rigid hairs or bristles, harsh to touch.
- **hoary**: covered with a greyish to whitish layer of very short, closely interwoven hairs, giving a frosted appearance.
- **holotype**: a type chosen by the author of a name; cf. a lectotype, which is chosen by a later author.
- **hort.**: (never capiltalised) of gardens, an author citation used in two ways: (1) as a name misapplied by gardeners and (2) as an invalid name derived from horticultural writings of confused authorship.
- **hyaline**: translucent; usually delicately membranous and colourless.
- **hybrid**: a plant produced by the crossing of parents belonging to two different named groups, e.g. genera, species, varieties, subspecies, forma and so on; i.e. the progeny resulting within and between two different plants. An F1 hybrid is the primary product of such a cross. An F2 hybrid is a plant arising from a cross between two F1 hybrids (or from the self-pollination of an F1 hybrid).
- **hybrid formula**: the names of the parents of a hybrid joined by a multiplication sign, e.g. Cytisus ardonoi × C. purgans.
- **hypanthium**: see floral tube.
- **hypogynous**: borne below the ovary; used to describe floral parts inserted below the ovary's level of insertion; cf. epigynous, perigynous.
- **hypocotyl**: of an embryo or seedling, the part of the plant axis below the cotyledon and node, but above the root. It marks the transition from root to stem development.

I

- **illegitimate name**: a name not abiding by the rules of the botanical Codes, e.g. cultivars that have been Latinised after 1 Jan 1959; cultivar names with more 10 syllables or 30 letters; cultivar names that use confusing names of other plants, e.g. Camellia 'Rose'.
- **imbricate**: overlapping each other; of perianth parts, edges overlapping in the bud (the convoluted arrangement is a special form of imbrication).
- **imparipinnate**: a pinnate leaf with an odd number of pinnae (terminated by a single leaflet); cf. paripinnate.
- **in**: in nomenclature, where the preceding author published the name in an article or book, authored or edited by the succeeding author.
- **inbreeding**: the production of offspring between closely related parents leading to a high degree of similarity; self-fertilization is the most intense form of inbreeding.
- **incised**: cut deeply and (usually) unevenly (a condition intermediate between toothed and lobed).
- **included**: enclosed, not protruding; e.g. stamens within the corolla.
- **incurved**: bent or curved inwards; of leaf margins, when curved towards the adaxial side.

- **indefinite**: variable in number; numerous; e.g. more than twice as many stamens as petals or sepals, or when an inflorescence is not terminated by a flower (and continues growing); cf. definite.
- **indehiscent**: not opening in any definite manner at maturity; usually referring to fruit.
- **indeterminate**: unlimited, usually in growth.
- **indigenous**: native to the area, not introduced, and not necessarily confined to the region discussed (hardly distinct from 'native' but usually applied to a smaller area). For example, the Cootamundra Wattle is native to Australia but indigenous to the Cootamundra region of southern New South Wales; cf. endemic.
- **indumentum**: any surface covering, e.g. hairs, scales; a collective term for such coverings.
- **indusium**: (1) a membrane covering the sporangia of some ferns; (2) a cup enclosing the stigma in Goodeniaceae.
- **inferior**: of an ovary, at least partly below the level of attachment of other floral parts; cf. superior.
- **inflated**: swollen, like a bladder.
- **inflexed**: bent sharply upwards or forwards; cf. deflexed.
- **inflorescence**: several flowers closely grouped together to form an efficient structured unit; the grouping or arrangement of flowers on a plant.
- **infraspecific**: denotes taxonomic ranks below species level, e.g. subspecies.
- **infructescence**: the grouping or arrangement of fruits on a plant.
- **infundibular** (infundibularform): funnel-shaped.
- **inrolled**: rolled inwards.
- **insectivorous**: catching, and drawing nutriment from, insects.
- **interjugary glands**: in pinnate leaves, glands occurring along the leaf rachis between the pinnae (occurring below the single, and often slightly larger, gland at or just below the insertion of the pinnae); cf. jugary.
- **internode**: the portion of a stem between two nodes.
- **interpetiolar**: of stipules, between the petioles of opposite leaves.
- **intramarginal**: inside but close to the margin, e.g. a vein in a leaf.
- **introrse**: of anther locules, with opening towards the centre of flower (at least in bud); cf. extrorse, latrorse.
- **invalid**: use of names not validly published according to the Code; i.e. they are not strictly 'names' in the sense of the International Code of Botanical Nomenclature.
- **involucre**: a group of bracts surrounding the base of a flowerhead; e.g. as seen in a daisy.
- **involute**: rolled inwards, e.g. when the margins of a leaf are rolled towards the adaxial (usually upper) surface; cf. revolute.
- **irregular**: cannot be divided into two equal halves through any vertical plane; cf. zygomorphic, actinomorphic, regular.

J

- **joint**: a node or junction of two parts; articulation.
- **jugary**: of glands, gland occurring on the rachis of a bipinnate leaf at the junction or attachment of pairs of pinnae or pinnules, as in some Acacia species; cf. interjugary.
- **juvenile leaves**: formed on a young plant and different in form from the adult leaves.

K

- **keel**: a ridge like the keel of a boat, e.g. the structure formed by the fusion of the two anterior petals of a flower in the Fabaceae.
- **kernel**: see drupe.
- **kingdom**: the highest generally employed category of the taxonomic hierarchy, above that of division (phylum).

L

- **labellum**: lip; one of three or five petals which is (usually) different from the others, e.g. in Orchidaceae and Stylidiaceae.
- **labiate**: lipped; where the limb of a corolla is divided into two parts, called an upper and lower lip, the two resembling an open mouth with lips.
- **lacerate**: jagged, as if torn.
- **laciniate**: slashed into narrow, pointed lobes.
- **lamella** (plural lamellae, adjective lamellate): a thin, plate-like layer.
- **lamina**: the blade of a leaf or the expanded upper part of a petal, sepal or bract.
- **lanceolate**: about four times as long as broad, broadest in the lower half and tapering to the tip; narrowly ovate (sometimes, and incorrectly, used to mean narrowly elliptic; like a lance head).
- **lateral**: attached to the side of an organ, e.g. leaves on a stem.
- **latex**: a milky substance that exudes from such plants such as milk thistles, figs and dandelions.
- **lax**: loose, not compact.
- **leaf**: an outgrowth of a stem, usually flat and green; its main function is food manufacture by photosynthesis.
- **leaflets**: the ultimate segments of a compound leaf.
- **legume**: (1) a fruit characteristic of the families Mimosaceae, Caesalpiniaceae and Fabaceae, formed from one carpel and either dihiscent along both sides, or indehiscent; (2) a crop species in the family Fabaceae; (3) a plant belonging to the Leguminosae (Fabaceae family).
- **lemma**: the lower of 2 bracts enclosing a grass flower.
- **lenticel**: a loosely packed mass of cells in the bark of a woody plant (used for gas exchange), visible on the surface as a raised powdery spot.
- **lepidote**: covered with small scurfy scales.

- **liane**: a woody climbing plant, rooted in the ground.
- **liana**: a woody climbing plant, rooted in the ground (both liane and liana are used).
- **lignotuber**: a woody swelling of the stem below or just above the ground; contains adventitious buds from which new shoots can develop, e.g. after fire.
- **ligulate**: (1) bearing a ligule; (2) strap-shaped.
- **ligule**: (1) small membranous appendage on the top of the sheath of grass leaves; (2) a minute adaxial appendage near the base of a leaf, e.g. in Selaginella; (3) extended, strap-like corolla of some daisy florets.
- **linear**: very narrow in relation to its length, with the sides mostly parallel.
- **lithophytic**: growing on rocks; epilithic.
- **lobe**: part of a leaf (or other organ), often rounded, formed by incisions to about halfway to the midrib.*
- **loculicidal**: of a fruit, when it dehisces through the centres of loculi; cf. septicidal.
- **loculus**: a chamber or cavity, e.g., within an ovary.*
- **lomentum**: a pod-like indehiscent fruit that develops constrictions between the segments and at maturity breaks into one-seeded segments.*
- **lunate**: crescent-shaped.
- **lyrate**: lyre-shaped; deeply lobed, with a large terminal lobe and smaller lateral ones.

M

- **Macaronesia**: a biogeographic area encompassing the islands off the coast of NW Africa and Europe, including the Azores, Canaries, Cape Verde Islands and Madeira.
- **Malaysia**: Malay peninsula and North Borneo.
- **Malesia**: a biogeographic region comprising Malaysia, Indonesia, New Guinea, and the Philippines.
- **mallee**: growth habit in which several woody stems arise separately from a lignotuber; a plant with such a growth habit; vegetation characterized by such plants.
- **mangrove**: a shrub or small tree growing in salt or brackish water, usually characterized by pneumatophores.
- **margin**: the edge, as in the edge of a leaf blade.
- **marginal**: occurring at or very close to the margin.
- **marsh**: a waterlogged area; swamp.
- **mealy**: covered with coarse, floury powder, sometimes due to collapsed hairs.
- **megaspore**: the larger of 2 kinds of spores produced by a heterosporous plant giving rise to the female gametophyte; cf. microspore.
- **membranous**: thin, translucent and flexible, seldom green.
- **mericarp**: one segment of a fruit (a schizocarp) that splits at maturity into units derived from the individual carpels, or a carpel, usually 1-seeded, released by the break-up at maturity of a fruit formed from 2 or more joined carpels.
- **meristem**: a group of actively dividing tissues.
- **mesic**: moist, avoiding both extremes of drought and wet; pertaining to conditions of moderate moisture or water supply; applied to organisms (vegetation) occupying moist habitats.
- **mesocarp**: the fleshy portion of the wall of a succulent fruit inside the skin and outside the stony layer (if any), surrounding the seed(s); sarcocarp.
- **mesomorphic**: soft and with little fibrous tissue, but not succulent.
- **mesophyll**: photosynthetic tissue of a leaf; of vegetation, characteristic of moist habitats and with soft, fairly large leaves predominating.
- **mesophyte**: a plant thriving under intermediate environmental conditions of moderate moisture and temperature, without major seasonal fluctuations.
- **microspore**: the smaller of 2 kinds of spores produced by a heterosporous plant; cf. megaspore.
- **midrib**: the central, and usually most prominent, vein of a leaf or leaf-like organ; midvein.
- **midvein**: see midrib.
- **moniliform**: resembling a string of beads.
- **monochasium**: a cymose inflorescence with the branches arising singly; cf. dichasium.
- **monocots**: abbreviation of monocotyledons.
- **monocotyledon**: a flowering plant whose embryo has one cotyledon (seed leaf); cf. dicotyledon.
- **monoecious**: of vascular plants, where the male and female reproductive structures are in separate flowers but on the same plant; of inflorescence, including unisexual flowers of both sexes; cf. dioecious.
- **monograph**: of a group of plants, a comprehensive treatise presenting an analysis and synthesis of taxonomic knowledge of that taxon; i.e. the fullest account possible (at the time) of a family, tribe or genus. It is generally worldwide in scope and evaluates all taxonomic treatments of that taxon including studies of its evolutionary relationships with other related taxa, and cytological, genetic, morphological, palaeobotanical and ecological studies. The term is often incorrectly applied to any systematic work devoted to a single taxon. cf. revision.
- **monotypic**: containing only one taxon of the next lower rank, e.g. a family with only one genus, or a genus that includes only a single species.
- **morphology**: the shape or form of an organism or part thereof.
- **mucro**: a sharp, short point.
- **mucronate**: terminating in a mucro.
- **multiple fruit**: a cluster of fruits produced from more than one flower and appearing as a single fruit, often on a swollen axis, as in Moraceae; cf. aggregate fruit.
- **muricate**: covered with short hard protuberances.
- **mutation**: an abrupt and inexplicable variation from the norm, such as the doubleness in flowers, changes in colour, or habit of growth.

N

- **native**: naturally occurring in an area, but not necessarily confined to it; cf. endemic.
- **natural hybrid**: a hybrid taxon produced by chance in the wild.
- **naturalised**: describing a plant, introduced from another region, that grows and reproduces readily in competition with the natural flora.
- **nectar**: a (usually sweet) fluid produced by the flowers of many plants, collected by bees and other insects.
- **nectary** (adjective nectariferous): a specialized gland that secretes nectar.
- **nerve**: see vein.
- **New World**: the Americas.
- **node**: the part of a stem where leaves or branches arise.
- **nomen conservandum**: (Latin) a name which although, contrary to the rules of nomenclature (usually a later synonym), must be adopted.
- **nomen illegitimum**: (Latin) a name that is superfluous at its time of publication either because the taxon to which it was applied already has a name, or because the name has already been applied to another plant.
- **nomen nudum**: (Latin) a name not published in accordance with the International Code of Botanical Nomenclature, usually without a diagnosis or description of the entity to which it applies, and without reference to either; such a name should not be used.
- **nomenclature**: the naming of things; often restricted to the correct use of scientific names in taxonomy; a system that sets out provisions for the formation and use of names.
- **noxious**: of plants, containing harmful or unwholesome qualities. Applied in conjunction with 'weed' to specifically describe a plant which legislation deems harmful to the environment. Each state and territory in Australia has specific legislation governing noxious weeds.
- **nut**: a hard, dry, indehiscent fruit, containing only one seed.
- **nutlet**: a small nut, one of the lobes or sections of the mature ovary of some members of the Boraginaceae, Verbenaceae, and Lamiaceae.

O

- **ob-**: inversely; usually same shape as suffix but attached by the narrower end, e.g. obcordate, oblanceolate, obovate.
- **obconic**: of a fruit, hypanthium, pistil or calyx structure; an inverted cone shape
- **obcordate**: of a leaf blade, broad and notched at the tip; heart shaped but attached at the pointed end.
- **oblanceolate**: a 2-dimensional shape, lanceolate but broadest in the upper third; cf. lanceolate.
- **obligate**: of parasites, unable to survive without the host; cf. facultative.
- **oblique**: slanting; of a leaf, larger on one side of the midrib than the other, i.e. asymmetrical.
- **oblong**: length a few times greater than width, with sides almost parallel and ends rounded.
- **obovate**: of a leaf, a 2-dimensional shape of which the length is about 1.5 times the width, and widest above the centre.
- **obtuse**: blunt or rounded at the tip or apex; converging edges making an angle of more than 90°; cf. acute.
- **Oceania**: the islands of the Pacific (sometimes including Australia).
- **ocrea** (ochrea): a sheath, formed from two stipules, encircling the node in Polygonaceae.
- **odd-pinnate**: having an odd number of leaflets in a compound leaf, = imparipinnate.
- **Old World**: the world known before the discovery of America; essentially Europe and Asia.
- **ontogeny**: the sequence of developmental stages through which an organism passes.
- **operculum** (calyptra): a lid or cover that becomes detached at maturity, e.g. in Eucalyptus, a cap covering the bud and formed by the fusion or cohesion of perianth parts.
- **opposite**: (as adjective) leaves or flowers borne at the same level but on opposite sides of the axis; or (as verb) when something occurs on the same radius as something else, e.g. anthers opposite sepals; cf. alternate.
- **orbicular**: flat and more or less circular.
- **order**: a group of one or more families sharing common features and/or ancestry.
- **ortet**: the original single parent plant from which a clone ultimately derives.
- **orthotropous**: when an ovule is erect, with the micropyle directed away from the placenta; atropous; cf. amphitropous, anatropous, campylotropous.
- **oval**: see elliptical.
- **ovary**: the basal portion of a carpel or group of fused carpels, enclosing the ovule(s).
- **ovate**: shaped like a section through the long-axis of an egg and attached by the wider end.
- **ovoid**: egg-shaped, with wider portion at base; 3-dimensional object, ovate in all sections through long-axis.
- **ovule**: loosely, the seed before fertilization; a structure in a seed plant within which one or more megaspores are formed (after fertilization it develops into a seed).

P

- **palea**: the upper of 2 bracts enclosing a grass flower.
- **palmate**: (1) a compound leaf divided into several leaflets arising from the same point at the top of the petiole; (2) of veins in a simple leaf when they arise in a similar fashion.

- **palmatifid**: deeply divided into several lobes arising from more or less the same level.
- **palmatisect**: intermediate between palmate and palmatifid, i.e. the segments are not fully separated at the base; often more or less digitate.
- **panicle** (adjective paniculate): a compound raceme; an indeterminate inflorescence in which the flowers are borne on branches of the main axis or on further branches of these.
- **papilionate**: butterfly-like; with a corolla like that of a pea.
- **papilla** (plural papillae, adjective papillose): a small, elongated protuberance on the surface of an organ, usually an extension of one epidermal cell.
- **pappus**: in daisy florets, a tuft or ring of hairs or scales borne above the ovary and outside the corolla (representing the missing calyx); a tuft of hairs on a fruit.
- **parasite**: an organism living on or in a different organism, from which it derives nourishment; cf. saprophyte, epiphyte.
- **parietal**: attached to the marginal walls of a structure, e.g. ovules attached to placentas on the wall of the ovary.
- **paripinnate**: having an even number of leaflets (or pinnae), that is terminated by a pair of pinnae as opposed to a single pinna; cf. imparipinnate.
- **patent**: of plants, spreading.
- **pectinate**: pinnately divided with narrow segments closely set like the teeth of a comb.
- **pedate**: with a terminal lobe or leaflet, and on either side of it an axis curving outwards and backwards, bearing lobe or leaflets on the outer side of the curve.*
- **pedicel** (adjective pedicellate): the stalk of a flower.
- **peduncle** (adjective pedunculate): the stalk of an inflorescence.
- **peltate**: shield-like; with stalk attached to the lower surface and not to the margin.
- **pellucid**: transmitting light; for example, said of tiny dots in leaves visible when held in front of light.
- **pendulous**: hanging, e.g. an ovule attached to a placenta on the top of the ovary; cf. suspended.
- **penicillate**: tufted like an artist's brush; with long hairs towards one end.
- **penninervation** (penninerved): with pinnately arranged veins.
- **pepo**: type of berry formed from an inferior ovary and containing many seeds, usually large with a tough outer skin, e.g., pumpkin, cucumber.
- **perennating**: of an organ that survives vegetatively from season to season. A period of reduced activity between seasons is usual.
- **perennial**: a plant whose life span extends over several years.
- **perfect**: of a flower, when bisexual.
- **perfoliate**: with its base wrapped around the stem (so that the stem appears to pass through it), e.g. of leaves and bracts.
- **perianth**: the collective terms for the calyx and corolla of a flower (generally used when the two are similar).
- **pericarp**: the wall of a fruit, developed from the ovary wall.
- **perigynous**: borne around the ovary, i.e. of perianth segments and stamens arising from a cup-like or tubular extension of receptacle (free from the ovary but extending above its base); cf. epigynous, hypogynous.
- **persistent**: remaining attached to the plant beyond the usual time of falling, e.g. sepals not falling after flowering; cf. deciduous, caducous.
- **perule**: (1) the scaly covering of a leaf or flower bud; (2) in camellias the final bracts and sepals become indistinguishable and are called perules; (3) a kind of sac formed by the adherent bases of the two lateral sepals in certain orchids.
- **petal**: in a flower, one of the segments or divisions of the inner whorl of non-fertile parts surrounding the fertile organs, usually soft and conspicuously coloured; cf. sepal.
- **petaloid**: like a petal; soft in texture and coloured conspicuously.
- **petiolate**: subtended by a petiole.
- **petiole**: the stalk of a leaf.
- **petiolule**: the stalk of a leaflet.
- **phanerogam**: gymnosperms and angiosperms; plants producing stamens and gynoecia; literally plants with conspicuous sexual reproductive organs; cf. cryptogams.
- **photosynthesis**: the process by which sugars are made from carbon dioxide and water in cells containing chloroplasts; the chemical energy required from solar energy in the presence of the pigment chlorophyll.
- **phyllode** (adjective phyllodineous): a leaf with the blade much reduced or absent, and in which the petiole and or rachis perform the functions of the whole leaf; e.g. many acacias; cf. cladode.
- **pilose**: covered with soft, weak, thin and clearly separated hairs, which are usually defined as long and sometimes ascending.
- **pinna** (plural pinnae): a primary segment of a compound leaf.
- **pinnate**: a compound leaf with leaflets arranged on each side of a common petiole or axis; also applied to how the lateral veins are arranged in relation to the main vein.
- **pinnatifid**: pinnately lobed.
- **pinnatisect**: pinnately divided almost to midrib but segments still confluent.
- **pinnule**: ultimate free division (or leaflet) of a compound leaf.
- **pistil**: (1) a single carpel when the carpels are free; (2) a group of carpels when the carpels are united by the fusion of their walls.
- **pith**: the central region of a stem, inside the vascular cylinder; the spongy parenchymatous central tissue in some stems and roots.
- **placenta**: the tissue within an ovary to which the ovules are attached.

- **placentation**: the arrangement of ovules inside ovary; e.g. axile, free-central, parietal, marginal, basal, or apical.
- **Plant Breeders Rights** (PBR): these rights, governed by Plant Breeder's Rights Acts give the plant breeder legal protection over the propagation of a cultivar, and the exclusive rights to produce and to sell it, including the right to license others to produce and sell plants and reproductive material of a registered, deliberately bred variety. Cf. UPOV.
- **Plant Variety Rights** (PVR): governed by the Plant Variety Rights the registration of new varieties is now governed by Plant Breeders Rights.
- **plicate**: pleated; folded back and forth longitudinally like a fan.
- **plumose**: like a feather; with fine hairs branching from a main axis.
- **plumule**: the part of an embryo that gives rise to the shoot system of a plant; cf. radicle.
- **pneumatophore**: a vertical, aerial (at low tide) appendage to the roots of some plants, through which gases are exchanged; e.g. on mangroves.
- **pod**: (1) a legume, the fruit of a leguminous plant, a dry fruit of a single carpel, splitting along two sutures; (2) siliqua and silicula, the fruit of Brassicaceae, a dry fruit composed of two carpels separated by a partition.
- **pollen**: powdery mass shed from anthers (of angiosperms) or microsporangia (of gymnosperms); the microspores of seed plants; pollen-grains.
- **pollen-mass**: pollen-grains cohering by a waxy texture or fine threads into a single body; pollinium; e.g. in orchids.
- **pollination**: the transfer of pollen from the male organ (anther) to the receptive region of a female organ (stigma).
- **pollinium**: see pollen-mass.
- **polygamodioecious**: having bisexual and male flowers on some plants and bisexual and female flowers on others; cf. androdioecious, andromonoecious, dioecious, monoecious, polygamomonoecious, polygamous.
- **polygamomonoecious**: having male, female and bisexual flowers on the same plant; cf. androdioecious, andromonoecious, polygamodioecious, polygamous.
- **polygamous**: having bisexual and unisexual flowers on the same plant.
- **polymorphic**: of several different kinds (in respect to shape and/or size).
- **polyploid**: with more than two of the basic sets of chromosomes in the nucleus; any individual (or a cell) containing three or more complete sets of chromosomes. Various combinations of words or numbers with '-ploid' indicate the number of haploid sets of chromosomes; e.g. triploid = 3 sets, tetraploid = 4 sets, pentaploid = 5 sets, hexaploid = 6 sets, and so on.
- **pome**: a fruit that has developed partly from the ovary wall but mostly from the floral tube, e.g., apple.
- **population**: (1) all individuals of one or more species within a prescribed area; (2) a group of organisms of one species, occupying a defined area and usually isolated to some degree from other similar groups; (3) in statistics, the whole group of items or individuals under investigation.
- **posterior**: the side nearest the axis; cf. anterior.
- **prickle** (adjective: prickly): hard, pointed outgrowth from the surface of a plant (involving several layers of cells but not containing a vein); sharp outgrowth from the bark, detachable without tearing wood; cf. thorn.
- **prophyll**: a leaf formed at the base of a shoot, usually smaller than those formed later.
- **pro parte**: (Latin) in part; in nomenclature, to denote that the preceding taxon includes more than one currently recognized entity, and that only one of those entities is being considered.
- **procumbent**: spreading along the ground but not rooting at the nodes: not as close to ground as prostrate.
- **propagules**: a structure capable of producing a new plant; includes seeds, spores, bulbils, etc.
- **prostrate**: lying flat on the ground.
- **protandrous**: male sex organs maturing before the female ones, e.g. a flower shedding pollen before the stigma is receptive; cf. protogynous.
- **prothallus**: a gametophyte body, usually flattened and delicate; e.g. in ferns and fern allies.
- **protogynous**: female sex organs maturing before the male ones, e.g. a flower shedding pollen after the stigma has ceased to be receptive; cf. protandrous.
- **proximal**: near the point of origin or attachment; cf. distal.
- **pruinose**: covered with a powdery, waxy material; with a bloom.
- **pseudo**: false; apparently but not genuine; e.g. pseudo-bulb = a thickened, bulb-like internode in orchids, or a corm.
- **puberulous** (puberulent): covered with minute soft erect hairs.
- **pubescent**: downy; covered with short, soft, erect hairs.
- **pulvinus**: a swelling at the base of a leaf or leaflet stalk, often glandular or responsive to touch.
- **punctate**: marked with dots.
- **pungent**: having a sharp hard point.
- **pyramidal**: of a plant's form, tetrahedral, pyramid-shaped.
- **pyriform**: pear-shaped.

Q

- **quadrate**: more or less square.

R

- **raceme** (adjective racemose): an indeterminate inflorescence in which the main axis produces a series of flowers on lateral stalks, the oldest at the base and the youngest at the top; cf. spike.
- **rachilla** (rhachilla): the axis of a grass spikelet, above the glumes.

- **rachis** (plural rachises; rhachis): the axis of an inflorescence or a pinnate leaf; e.g. ferns; secondary rachis is the axis of a pinna in a bipinnate leaf distal to and including the lowermost pedicel attachment
- **radial**: with structures radiating from a central point as spokes on a wheel, e.g., the lateral spines of a cactus.
- **radiate**: of daisies, of a capitulum, with ray florets surrounding disc florets.
- **radical**: springing from the root; clustered at base of stem.
- **radicle**: the part of an embryo giving rise to the shoot system of a plant, cf. plumule.
- **rainforest**: a forest dominated by broad-leaved trees with dense crowns that form a continuous layer (canopy) and with one or more of the following growth forms: epiphytes, lianas, treeferns, palms; eucalypts absent or are present only as isolated emergen, e.g. in Victoria, mesic vegetation is dominated by trees other than eucalypts, often with lianas and epiphytes.
- **ramet**: an individual member of a clone.
- **ray**: (1) zygomorphic (ligulate) flowers in a radiate flowerhead, i.e. ray-florets/flowers, e.g. Asteraceae; (2) each of the branches of an umbel.
- **receptacle**: the axis of a flower, i.e. floral axis; torus; e.g. in Asteraceae, the floral base or common receptacle is the expanded summit of the peduncle on which the flowers are inserted.
- **recurved**: bent or curved backwards or downwards.
- **reflexed**: bent sharply back or down.
- **registered name**: a cultivar name accepted by the relevant International Registration Authority.
- **registered trade mark**: a trade mark formally accepted by a statutory trade-mark authority and distinguished by the international ® sign.
- **registration**: (1) the act of recording a new cultivar name with an International Cultivar Registration Authority; (2) recording a new cultivar name with a statutory authority like the Plant Breeder's Rights Office (3) recording a trade mark with a trade marks office cf. registered trade mark.
- **regular**: see actinomorphic.
- **reniform**: kidney-shaped.
- **reticulate**: forming a network (or reticulum), e.g. veins that join one another at more than one point.
- **retrorse**: directed backwards or downwards; cf. antrorse.
- **retuse**: with a blunt (obtuse) and slightly notched apex.
- **revision**: an account of a particular plant group, like an abbreviated or simplified monograph. Sometimes confined to the plants of a particular region. Similar to a monograph in clearly distinguishing the taxa and providing a means for their identification; cf monograph.
- **revolute**: rolled under (downwards or backwards), e.g. when the edges of leaves are rolled under towards the midrib; cf. involute.
- **rhachis**: see rachis.
- **rhizome**: a perennial underground stem usually growing horizontally.
- **rhombic**: like a rhombus, i.e. an oblique figure with four equal sides; cf. trapeziform, trullate.
- **rhomboid**: a 4-sided figure with opposite sides parallel but with adjacent sides an unequal length (i.e. like an oblique rectangle); see also rhombic.
- **rhomboidal**: a shape, e.g. of a leaf, that is roughly diamond-shaped with length = width.
- **root**: a unit of a plant's axial system which is usually underground, does not bear leaves, tends to grow downwards, and is typically derived from the radicle of the embryo.
- **root hairs**: outgrowths of the outermost layer of cells just behind the root tips, functioning as water-absorbing organs.
- **rootstock**: short, erect, swollen structure at junction of a plant's root and shoot systems, e.g. a corm. Also used to describe (1) a part of a budded or grafted plant which supplies the roots, also called a rootstock, or plants grown specifically to produce these; (2) plants or seeds with some specific attribute e.g. virus-free plants.
- **rosette**: when parts are not whorled or opposite but appear so, due to the contractions of internodes, e.g. the petals in a double rose or a basal cluster of leaves (usually close to the ground) in some plants.
- **rostrate**: with a beak.
- **rotate**: circular and flattened; e.g. a corolla with a very short tube and spreading lobes (e.g. some Solanaceae).
- **rudimentary**: poorly developed and not functional; cf. vestigial.
- **rugose**: wrinkled.
- **rugulose**: finely wrinkled.
- **runcinate**: sharply pinnatifid or cleft, the segments directed downward
- **runners**: see stolon.
- **rush**: a plant belonging to the family Juncaceae or, more loosely, applied to various monocotyledons.

S

- **saccate**: pouched.
- **sagittate**: shaped like the head of an arrow; narrow and pointed but gradually enlarged at base into two straight lobes directed downwards; may refer only to the base of a leaf with such lobes; cf. hastate.
- **samara**: a dry, indehiscent fruit with its wall expanded into a wing.*
- **samphire**: (in Australia) any plant of the tribe Salicorniae (chenopodiaceae), e.g. Sarcocornia, Halosarcia, Sclerostegia; or a community dominated by one or more of these species.
- **saprophyte** (adjective saprophytic): an organism deriving its nourishment from decaying organic matter and usually lacking chlorophyll; cf. parasite, epiphyte.
- **scabrid** (scabrous): rough to the touch with short hard emergences or hairs. *

- **scale**: (1) a reduced or rudimentary leaf, e.g. around a dormant bud; (2) a thin flap of tissue.
- **scape** (adjective scapose): a stem-like flowering stalk of a plant with radical leaves.
- **scarious**: dry and membranous.
- **schizocarp**: a dry fruit formed from more than one carpel but breaking apart into individual carpels (mericarps) when ripe.
- **scion**: the aerial part of a graft combination, induced by various means to unite with a compatible understock/roostock.
- **sclerophyll** (adjective sclerophyllous): a plant with hard, stiff leaves; leaves stiffened with thick-walled cells.
- **scorploid**: of a cymose inflorescence, when it branches alternately on one side and then the other; cf. helicoid.
- **scrub**: dense vegetation dominated by shrubs.
- **section** (sectio): the category of supplementary taxa intermediate in rank between subgenus and series. It is a singular noun always written with a capital initial letter, in combination with the generic name.
- **secund**: with all the parts grouped on one side or turned to one side (applied especially to inflorescences.
- **sedge**: a plant belonging to the family Cyperaceae.
- **seed**: a ripened ovule, consisting of a protective coat enclosing an embryo and food reserves; a propagating organ formed in the sexual reproductive cycle of gymnosperms and angiosperms (together, the seed plants).
- **segment**: part or subdivision of an organ, e.g. a petal is a segment of the corolla. A term sometimes used when the sepals and petals are indistinguishable.
- **self-pollination**: also called selfing, the acceptance by stigmas of pollen from the same flower or from flowers on the same plant, which means they are self-compatible.
- **sensu**: in the sense of.
- **sensu lato**: of a plant name, in its broadest sense.
- **sensu stricto**: of a plant name, in its narrowest sense.
- **sepal**: in a flower, one of the segments or divisions of the outer whorl of non-fertile parts surrounding the fertile organs, usually green; cf. petal.
- **septicidal**: of a fruit, when it dehisces along the partitions between loculi; cf loculicidal.
- **septum** (plural septa): a partition, e.g. the membranous wall separating the two valves of the pod of Brassicaceae.
- **sericeous**: silky with dense appressed hairs.
- **series**: the category of supplementary taxa intermediate in rank between section and species. It is a plural adjective; e.g. Primula subgenus Primula sect. Primula series Acaules.
- **serrate**: toothed with asymmetrical teeth pointing forward; like the cutting edge of a saw.
- **serrulate**: finely serrate.
- **sessile**: without a stalk, e.g. of a stigma, when the style is absent.
- **seta** (adjectives setose, setaceous): a bristle or stiff hair (in Bryophytes, the stalk of the sporophyte); a terminal seta is an appendage to the tip of an organ, e.g. the primary rachis of a bipinnate leaf in Acacia.
- **sheath**: a tubular or rolled part of an organ, e.g. the lower part of the leaf in most grasses.
- **shoot**: usually the aerial part of a plant; a stem including its dependent parts, leaves flowers etc.
- **shrub**: a woody perennial plant without a single main trunk, branching freely, and smaller than a tree.
- **sigmoid**: shaped like the letter 'S'.
- **silicula**: a stout siliqua (not more than twice as long as wide).
- **siliqua**: a dry, dehiscent fruit (more than twice as long as wide) formed from a superior ovary of two carpels, with two parietal placentas and divided into two loculi by a 'false' septum.
- **silky**: densely covered with fine soft straight appressed hairs, with a lustrous sheen and satiny to the touch..
- **silviculture**: the science of forestry and the cultivation of woodlands for commercial purposes and wildlife conservation.
- **simple**: undivided, e.g. a leaf not divided into leaflets (note, however, that a simple leaf may be entire, toothed or lobed) or an unbranched hair or inflorescence.
- **sinuate**: with deep, wave-like depressions along the margins, but more or less flat; cf. undulate.
- **sinus**: a notch or depression between two lobes or teeth in the margin of an organ.
- **solitary**: single, of flowers that grow one plant per year, one in each axil, or widely separated on the plant; not grouped in an inflorescence.
- **spadix**: a spicate inflorescence with a stout, often succulent axis.
- **spathe**: a large bract ensheathing an inflorescence.
- **spathulate** (spatulate): spoon-shaped; broad at the tip with a narrowed projection extending to the base.
- **species**: a group, or populations of individuals, sharing common features and/or ancestry, generally the smallest group that can be readily and consistently recognized; often, a group of individuals capable of interbreeding and producing fertile offspring. The basic unit of classification, the category of taxa of the lowest principal rank in the nomenclatural hierarchy.
- **specific epithet**: follows the name of the genus, and is the second word of a botanical binomial. The generic name and specific epithet together constitute the name of a species; i.e. the specific epithet is not the species name.
- **spike** (adjective spicate): an unbranched, indeterminate inflorescence in which the flowers are without stalks; cf. raceme.
- **spikelet**: a unit of the inflorescence especially in grasses, sedges and some other monocotyledons, consisting of one to many flowers and associated bracts (glumes).

- **spine** (adjective spinose): a stiff, sharp structure, formed by the modification of a plant organ that contains vascular tissue; e.g. a lateral branch or a stipule; includes thorns.
- **spinescent**: ending in a spine; modified to form a spine.
- **spiral**: of arrangement, when plant parts are arranged in a succession of curves like the thread of a screw, or coiled in a cylindrical or conical manner.
- **sporangium** (sporangia): a structure in which spores are formed.
- **spore**: in non-flowering plants only a simple propagule, produced either sexually or asexually, and consisting of one or a few cells.
- **sporocarp**: a fruiting body containing spores.
- **sporophyte**: a plant, or phase of a life cycle, that bears the spores; cf. gametophyte.
- **sport**: a naturally occurring variant of a species, not usually present in a population or group of plants; a plant that has spontaneously mutated so that it differs from its parent plant.
- **spreading**: extending horizontally, e.g. branches; standing out at right angles to axis, e.g. leaves or hairs.
- **spur**: (1) a short shoot; (2) a conical or tubular outgrowth from the base of a perianth segment, often containing nectar.
- **stalk**: the supporting structure of an organ, usually narrower in diameter than the organ.
- **stamen** (adjective staminate): male organ of a flower, consisting (usually) of a stalk (filament) and a pollen-bearing portion (anther).
- **staminode**: a sterile stamen, often rudimentary.
- **standard**: the large posterior petal of pea-flowers.
- **standard specimen**: a representative specimen of a cultivar (or other taxon), one that demonstrates how the name of that taxon should be used.
- **stellate**: star-shaped, e.g. a type of hair.
- **stem**: the plant axis, either aerial or subterranean, which bears nodes, leaves, branches and flowers.
- **stem-clasping**: see amplexicaul.*
- **sterile**: infertile, e.g. a stamen that does not bear pollen, or a flower that does not bear seed.
- **stigma**: the pollen-receptive surface of a carpel or group of fused carpels, usually sticky; usually a point or small head at the summit of the style.
- **stipe**: in ferns, the stalk of a frond; generally a small stalk.
- **stipella** (stipel; plural stipellae): one of two small secondary stipules at the base of leaflets in some species. *
- **stipitate**: stalked; borne on a stipe; of an ovary, borne on a gynophore
- **stipulate**: bearing stipules.
- **stipule**: small appendage at the bases of leaves in many dicotyledons.
- **stolon**: slender, prostrate or trailing stem, producing roots and sometimes erect shoots at its nodes.
- **stoloniferous**: having stolons.*
- **stoma** (plural stomata): a pore; small hole in the surface of a leaf (or other aerial organ) allowing the exchange of gases between tissues and the atmosphere.
- **striate**: striped with parallel, longitudinal lines or ridges.
- **strigose**: covered with appressed, rigid, bristle-like, straight hairs; the appressed equivalent of hispid. *
- **strobilus** (plural strobili): a cone-like structure consisting of sporophylls borne close together on an axis, e.g. in some club-mosses.
- **style**: an elongated part of a carpel, or group of fused carpels, between the ovary and the stigma.*
- **stylodium**: an elongate stigma that resembles a style, a false style, e.g. commonly found in Poaceae and Asteraceae.
- **subgenus**: the category of supplementary taxa intermediate between genus and section. It is a singular noun, always has a capital initial letter and is used in combination with the generic name; e.g. Primula subgenus Primula.
- **subshrub**: undershrub; small shrub which may have partially herbaceous stems, but generally a woody plant less than 1 m high.
- **subspecies**: a grouping within a species, usually used for geographically isolated and morphologically distinct entities. Its taxonomic rank occurs between species and variety.
- **subtend**: to stand beneath or close to, as in a bract at the base of a flower.
- **subulate**: narrow and tapering gradually to a fine point.
- **succulent**: juicy, fleshy; a plant with a fleshy habit.
- **sucker**: a shoot of more or less subterranean origin; an erect shoot originating from a bud on a root or a rhizome, sometimes at some distance from the stem of the plant.*
- **sulcate**: furrowed; grooved.
- **superficial**: on the surface.
- **superior**: of an ovary, borne above the level of attachment of the other floral parts, or above the base of a floral tube (i.e. one that is free from the ovary and bears the perianth and stamens); cf. inferior, half-inferior.
- **suspended**: of an ovule, when attached slightly below the summit of the ovary; cf. pendulous.
- **sward**: extensive, more or less even cover of a surface, e.g. a lawn grass; cf. tussock.
- **sympatric**: with more or less similar or overlapping ranges of distribution.
- **syn-** (sym-): with, together.
- **synangium**: a fused aggregate of sporangia.
- **syncarpous**: of a gynoecium, made up of united carpels.
- **synonym**: outdated name or 'alternative' name for the same taxon.

T

- **taproot**: the main, descending root of a plant with a single dominant root axis.

- **taxon** (plural taxa): a group or category in a system of classification, derived from the Greek prefixes taxo-, taxis- meaning arrangement.
- **taxonomy**: the study of the principles and practice of classification.
- **tendril**: a slender organ (modified e.g. from stem, leaf, leaflet or stipule) used by climbing plants to cling to an object.
- **tepal**: perianth segment, either sepal or petal; usually used when all perianth segments are similar in appearance; cf. petal.
- **terete**: circular in cross-section; more or less cylindrical.
- **terminal**: situated at the tip or apex.
- **Terminal crown**
- **ternate**: in groups of three; of leaves, arranged in whorls of three; of a single leaf, with the leaflets arranged in groups of three.
- **terrestrial**: generally denotes of or on the ground; of habitat, on land as opposed to in water (aquatic) or on rocks (lithophytic), or other plants (epiphytic), etc.
- **testa**: seed coat.
- **tetrad**: a group of four; usually means four pollen grains remaining fused together a maturity, e.g. in the Epacridaceae.
- **thorn**: a sharp, stiff point, usually a modified stem, that cannot be detached without tearing the subtending tissue; a spine; cf. prickle.
- **throat**: the opening of a corolla or perianth.
- **thyrse**: a branched inflorescence in which the main axis is indeterminate (racemose) and the lateral branches determinate (cymose).
- **tomentum** (adjective tomentose): a dense covering of short, matted hairs. Tomentose is often used as a general term for bearing an indumentum, but this is not a recommended use.
- **toothed**: with a more or less regularly incised margin.
- **torus**: see receptacle.
- **trademark** (trade mark): a distinctive word, picture, symbol, smell or other device or any combination or multiples of these. It must not be descriptive of the goods or services, nor can it be geographical nor a surname. Used to distinguish one trader from another, compared with PBR which protect the commercial name of a particular plant variety.
- **trapeziform**: (1) like a trapezium (a 4-sided figure with two parallel sides of unequal length); (2) like a trapezoid (a 4-sided figure with neither pair of sides equal); sometimes used erroneously as a synonym for rhombic.
- **tree**: a woody plant, usually with a single distinct trunk and generally more than 5 m tall.
- **triad**: a group of three.
- **triangular**: planar and with 3 sides.
- **tribe**: a taxonomic grouping, in rank between genus and species.
- **trichome**: in non-filamentous plants, any hair-like outgrowth from epidermis, e.g. a hair or bristle; sometimes restricted to unbranched epidermal outgrowths.
- **trifoliolate**: a compound leaf of three leaflets, e.g. a clover leaf.
- **trigonous**: triangular in cross-section and obtusely angled; cf. triquetus.
- **triquetrous**: more or less triangular in cross-section, but acutely angled (with 3 distinct longitudinal ridges); cf. trigonus.
- **trivial name**: the second word in the two-part scientific name of an organism; cf. specific epithet.
- **trullate**: ovate but angled; like a brick-layers trowel; inverse kite-shaped; cf. rhombic.
- **truncate**: cut off squarely; with an abruptly transverse end.
- **trunk**: the upright large main stem of a tree.
- **truss**: a compact cluster of flowers or fruits arising from one centre; e.g. evident in many rhododendrons.
- **tuber**: an underground storage organ formed by the swelling of an underground stem which produces buds and stores food, forming a seasonal perennating organ, e.g. potato; cf. tuberoid.
- **tubercle**: a small wart-like outgrowth.
- **tuberculate**: covered in tubercles; warty.
- **tuberoid**: an underground storage organ formed by the swelling of a root; occurs in many orchids.
- **tuberous**: resembling a tuber; producing tubers.
- **tubular**: with the form of a tube or cylinder.
- **tunic**: outer covering of some bulbs and corms.
- **turbinate**: top-shaped.
- **turgid**: swollen with liquid; firm; cf. flaccid.
- **tussock**: a dense tuft of vegetation, usually well separated from neighbouring tussocks, e.g. some grasses; cf. sward.
- **two-ranked**: having leaves arranged in two rows in the same plane, on opposite sides of the branch; = distichous.
- **type**: an item (usually a herbarium specimen) to which the name of a taxon is permanently attached, i.e. a designated representative of a plant name. Important in determining the priority of names available for a particular taxon.
- **type genus**: in nomenclature, the genus from which the family is based.
- **typography**: the presentation of printed matter, covering issues such as type styles (e.g. italic or roman type), underlining, emboldening and letter spacing.

U

- **umbel** (adjective umbellate): a racemose inflorescence in which all the individual flower stalks arise in a cluster at the top of the peduncle and are of about equal length; in a simple umbel, each stalk is unbranched and bears only one flower; a cymose umbel is an apparent umbel but its flowers open centrifugally.
- **umbonate**: with a conical projection arising from a flatter surface.

- **uncinate**: with a hook at the apex.
- **undershrub**: a low shrub, often with flowering branches that die off in winter; cf. subshrub.
- **undulate**: wavy and not flat; cf. sinuate.
- **unilocular**: having one loculus or chamber, e.g., the ovary in the families Proteaceae and Fabaceae.
- **unisexual**: of one sex; bearing only male or only female reproductive organs.
- **urceolate**: urn-shaped.
- **utricle**: a small bladder; a membranous bladder-like sac enclosing an ovary or fruit; in sedges a fruit in which the pericarp is larger than, and loosely encloses, the seed.

V

- **valvate**: of sepals and petals in bud, which meet edge to edge but do not overlap.
- **valve**: a portion of an organ that fragments or splits open, e.g. the teeth-like portions of a pericarp in a split (dehisced) capsule.
- **variant**: a plant or group of plants showing some measure of difference from the characteristics associated with a particular taxon.
- **varietas** (variety in common usage, abbreviated as var.): (Latin) subdivision of a species, between the categories of subspecies and form.
- **variegated**: irregularly marked with blotches or patches of another colour.
- **vein**: a strand of vascular tissue; nerve.
- **veinlet**: a small vein; the ultimate (visible) division of a vein.
- **velvety**: densely covered with fine, short, soft, erect hairs.
- **venation**: the arrangement of veins in a leaf.
- **ventral**: the front; in particular, towards the axis in a lateral organ or towards substratum in prostrate plant; cf. dorsal.
- **vernation**: the arrangement of unexpanded leaves in a bud; the order of unfolding of leaves from a bud.
- **verrucose**: with warts.
- **versatile**: of anthers, swinging freely about the point of attachment to the filament.
- **verticillate**: arranged in one or more whorls.
- **vescicular**: of hairs, bladder-like; vesciculous, bearing such hairs.
- **vessel**: a capillary tube formed from a series of open-ended cells in the water-conducting tissue of a plant.
- **vestigia**: reduced in form and function from the normal or ancestral condition.
- **villous**: covered with long, soft, weak hairs, the covering somewhat dense.
- **viscid**: sticky; coated with a thick, syrupy secretion.
- **viviparous**: (1) seeds or fruits which germinate before being shed from the parent plant, (2) the development of plantlets on non-floral organs e.g. leaves.

W

- **warty**: a surface covered with small round protuberances, especially in fruit, leaves, twigs and bark, see tuberculate.
- **watershoot**: an erect strong-growing or epicormic shoot developing from near the base of a shrub or tree, but distinct from a sucker.
- **weed**: loosely defined as a plant growing where it is not wanted; commonly associated with disrupted habitats; (1) agricultural weed: a plant which taints produce or pollutes crops; (2) environmental weed: naturalised, exotic or ecologically 'out-of-balance' indigenous species outside the agricultural or garden context which, as a result of invasion, adversely affects the survival or regeneration of indigenous species in natural or partly-natural vegetation communities (Carr, G.W., in Foreman & Walsh, 1993).
- **wild**: originating from a known wild habitat.
- **whorl**: a ring of organs borne at the same level on an axis, e.g. leaves, bracts or floral parts.
- **wing**:

1. a membranous expansion of a fruit or seed which aids in dispersal, e.g. on pine seeds;
2. a thin flange of tissue extending beyond the normal outline of a structure, e.g. on the column of some orchids, on stems, on petioles;
3. a lateral petal of a flower in family Fabaceae.

- **woolly**: very densely covered with long, more or less matted or intertwined hairs, resembling sheep's wool.

X

- **xeromorph**: a plant with structural features (e.g. hard or succulent leaves) or functional adaptations that prevent water loss by evaporation; usually associated with arid habitats, but not necessarily drought-tolerant; cf. xerophyte.
- **xerophyte**: a plant generally living in a dry habitat, typically showing xeromorphic or succulent adaptation; a plant able to tolerate long periods of drought; cf. xeromorph.

Z

- **zygomorphic**: bilaterally symmetrical; symmetrical about one vertical plane only; applies to flowers in which the perianth segments within each whorl vary in size and shape; cf. actinomorphic, irregular.
- **zygote**: a fertilized cell.

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General Knowledge:

World Geography

SOME FACTS ABOUT THE EARTH

Estimated age	About 4500 million years	
Superficial area	510, 100, 500 sq. km.	(196, 950, 000 sq. m)
Land surface	148, 951, 000 sq. km.	(57, 510, 000 sq. m.)
Water surface	(71% of the total area)	361, 150, 000 sq. km.
Equatorial circumference	40, 075 km	(24902m.)
Polar diameter	12714 km.	(7900 m.)
Distance from the Sun	149.6 million km.	(92, 857, 000 m.)
Highest point of the Earth's land surface	Mt. Everest	(8,850 meters) (29, 035 ft.)
Lowest point of the Earth's land surface	Shores of the Dead Sea, Israel – Jordan 396 meters (1299 feet) below sea level.	
Greatest ocean depth	Marinas Trench, east of the Philippines	11033m. (36, 198 feet) below sea level.

HIGHEST MOUNTAINS OF THE WORLD

Mountain	Country	Feet	Metres
Everest	Nepal/Tibet	29,035	8,850
K-2 (Godwin Austen)	Pakistan	28,250	8,611
Kanchenjunga	India/Nepal	28,169	8,586
Lhotse I	Nepal/Tibet	27,940	8,516
Makalu I	Nepal/Tibet	27,766	8,463
Cho Oyu	Nepal/Tibet	26,906	8,201
Dhaulagiri	Nepal	26,795	8,167
Mansalu I	Nepal	26,781	8,163
Nanga Parbat	Pakistan	26,660	8,125
Annapurna	Nepal	26,545	8,091
Gasherbrum I	Pakistan/China	26,470	8,068
Broad Peak	Pakistan/China	26,400	8,047
Gosainthan (Shishma Pangma)	Tibet	26,397	8,046
Gasherbrum II	Pakistan/China	26,360	8,035
Annapurna II	Nepal	26,041	7,937
Gyachung Kang	Nepal	25,910	7,897
Disteghil Sar	Pakistan	25,858	7,882
Himalchuli	Nepal	25,801	7,864
Nuptse	Nepal	25,726	7,841
Nanda Devi	India	25,663	7,824
Masherbrum	Kashmir	25,660	7,821
Rakaposhi	Pakistan	25,551	7,788
Kanjut Sar	Pakistan	25,461	7,761
Kamet	India/Tibet	25,446	7,756
Namcha Barwa	Tibet	25,445	7,756
Gurla Mandhata	Tibet	25,355	7,728
Ulugh Muztagh	Tibet	25,340	7,723
Kungur	China	25,325	7,719
Tirich Mir	Pakistan	25,230	7,690
Saser Kangri	India	25,172	7,672

Mountain	Country	Feet	Metres
Makalu II	Nepal	25,120	7,657
Minyan Konka	China	24,900	7,590
Kula Kangri	Bhutan	24,783	7,554
Chang-tzu	Tibet	24,780	7,553
Muztagh Ata	China	24,757	7,546
Skyang Kangri	Kashmir	24,750	7,544
Communism Peak	Tajikistan	24,590	7,495
Jongsong Peak	Nepal	24,472	7,459
Pobeda Peak	Kyrgyzstan	24,406	7,439
Sia Kangri	Kashmir	24,350	7,422
Haramosh Peak	Pakistan	24,270	7,397
Istoro Nal	Pakistan	24,240	7,388

Note: All these mountain peaks are located in Asia. The highest elevation points of all the continents are as under:

HIGHEST ELEVATION POINTS OF THE WORLD

Continent	Highest Point	Location	Feet	Metres
Asia	Mt. Everest	Nepal/Tibet	29,035	8,850
S. America	Mt. Aconcagua	Argentina	22,834	6,960
N. America	Mt. McKinley	U.S.(Alaska)	20,320	6,194
Africa	Mt. Kilimanjaro	Tanzania	19,340	5,895
Europe	Mt. Elbrus	Russia	18,510	5,642
Antarctica	Vinson Massif	Ellsworth Mts	16,066	4,897
Australia	Mt. Kosciusko	New South Wales	7,310	2,228

PRINCIPAL DESERTS OF THE WORLD

Name	Country	Area in Sq. miles
Sahara	North Africa	3500000
Libyan	North Africa	450000
Australian	Australia	-
Great Victoria	Australia	150000
Syrian	Syria/Arabia	100000
Arabian	Arabia	70000
Gobi	Mongolia	500000
Rub'al Khaii	Arabia	250000
Kalahari	Botswana	225000
Great Sandy	Australia	150000
Takla Makan	China	140000
Arunta	Australia	-
Kara Kum	S.W. Turkistan (Russia)	120000
Nubian	North Africa	100000
Thar	N.W. India	100000
Kizil Kum	Central Turkistan	100000

LARGEST ISLANDS OF THE WORLD

Name	Area in sq. miles	Location
Greenland	840000	North Atlantic Ocean
New Guinea	317000	South West Pacific
Borneo	287400	S.W. Pacific
Malagassy Republic	227800	Indian Ocean
Baffin Island	183810	Arctic Ocean
Sumatra	182860	Indian Ocean

Great Britain	88619	N. Atlantic
Honshu	87293	N.W. Pacific
Ellesmere	76600	Arctic Ocean
Victoria Island	74400	Arctic Ocean
Celebes	72987	Indian Ocean
New Zealand (South)	58093	S.W. Pacific
Java	48763	Indian Ocean
New Zealand (North)	44281	S.W. Pacific
Newfoundland	42734	N. Atlantic
Cuba	41634	Caribbean Sea
Iceland	39698	N. Atlantic
Ireland (incl N. Ireland)	31839	N. Atlantic
Dominican Rep.& Haiti	29530	Caribbean Sea
Sakhalin	28597	N.W. Pacific
Tasmania	26215	S.W. Pacific
Sri Lanka	25332	Indian Ocean

PRINCIPAL OCEANS OF THE WORLD

Ocean	Area in Sq. km	Greatest Depth in Feet
Pacific Ocean	165,250,000	36200
Atlantic Ocean	82,440,000	30246
Indian Ocean	73,440,000	24442
Arctic Ocean	14,090,000	17881
	SEAS	
Mediterranean Sea	2,505,000	16470
South China Sea	3,447,000	18241
Bering Sea	2,270,000	13750
Caribbean Sea	2,754,000	25197
Gulf of Mexico	1,544,000	14370
Sea of Okhotsk	1,528,000	11400
East China Sea	1,248,000	9840
Hudson Bay	1,233,300	850
Sea of Japan	1,008,000	12280
North Sea	575,000	2170
Black Sea	461,000	7360
Red Sea	438,000	7370
Baltic Sea	422,000	1440
Yellow Sea	404,000	300

Greatest Ocean Depth: Mariana Trench, east of the Philippines (11033 m (36198 feet) below sea level
Mean Depth of the Sea: 12009 feet
Largest and the Oldest Ocean: Pacific Ocean

MAJOR RIVERS OF THE WORLD (By Length)

River	Location	Miles	Km
Nile	Africa	4,145	6,673
Amazon	Peru	4,000	6,440
Mississippi–Missouri	USA	3,740	6,021
Changjiang (Yangtze)	China (Asia)	3,720	5,989
Yenisei–Angara	Russia	3,650	5,877
Amur–Argun	China (Asia)	3,590	5,780
Ob–Irtysh	China	3,360	5,410
Plata–Parana	Brazil	3,030	4,878
Huang He (Yellow)	China	2,903	4,674
Congo (Zaire)	Congo	2,900	4,669

River	Location	Miles	Km
Lena	Russia	2,730	4,395
Mackenzie	South America	2,635	4,242
Mekong	Asia	2,600	4,186
Niger	Africa	2,600	4,186
Missouri	USA	2,533	4,078
Mississippi	USA	2,348	3,780
Murray-Darling	Australia	2,330	3,751
Volga	Russia	2,290	3,687
Madeira	S. America	2,013	3,241
Sao Francisco	S. America	1,988	3,201
Yukon	Alaska	1,979	3,186
Rio Grande	USA-Mexico	1,885	3,035
Purus	S. America	1,860	2,995
Tunguska, Lower	Russia	1,860	2,995
Indus	Asia	1,800	2,898
Danube	Europe	1,776	2,859
Brahmaputra	Asia	1,770	2,850
Salween	Asia	1,750	2,818

PRINCIPAL LAKES OF THE WORLD

Lake	Country	Sq. Km
Caspian Sea (salt)	RUSSIA - Iran	393,898
Superior	USA - Canada	82,814
Victoria	Kenya Uganda Tanzania	69,485
Aral (salt)	RUSSIA	68,682
Huron	USA - Canada	59,596
Michigan	USA	58,016
Tanganyika	Tanzania Zambia Zaire	32,893
Great Bear	Canada	31,792
Baikal	RUSSIA	31,492
Great Slave	Canada	28,438
Erie	USA - Canada	25,745
Winnipeg	Canada	24,341
Malawi	Malawi - Mozambique	23,310
Ontario	USA - Canada	19,529
Balkhash	RUSSIA	18,260
Ladoga	RUSSIA	18,130
Chad	Nigeria Niger Chad	15,540
Onega	RUSSIA	9,842
Eyre (salt)	Australia	9,324
Rudolf (salt)	Kenya	9,065
Titicaca	Peru - Bolivia	9,065
Athabasca	Canada	8,081
Nicaragua	Nicaragua	7,697
Reindeer	Canada	6,389
Issyk: Kul	RUSSIA	6,190
Koko: (salt)	China	5,957
Torrens (salt)	Australia	5,775

HIGHEST WATERFALLS OF THE WORLD

Waterfall	Location	Feet	Meters
Angel	Venezuela	3,281	1,000

Waterfall	Location	Feet	Meters
Tugela	South Africa	3,000	914
Cuquenan	Venezuela	2,000	610
Sutherland	New Zealand	1,904	580
Takkakaw	Columbia	1,650	503
Ribbon (Yosemite)	California	1,612	491
Upper Yosemite	California	1,430	436
Gavarnie	France	1,384	422
Vettisfoss	Norway	1,200	336
Widow's Tear (Yosemite)	California	1,170	357
Staubbach	Switzerland	984	300
Middle Cascade (Yosemite)	California	909	277
King Edward VIII	Guyana	850	259
Gersoppa	India	829	252
Kaieteur	Guyana	822	251

WORLD'S LARGEST DAMS

Dam	Location	Volume (Thousands)		Year Completed
		Cubic Meters	Cubic Yards	
Syncrude	Canada	540,000	706,320	UC
Chapeton	Argentina	296,200	311,539	UC
Pati	Argentina	238,180	276,026	UC
New Cornelia Tailings	United States	209,500	274,445	1973
Tarbela	Pakistan	121,720	159,210	1976
Kambaratinsk	Kyrgyzstan	112,200	146,758	UC
Fort Peak	Montana	96,049	125,628	1940
Lower Usama	Nigeria	93,000	121,644	1990
Cipasang	Indonesia	90,000	117,720	UC
Ataturk	Turkey	84,500	110,522	1990
Yacyreta-Apipe	Paraguay/ Argentina	81,000	105,944	UC
Guri (Raul Leoni)	Venezuela	78,000	102,014	1986
Rogun	Tajikistan	75,500	98,750	1985
Oahe	South Dakota	70,339	92,000	1963
Mangla	Pakistan	65,651	85,872	1967
Gardiner	Canada	65,440	85,892	1968
Afsluitdijk	Netherland	63,400	82,927	1932
Oroville	California	59,639	78,008	1968
San Luis	California	59,405	77,700	1967
Nurek	Tajikistan	58,000	75,861	1980

Note: UC = Under Construction

Expected Questions FOR COMING EXAMS.

1. **Who was the leader of the 1958 coup in Iraq, which led to proclamation of Iraq as a Republic?**
(A) Saddam Hussain (B) Nuri Al Said
(C) Abdul Karim✓ (D) Abdul Rahman

2. **Major Shabbir Sharif was awarded Nishan-e-Haider posthumously. Which other mode for bravery was he awarded during his career in the Army?**
(A) Tamgha-e-Basalat
(B) Nishan-e-Shujaat
(C) Hilal-e-Jurat **(D) Sitara-e-Jurat✓**

3. **Which Indian personality served as the President of the UN General Assembly in 1953-54?**
(A) S. Radha Krishnan
(B) Gopalaswamy Ayyangar
(C) V.K Menon
(D) Vijayalakshami Pandit✓

4. **In which organ of the United Nations, all member states of the UN are represented?**
(A) Economic and Social Council
(B) General Assembly✓
(C) Security Council
(D) Human Rights Council

5. **Ustad Allah Baksh was a famous _____ of Pakistan.**
(A) Classical singer (B) Sitar player
(C) Tabla player **(D) Painter✓**

6. **UNFCC (UN Framework Convention on Climate Change) was adopted during the Earth Summit at Rio de Janeiro (1992). When did it come into force?**
(A) March 1994✓ (B) August 1995
(C) October 1996 (D) January 1994

7. **De Beers is one of the biggest name in diamond industry. Who was the founder of De Beers Consolidated Mining Company?**
(A) John Cecil Rhodes✓
(B) Joseph D. Rockefeller
(C) Krugger (D) Robert Johnson

8. **Who was the first UN High Commissioner for Human Rights?**
(A) Mary Robinson✓
(B) Jose Ayla Lasso
(C) P.B. Samuel (D) Wilfard Hansen

9. **The Treaty of European Union (1992) is also known as:**
(A) Treaty of the Hague
(B) Treaty of Brussels
(C) Measurement Treaty✓
(D) None of these

10. **King Abdul Aziz Ibn Saud named the Kingdom of Hejaz and Najd as Saudi Arabia in:**
(A) 1924 (B) 1930
(C) 1932✓ (D) 1936

11. **Headquarter of the African Union (AU) is located in:**
(A) Johannesburg (B) Cairo
(C) Dakar **(D) Addis Ababa✓**

12. **Which of the following Indian Nobel Prize winners is associated with economics?**
(A) V.S Naipaul **(B) Amartya Sen✓**
(C) C.V. Roman (D) Rabindranath Tagore

13. **When was the first Nobel Prize awarded?**
(A) 1892 (B) 1900
(C) 1901✓ (D) 1904

14. **The Presidency of the United Nations Security Council rotates (in alphabetical order) among its members every:**
(A) 6 months (B) 3 months
(C) 2 months **(D) Month✓**

15. **UNESCO which deals with Education, Science and Culture, has its headquarters in:**
(A) New York (B) Vienna
(C) Paris✓ (D) Geneva

16. **Beijing Declaration and Platform for Action (1992) deals with?**
(A) International trade
(B) Rights and status of women✓
(C) Rights and protection of children
(D) Population control

17. **Sharmeen Obaid Chinoy of Pakistan won an Oscar Award for best dcumentary film. What was the title of the film?**
(A) Acid Burns (B) Desperate Women
(C) Dark Shadows **(D) Saving Face✓**

18. **"Chauburji" in Lahore is one of the famous monuments belonging to the Mughal period. It was reportedly built a gateway to a beautiful garden built for Princess Zebunnissa. She was an accomplished daughter of which Mughal Emperor?**
(A) Shahjahan (B) Akbar
(C) Jahangir **(D) Aurangzeb✓**

19. **"World Economic Forum", which holds its annual sessions in Davos, Switzerland, was founded by:**
(A) Henry Kissinger (B) Konrad Adenau
(C) W. Senwad✓ (D) None of these

20. **When was the right to vote was given to women in Switzerland?**

(A) 1935 (B) 1950
(C) 1965 (D) 1971✓

21. the Leaning Tower of Pisa is located in which country?
(A) Switzerland (B) Italy✓
(C) Malta (D) The Netherlands

22. U Thant was the first UN Secretary General from Asia. To which country did he belong to?
(A) Thailand (B) Cambodia
(C) Japan (D) Burma✓

23. On which river, the Baglihar Dam is constructed by India?
(A) Chenab✓ (B) Jhelum
(C) Indus (D) Setluj

24. Which one of the following countries expelled the Palestine Liberation Organization (PLO) in 1970?
(A) Syria (B) Lebanon
(C) Israel (D) Jordan✓

25. Which actor played the role of Quaid-e-Azam Muhammad Ali Jinnah in the feature film "Jinnah" directed by Jamil Dehlavi?
(A) N. Wadia (B) Ben Kingsley
(C) Christopher Lee✓
(D) Peter O Togie

26. The Oscar Award winning film 'Slumdog Millionaire" is based on the book "Q and Q" written by:
(A) Hanif Qurershi (B) Shashi Tharor
(C) Vikas Swarup✓ (D) Manesh Bahl

27. What was the real name of the famous Pakistani actor Santosh Kumar?
(A) Nazir Baig (B) Syed Mushtaq Rizvi
(C) Syed Musa Raza✓ (D) Younus Khan

28. Climate Change Conference COP21 was held in Paris. Where was COP20 held?
(A) Lima✓ (B) Kyoto
(C) Montreal (D) New York

29. Which of the following species is endemic to Pakistan?
(A) Indus River Dolphins✓
(B) Snow Leopards
(C) Gypsy Vultures (D) Houbara Bustard

30. Which animals are most illegally traded in the world?
(A) Elephants (B) Rhinoceros
(C) Pangolins✓ (D) Turtles

31. Reshma was a legendary folk singer of Pakistan. She died of cancer in Lahore in:
(A) Nov. 2013✓ (B) Nov. 2012
(C) Jan. 2009 (D) Dec. 2014

32. Famous TV drama "Waris" was written by?
(A) Atta-ul-Haq Qasmi
(B) Dr. Anwar Sajjad
(C) Amjad Islam Amjad✓
(D) Younis Butt

33. What was the rank of former Foreign Minister, Gohar Ayub Khan, when he left the Army?
(A) Captain✓ (B) Major
(C) Colonel (D) Brigadier

34. Who was the American Ambassador who died along with President Zia-ul-Haq, in plane crash in 1988?
(A) Tom Simon (B) Robert M Samuel
(C) Arnold Backer (D) Arnold Lewis Raphel

35. Kamran Baradari is one of the oldest Mughal monuments and located in Lahore. Who exactly was Kamran?
(A) Brother of Queen Noorjahan
(B) Son of Babar / step brother of Humayun✓
(C) First husband of Noorjahan
(D) Brother of Sher Shah Suri

36. The youngest son of Maharaja Ranjit Singh was elevated as Maharaja at a tender age of about 5 years. What was his name?
(A) Naunahal Singh (B) Kharrak Singh
(C) Daleep Singh✓ (D) Langa Singh

37. Khudadad Khan was the first South Asian soldier in the British Army to receive the highest military award for gallantry, the Victoria Cross, during the First World War. In which country was the fighting where he performed the act of bravery, which earned him the Victoria Cross?
(A) France (B) Austria
(C) Belgium✓ (D) Netherlands

38. Deosai National Park is remarkable as it is one of the highest plateaus in the world with an average elevation of 4,114 meters. In which region of Pakistan is it located?
(A) Balochistan (B) Potohar-Punjab
(C) Gilgit Baltistan✓ (D) Khyber Pakhtunkhwa

39. G.T. Road is one of the main highways of Pakistan. What does G.T stand for?
(A) General Traffic (B) Grand Trunk✓
(C) General Turner (D) None of these

40. How many administrative divisions are there in Punjab?
(A) 8 (B) 6
(C) 3 (D) 9✓

41. Which one of the following districts of Punjab has the lowest population density?
(A) Dera Ghazi Khan✓
(B) Layyah
(C) Rajanpur (D) Bahawalpur

42. Lal Suhanra National Park is located near:
(A) Multan (B) Bahawalpur✓
(C) D.G. Khan (D) Sahiwal

43. Hingol National Park, located in Makran District, Balochistan, is famous for its:
(A) Thick forest cover(
B) Archeological sites✓
(C) Mud (D) All of these

44. Falkland Islands of the Malvinas Islands are disputed between the United Kingdom and:
(A) Brazil (B) Russia
(C) Argentina✓ (D) Peru

45. Grassland plants located in Argentina are called:

(A) Prairies (B) Downa
(C) Steppes (D) Pampas✓

46. Strait of Gibraltar connects the Atlantic Ocean with the:
(A) Pacific Ocean (B) Indian Ocean
(C) Mediterranean Sea✓
(D) None of these

47. Taj Mahal is located on the bank of river:
(A) Jamna (Yamuna)✓
(B) Ganga
(C) Nerbada (D) Brahmaputra

48. The capital of Kosovo is:
(A) Zagreb (B) Pristina✓
(C) Sarajevo (D) Bratislava

49. Usain Bolt holds the world record for 100 meters race. To which country does he belong to?
(A) Barbados (B) Jamaica✓
(C) USA (D) Kenya

50. Detroit, USA is associated with _____ industry.
(A) Automobile✓ (B) Computer
(C) Toys (D) Electronics

51. Faiz Ahmad Faiz was awarded the Lenin Peace Prize in 1962. In which year did Abdul Sattar Edhi receive the Lenin Peace Prize?
(A) 1988✓ (B) 1990
(C) 1992 (D) 1995

52. Who said "Right is a reasonable claim recognized by the society and enforced by the state."
(A) Laski (B) Bosanquet✓
(C) Green (D) Mars

53. Who among the following argues that the fault lines of civilization are the breeding grounds of conflicts in the 21st century?
(A) Francis Fukuyama
(B) Samuel Huntington✓
(C) Henry Kissinger (D) Nelson Mandela

54. The "Zero Sum Game" as employed by the supporters of 'game theory" assumes that:
(A) The loss of one party is the gain of the other party
(B) The loss of one party is the loss of the other party as well
(C) The gain of one party is the gain of the other party
(D) The gain or loss of one party has nothing to do with the gain or loss of the other party✓

55. Zagreb is the capital of:
(A) Bosnia (B) Kosovo
(C) Croatia✓ (D) Serbia

56. Maslow's "Needs Hierarchy" theory relates to:
(A) Motivation✓ (B) Leadership
(C) Communication (D) Upward mobility

57. Who said "man is by nature a political animal"?
(A) Winston Churchill (B) Karl Marx
(C) Aristotle✓ (D) Plato

58. During the British rule, the only British King to visit India and hold his Darbar was:
(A) Edward VII (B) George V✓
(C) James II (D) Edward

59. Ramsar Convention provides a framework for national action and international cooperation for conservation and wise use of wetlands. The Convention was adopted in 1971 in Ramsar, which is a city located in:
(A) Iran✓ (B) Egypt
(C) Morocco (D) Iraq

60. "Facebook" is one of the most poplar social networking service. When was it launched?
(A) 1998 (B) 2000
(C) 2003 (D) 2004✓

61. Famous Urdu poet Mustafa Zaidi was by profession a:
(A) University Professor (B) Businessman
(C) Lawyer (D) Civil Servant✓

62. Article 257 of the Constitution relates specifically to Jammu and Kashmir. According to the Article when the people of Jammu and Kashmir accede to Pakistan then:
(A) They shall become citizens of independent Kashmir
(B) Kashmir shall become a province of Pakistan
(C) People of Kashmir shall determine the relationship between the state and Pakistan✓
(D) Kashmir shall become an autonomous region

63. The first battle of Panipat was fought between:
(A) Alexander and Porus
(B) Babar and Ibrahim Lodhi✓
(C) Babar and Rana Sanga
(D) Humayun and Sher Shah Suri

64. India tested its first nuclear device on:
(A) 15 May 1972 (B) 15 May 1974✓
(C) 11 May 1998 (D) 20 May 1999

65. HDI (Human Development Index) as an indicator of the well-being of a country, was the brainchild of:
(A) Amartya Sen (B) Muhammad Yunas
(C) M.B. Lodhi (D) Mahboob-ul-Haq✓

66. Zimbabwe was earlier known as:
(A) Southern Rhodesia✓
(B) Gold Coast
(C) Salisbury (D) Southern Land

67. Which public holiday is celebrated in the USA on 4 July every year?
(A) Constitution Day (B) Independence Day✓
(C) Blacks Day (D) New Deal

68. Which country in the Middle East is the Hashemite Kingdom?
(A) Jordan✓ (B) Kuwait
(C) Syria (D) Yemen

69. Which body of people is sometimes referred

to as the "Fourth Estate"?
(A) Judiciary (B) Executive
(C) The Press✓ (D) Senate

70. "Kindergarten" refers to?
(A) A nursery school✓
(B) A small garden
(C) A children playground
(D) A children's ward in hospital

71. What did Burma change its name to in 1989?
(A) Myanmar✓ (B) Rangoon
(C) Yangoon (D) Naypyidaw

72. What is meant by "cock and bull story"?
(A) True story (B) A lengthy tale
(C) Story told by an idiot
(D) An unbelievable tale✓

73. Rule of thumb means:
(A) Mark of thumb on a legal paper
(B) An easily applied procedure for making a determination✓
(C) An easy choice (D) An unknown rule

74. Renaissance movement started firstly in:
(A) France (B) Italy✓
(C) United Kingdom (D) Sweden

75. GDP stands for:
(A) Gross Daily Product
(B) Gross Domestic Product✓
(C) Gross Domestic Purchase
(D) Gross Daily Purchase

76. The capital of Tajikistan is:
(A) Dodoma (B) Dushanbe
(C) Astana✓ (D) Tashkent

77. World Water Day is celebrated on:
(A) 22nd March✓ (B) 22nd June
(C) 22nd July (D) 22nd April

78. One who is capable of dealing with many subjects is called:
(A) Genius (B) Intellectual
(C) Versatile✓ (D) Vulnerable

79. What is the one word substitution for a person who is unable to pay his debt?
(A) Poor (B) Vagabond
(C) Solvent (D) Insolvent✓

80. The Great Persian Empire was founded by:
(A) Darius-I (B) Raza Shah Pehlvi
(C) Cyrus the Great✓
(D) Shah Abbas

81. The palace of Persepolis in Iran was destroyed in 331 B.C. by:
(A) A flood
(B) Alexander the Great✓
(C) Genghis Khan (D) Ottoman Turks

82. The palace of King Nebuchadnezzar was situated in the city of:
(A) Nineveh (B) Babylon✓
(C) Khorasan (D) Khums

83. The world famous "Golden Gate Bridge" is situated in:
(A) London (B) Paris
(C) San Francisco✓ (D) Sydney

84. "The Last Supper", a famous Renaissance painting was a masterpiece of:
(A) Titan (B) Michelangelo
(C) Leonardo da Vinci✓
(D) Raphael

85. The international secretariat of Amnesty International is situated in:
(A) New York (B) London✓
(C) Geneva (D) Paris

86. Which is called the "Land of the Midnight Sun"?
(A) Denmark (B) Belgium
(C) Norway✓ (D) Canada

87. Wimbledon, known for lawn tennis courts, is in:
(A) New York (B) London✓
(C) Washington (D) Geneva

89. Britain's highest military award is:
(A) Victoria Cross✓ (B) Iron Cross
(C) Military Cross (D) Medal of Honour

90. The book "A Farewell to Arms" was written by:
(A) Ernest Hemingway✓
(B) Charles Dickens
(C) Huxley (D) Thomas Hardy

91. The oldest monarchy in the world is that of:
(A) Japan✓ (B) Nepal
(C) UK (D) Kingdom of Saudi Arabia

92. The 1st satellite was launched by:
(A) France (B) USSR✓
(C) Japan (D) UK

93. Which of the following agencies related to UNO was in existence before the World War II?
(A) WHO (B) FAO
(C) ILO✓ (D) IMF

94. The first SAARC Summit was held at:
(A) New Delhi (B) Dhaka✓
(C) Islamabad (D) Male

95. Which is called "Key to the Mediterranean"?
(A) Gibraltar✓ (B) Egypt
(C) Morocco (D) Tunisia

96. Which of the following is known as "Land of White Elephants"?
(A) Netherlands (B) Indonesia
(C) Thailand✓ (D) Belgium

97. "Hansard" is the official verbatim report of the:
(A) British Parliament✓
(B) US Parliament
(C) Swiss Parliament (D) Indian Parliament

98. Who said, "Better to reign in Hell than serve in Heaven?"
(A) Milton✓ (B) William Shakespeare
(C) Tennyson (D) William Wordsworth

99. Vasco de Gama was the native of:
(A) United Kingdom (B) Portugal✓
(C) Spain (D) Greece

100. Which country is separated from Ethiopia by the Red Sea?
(A) Jordan (B) Iraq
(C) Kuwait (D) Yemen✓

101. The term paper gold is associated with:

(A) Deficit budgeting
(B) Special drawing rights in international monetary system✓
(C) Special facility for World Bank
(D) Gold standard

102. Income that is saved and not invested is known as:
(A) Capital **(B) Deposit✓**
(C) Hoarding (D) None of these

103. European Union consists of:
(A) 20 members **(B) 28 members✓**
(C) 30 members (D) 25 members

104. KGB was the national security agency of:
(A) Socialist Federal Republic of Yugoslavia
(B) UK
(C) Ukraine **(D) Soviet Union✓**

105. Who was the surgeon who pioneered antiseptic surgery in 1865?
(A) Edward Jenner **(B) Joseph Lister✓**
(C) Henry William (D) John Sleeman

106. "Stare decisis" is essentially the doctrine of:
(A) National security **(B) Precedent✓**
(C) Strategic depth (D) Rule of law

107. Which country is the largest producer of platinum?
(A) South Africa✓ (B) USA
(C) Russia (D) Canada

108. The country traditionally known for its neutrality?
(A) Sweden **(B) Switzerland✓**
(C) France (D) China

109. Which is the sport most commonly associated with Spain?
(A) Football **(B) Bull Fighting✓**
(C) Archery (D) Baseball

110. London is situated on the bank of river?
(A) Tyne (B) Seine
(C) Thames✓ (D) Cam

111. The headquarters of OPEC countries is at:
(A) Vienna✓ (B) Jakarta
(C) The Hague (D) Berlin

112. The only Hindu State in the world is:
(A) Sri Lanka **(B) Nepal✓**
(C) Bhutan (D) India

113. In which year, UNO was established?
(A) 1944 **(B) 1945✓**
(C) 1946 (D) 1935

114. Which continent has no desert?
(A) Australia **(B) Europe✓**
(C) Asia (D) Africa

115. Which Pakistani poet got 'Lenin Prize'?
(A) Habib Jalib (B) Ahmad Faraz
(C) Faiz Ahmad Faiz✓
(D) None of these

116. When RCD (Regional Cooperation for Development) was replaced by ECO (Economic Cooperation Organization)?
(A) 1982 **(B) 1985✓**
(C) 1986 (D) 1990

117. Inflation means that:
(A) Money falls in value **(B) Rises in value✓**
(C) Money becomes scarce
(D) None of these

118. Who among the following is associated with the Theory of Laissez Faire?
(A) Adam Smith✓ (B) Marshal
(C) Keynes (D) Max Muller

119. America's Cup is associated with which of the following sports?
(A) Sailing✓ (B) Hockey
(C) Canoeing (D) Tennis

120. Which of the following archeological sites, was discovered in 1955?
(A) Kot Diji✓ (B) Mohenjo-Daro
(C) Harappa (D) Taxila

121. Which of the following glaciers is located in Karakoram Range?
(A) Siachin (B) Hispar
(C) Biafo **(D) All of these✓**

122. The 'Babusar Pass" connects:
(A) Abbottabad and Gilgit
(B) Chitral and Gilgit✓
(C) Gilgit and Hunza (D) Swat and Dir

123. Which of the following fort was built by Mughal Emperor Zaheer-ud-Din Babar in the 16th century A.D?
(A) Bala Hissar, Peshawar✓
(B) Rohtas Fort, Jhelum
(C) Ranikot Fort, Hyderabad
(D) Attock Fort, Attock

124. Which of the following districts of Balochistan contains huge deposits of copper?
(A) Loralai (B) Sibbi
(C) Khuzdar **(D) Chaghi✓**

125. Pakistan's first nuclear power plant was setup at Karachi in 1974 with the assistance of:
(A) China (B) France
(C) Canada✓ (D) North Korea

126. The only national elections held on non-party basis were in:
(A) 1977 **(B) 1985✓**
(C) 1988 (D) 1990

127. Who is considered the first poet of Punjabi language?
(A) Bulleh Shah
(B) Baba Farid Ganj Shakr✓
(C) Ghulam Farid (D) Sultan Bahu

128. 'Karakoram Highway' in Pakistan is of:
(A) 730 km **(B) 804 km✓**
(C) 1170 km (D) 1230 km

129. Cawnpur Mosque tragedy had taken place in:
(A) 1909 (B) 1910
(C) 1913✓ (D) 1915

130. "Mast Tawakli" was a prominent poet of:
(A) Balochi✓ (B) Pushto
(C) Sindhi (D) Saraiki

131. Which of the following dams is situated at the highest altitude?
(A) Wali Tangi Dam✓ (B) Tanda Dam
(C) Khanpur Dam (D) Warsak Dam

132. Archaeological site "Bhambore" is located in the district of:
(A) Khairpur✓ (B) Dadu
(C) Larkana (D) Thatta

133. Hazrat Baha-ud-Din Zakariya was a prominent sufi saint of:
(A) Suhrawardia order✓
(B) Naqshbandia order
(C) Chistia order (D) Qadiria order

134. Which was the first missile launched by Pakistan?
(A) Hatf✓ (B) Anza
(C) Ghauri (D) Shaheen

135. Pakistan Aeronautical Complex at Kamra was completed with the financial and technical assistance of:
(A) USA (B) Canada
(C) France (D) None of these✓

136. The largest desert of the Pakistan is:
(A) Thar✓ (B) Thal
(C) Cholistan (D) Kharan

137. The oldest barrage on Indus River is:
(A) Guddu Barrage
(B) Sukkur Barrage✓
(C) Ghulam Muhammad Barrage
(D) Taunsa Barrage

138. Pakistan joined World Trade Organization (WTO) in:
(A) 1994 (B) 1995✓
(C) 1997 (D) 2000

139. The National Animal of Pakistan is:
(A) Horse (B) Deer
(C) Dolphin (D) Markhor✓

140. The Federally Administered Tribal Areas (FATA) consist of:
(A) Five Agencies (B) Six Agencies
(C) Seven Agencies✓
(D) Eight Agencies

141. Which of the following institutions was first introduced in the 1973 Constitution?
(A) National Finance Commission
(B) National Economic Council
(C) Council of the Common Interests
(D) All of the above✓

142. On September 9, 1958, Pakistan acquired Gwadar from:
(A) Oman✓ (B) Bahrain
(C) Iran (D) None of these

143. Pakistan China Boundary Agreement was signed on:
(A) February 6, 1961 (B) March 3, 1963✓
(C) March 27, 1965 (D) June 3, 1967

144. Which public holiday is celebrated in the USA on 4 July every year?
(A) New Deal (B) Constitution Day
(C) Independence Day✓
(D) Black Day

145. Which country in the Middle East is the Hashemite Kingdom?
(A) Kuwait (B) Jordan✓
(C) Egypt (D) Syria

146. Which body of people is sometimes referred to as 'the Fourth Estate"?
(A) Senate (B) Judiciary
(C) Executive (D) The Press✓

147. "Kindergarten" refers to?
(A) A children's ward in hospital
(B) A nursery school✓
(C) A small garden
(D) A children's playground

148. The Great Persian Empire was founded by:
(A) Shah Abbas (B) Darius-I
(C) Raza Shah Pehlvi (D) Cyrus the Great✓

149. The place of Persepolis in Iran was destroyed in 331 B.C. by:
(A) Ottoman Turks (B) A flood
(C) Alexander the Great✓
(D) Genghis Khan

150. Mount Logan is the highest peak in which country?
(A) Cuba (B) Canada✓
(C) Portugal (D) Russia

151. In which State of U.S.A is the Harvard University?
(A) Florida (B) California
(C) Massachusetts✓ (D) New York

152. Who among the following is associated with the Theory of Laissez Faire?
(A) Max Muller (B) Adam Smith✓
(C) Marshal (D) Keynes

153. America's Cup is associated with which of the following sports?
(A) Tennis (B) Sailing✓
(C) Hockey (D) Canoeing

154. Which of the following archaeological sites, was discovered in 1955?
(A) Taxila (B) Kot Diji✓
(C) Mahenjo Daro (D) Harappa

155. Which of the following glaciers is located in Karakoram Range?
(A) Biafo (B) Siachin
(C) Hispar (D) All of the above✓

156. The letters in the Urdu language are:
(A) 42 (B) 27
(C) 37✓ (D) 39

157. Which of the following countries has the largest area in the world?
(A) China (B) Canada
(C) U.S.A (D) Russia✓

158. Which of the continents has the lowest population growth rate?
(A) Asia (B) Europe✓
(C) North America (D) Africa

159. Horticulture is the:
(A) Growing of bushes
(B) Cultivation of flowers and fruits✓
(C) Growing of small plants
(D) Cultivation of spices

160. "Dasht-e-Lut" desert is located in:
(A) Iran✓ (B) China
(C) Libya (D) Iraq

161. A country which has no coastline is called:

(A) Landlord Country (B) Balkan Country
(C) Landlocked Country✓
(D) Protectorate Country

162. **Which of the following mountains separates Asia from Europe?**
(A) Atlas Mountains **(B) Ural Mountains✓**
(C) Hindukush Mountains
(D) Alps Mountains

163. **Formosa is the old name of:**
(A) Bangkok (B) Cambodia
(C) Rhodesia **(D) Taiwan✓**

164. **Pakistan purchased Gwadar from:**
(A) Qatar (B) Saudi Arabia
(C) Iran **(D) Oman✓**

165. **London is situated on the bank of river:**
(A) Thames✓ (B) Delaware
(C) Nile (D) None of these

166. **The largest ocean of the world is:**
(A) Pacific Ocean✓ (B) Indian Ocean
(C) Arctic Ocean (D) None of these

167. **Which of the following sea separates Asia from Africa?**
(A) Red Sea✓ (B) Arabian Sea
(C) Yellow Sea (D) None of these

168. **Baglihar Dam is constructed in Occupied Kashmir on river:**
(A) Ravi (B) Indus
(C) Jhelum **(D) Chenab✓**

169. **Pakistan's peacekeeping forces served under United Nations for the first time in:-**
(A) Kosovo (B) Sudan
(C) Somalia **(D) Congo✓**

170. **Smallest country in Central Asia is:**
(A) Turkmenistan **(B) Tajikistan✓**
(C) Kazakhstan (D) Uzbekistan

171. **Which of the following countries has the largest number of airports?**
(A) USA✓ (B) India
(C) UK (D) China

172. **"Easy Jet" is the airline of:**
(A) Turkey **(B) UK✓**
(C) Malaysia (D) Spain

173. **The name United Nations was coined by:**
(A) Austin Mills (B) Stalin
(C) F.D. Roosevelt✓ (D) Winston Churchill

174. **Organization of Islamic Cooperation (OIC) was established in:**
(A) 1973 (B) 1967
(C) 1969✓ (D) 1971

175. **When the stock market is going down, it is called:**
(A) Bearish✓ (B) Bullish
(C) Crashing (D) Slumberous

176. **"Diego Garcia" is United States 'Naval Base' in:**
(A) Atlantic Ocean (B) Pacific Ocean
(C) Arctic Ocean **(D) Indian Ocean✓**

177. **"No dynasty lasts more than three generations" is the theory of:**
(A) Polybius (B) Imam Ghazali
(C) Herodotus **(D) Ibn-e-Khaldun✓**

178. **After U.S, which country is the second largest arms seller in the world?**
(A) Germany (B) Britain
(C) Russia✓ (D) France

179. **A condominium is:**
(A) A particular territory over which joint dominion is exercised by two or more external powers✓
(B) A state of chaos
(C) A state enjoying dominion status
(D) A state with a federal form of government

180. **A vassal state is:**
(A) A state which is a member of the Commonwealth
(B) One which is completely under the suzerainty of another state✓
(C) A protectorate
(D) None of the above

181. **Pinpoint the world's oldest democratic country.**
(A) France (B) United States
(C) Great Britain **(D) Greece✓**

182. **Identify the wrong statement.**
(A) Liver secretes bile
(B) Pancreas secretes insulin
(C) Mammary glands secrete milk
(D) Lachrymal glands secrete saliva✓

183. **What is 'Scotland Yard'?**
(A) A museum of natural history in U.K.
(B) Royal family's graveyard in England
(C) British Criminal Investigation Department✓
(D) A palace of British Queen in Scotland

184. **"Bay of Biscay" is situated between:**
(A) Estonia and Latvia
(B) France and Spain✓
(C) Sweden and Finland
(D) Italy and Greece

185. **The world's smallest state by area is:**
(A) Nauru (B) Monaco
(C) San Marino **(D) Vatican City✓**

186. **Which city is the oldest inhabited capital in the world?**
(A) Tehran (B) Cairo
(C) Damascus✓ (D) Athens

187. **'Temple Trees' is an official residence of the:**
(A) Prime Minister of Sri Lanka✓
(B) King of Nepal
(C) King of Bhutan (D) President of Maldives

188. **The famous oil painting "Mona Lisa" is the creation of:**
(A) Florence Nightingale
(B) Leonardo da Vinci✓
(C) Pablo Picasso (D) None of the above

189. **"Transworld Airways" is an airline of:**
(A) Russia (B) U.K.
(C) France **(D) USA✓**

190. **Which of the following country's parliament is called 'Cortes'?**
(A) Germany (B) Canada
(C) Norway **(D) Spain✓**

191. The first international organization was:
(A) League of Nations✓ (B) United Nations
(C) Commonwealth Organization
(D) None of the above

192. Three Persian Gulf Islands, Abu Mussa, The Greater and Lesser are disputed between:
(A) Qatar and Bahrain (B) Iran and Iraq
(C) Iran and U.A.E.✓ (D) Iraq and Kuwait

193. Pope Benedict, the religious leader of Roman Catholic Church belongs to:
(A) Poland (B) Britain
(C) Germany✓ (D) France

194. Which of the following countries first introduced paper currency in the world?
(A) France (B) US
(C) Greece (D) China✓

195. The world's largest copper producer is:
(A) Russia (B) China
(C) Chile✓ (D) Brazil

196. "Lion" is the national emblem of:
(A) Belgium (B) Sri Lanka
(C) Norway (D) All of the above✓

197. The game of 'Hockey' was originated from:
(A) Greece (B) Pakistan
(C) England✓ (D) Australia

198. What is "Jingoism"?
(A) Promotion of peace in the world
(B) Political philosophy of state control over all means of production
(C) Injustice done to the poor segment of society
(D) Extreme nationalism and patriotism✓

199. The world's most populous city is:
(A) Tokyo✓ (B) Mexico City
(C) Beijing (D) New York

200. The longest reigning monarch of the present world is:
(A) The King of Sweden
(B) The King of Japan✓
(C) The King of Bhutan
(D) The King of Thailand

201. "Order of the Rising Sun" is the highest military award of:
(A) UK (B) Japan✓
(C) USA (D) Norway

202. According to Global Dynamism Index (GDI), the world's most dynamic economy is of: -
(A) Germany (B) America
(C) China (D) Australia✓

203. Which country's economic growth rate is fastest at present?
(A) Chile (B) Argentina .
(C) China✓ (D) India

204. "A Tale of Two Cities" is a famous novel of:
(A) D.H. Lawrence (B) Charles Dickens✓
(C) Leo Tolstoy (D) None of these

205. "Taipei" is the capital of: -
(A) Taiwan✓ (B) North Korea
(C) South Korea (D) Cambodia

206. Eiffel Tower is located in:
(A) Rome (B) London
(C) Paris✓ (D) New York

207. The largest number of women received Nobel Prize in the category of:
(A) Physics (B) Peace
(C) Medicine (D) Literature✓

208. Non-Aligned Movement (NAM) was started in:
(A) 1961✓ (B) 1979
(C) 1980 (D) 1982

209. The headquarters of International Labour Organization (ILO) is located in:
(A) Rome (B) Geneva✓
(C) Paris (D) New York

210. The theory of 'Clash of Civilizations' was presented by:
(A) Samuel P. Huntington✓
(B) Francis Fukuyama
(C) Michael W. Doyle
(D) Fouad Ajmi

210. The world's largest natural gas deposits are in:
(A) Brazil (B) US
(C) Russia✓ (D) China

211. "Petra" is the news agency of:
(A) Qatar (B) Poland
(C) Syria (D) Jordan✓

212. Britain's secret intelligence service is called:
(A) MI6✓ (B) Mossad
(C) KGB (D) BIA

213. In chronological order, which of the following personalities comes first?
(A) Epicurus (B) Plato
(C) Aristotle (D) Socrates✓

214. Israel snatched 'Golan Heights' in 1967 from:
(A) Syria✓ (B) Egypt
(C) Lebanon (D) Jordan

215. "Alexandria" is the seaport of:
(A) Egypt✓ (B) Greece
(C) Iraq (D) Syria

216. The largest among the following is:
(A) A Solar System (B) Galaxy✓
(C) The Earth (D) The Sun

217. 'McMahon Line' is a boundary between:
(A) China and Nepal (B) Germany and Poland
(C) India and Nepal (D) China and India✓

218. The world's oldest National Anthem is of:
(A) Japan✓ (B) China
(C) Iran (D) Greece

219. Which of the following international organization has no headquarters?
(A) D-8 (B) GCC
(C) OAU (D) G-8✓

220. The world's oldest written language is:
(A) Latin (B) Chinese✓
(C) Japanese (D) Cambodian

221. The world's largest mammal is:
(A) Whale✓ (B) Tiger
(C) Camel (D) Giraffe

222. Freetown is the capital of:
(A) Uganda (B) Sierra Leone✓

(C) Senegal (D) Rwanda

223. Which one is not the official language of United Nations?
(A) Russian (B) Spanish
(C) Arabic (D) German✓

224. "Kwacha" is the currency unit of:
(A) Chad (B) Zambia✓
(C) Peru (D) Cuba

225. The world's first international airline operated its first flight on May 17, 1920 was:
(A) Delta (USA) (B) KLM (Netherlands)✓
(C) Aeroflot (Russia) (D) Lufthansa (Germany)

226. Among the SAARC countries, the smallest by area and population is:
(A) Sri Lanka (B) Bhutan
(C) Nepal (D) Maldives✓

227. After US, the most Atomic Reactors are in:
(A) France✓ (B) Russia
(C) Japan (D) UK

228. May 31 is observed throughout the world as:
(A) Non Smoking Day✓
(B) Environment Day
(C) Human Rights Day
(D) Press Freedom Day

229. The world's largest wool producing country is:
(A) South Africa (B) China
(C) Russia (D) Australia✓

230. Serena Williams is a famous player of:
(A) Badminton (B) Basketball
(C) Tennis✓ (D) Athletics

231. Senkaku Island is disputed between:
(A) Russia and Japan (B) China and Japan
(C) China and South Korea✓
(D) Japan and South Korea

232. The painter of Mona Lisa was:
(A) Henry Smith (B) Leonardo da Vinci✓
(C) F.A. Bartholdi (D) None of these

233. The length of the M6 D.G. Khan to Kakkar Motorway is:
(A) 491km (B) 67 km✓
(C) 437 km (D) None of these

234. *Shahnama-i-Islam* was written by:
(A) Hafeez Jallundhri✓ (B) Firdausi
(C) Sir Syed Ahmad Khan (D) None of these

235. Headquarter of World Health Organization is located in:
(A) Paris (B) Geneva✓
(C) Vienna (D) None of these

236. M-8 Motorway is from:
(A) Ratodero to Gwadar✓
(B) Ratodero to Karachi
(C) Ratodero to Sukkar (D) None of these

237. Which is the longest Motorway in Pakistan?
(A) M9 (B) M5
(C) M2 (D) M8✓

238. Pisa Tower is located in:
(A) Poland (B) Germany
(C) Italy✓ (D) France

239. Hezbollah, an Islamic party of Lebanon was established in:
(A) 1987 (B) 1978
(C) 1980 (D) 1982✓

240. The capital of Cyprus is:
(A) Valetta (B) Nicosia✓
(C) Zagreb (D) None of these

241. Headquarter of Food and Agriculture Organization (established in 1945) is located in:
(A) Vienna (B) Rome✓
(C) Geneva (D) None of these

242. Rohtas Fort was constructed by (on Sher Shah's order):
(A) Raja Bir Mal (B) Todar Mal✓
(C) Hari Krishan (D) Raja Ram Das

243. Strait of Bosphorous connects:
(A) Black Sea and Sea of Marmara✓
(B) Black Sea and Red Sea
(C) Black Sea and Baltic Sea
(D) None of these

244. Which of the following regions of the world is most thickly populated?
(A) North and South America
(B) East Asia
(C) South Asia✓ (D) North-West Europe

245. Damascus is situated on the bank of:
(A) Barada River✓ (B) Rhine River
(C) Nile River (D) None of these

246. Paris is situated on the bank of:
(A) Rhine River (B) Seine River✓
(C) Spree River (D) None of these

247. The foreign phrase *De fecto* means:
(A) Argument against
(B) Rightful
(C) In fact✓ (D) None of these

248. Mt. Arartat is the longest peak of:
(A) Chile (B) Britain
(C) North Korea (D) Turkey✓

249. Dome of Rock is located in:
(A) Iraq (B) Jerusalem✓
(C) Lebanon (D) Jordan

250. Abyssinia is the old name of which of the following countries?
(A) Ceylon (B) Malaya
(C) Ethiopia✓ (D) Rhodesia

(A) Elbe (B) Ottawa
(C) Angora✓ (D) Avon

252. Who is the founder of Taoism?
(A) Hung Fe (B) Lun Yu
(C) Tao-te-Cheng✓ (D) Lao-tse

253. Bhutan is known as:
(A) Land of thunderbolt✓
(B) Land of rivers
(C) Land of pagodas
(D) Land of the flying fish

Pakistan Studies:

Pakistan Basic Facts

Official Name	Islamic Republic of Pakistan
Father of the Nation	Quaid-i-Azam Muhammad Ali Jinnah
President	Dr. Arif Alvi (9.9.2018)
Prime Minister	Imran Khan (18.8.2018)
Capital	Islamabad
Area	796,096 sq. km. (307,374 sq. mi) Punjab 205,345 Sindh 140,914 Khyber Pakhtunkhwa 74,521 Balochistan 347,190 Federally Administered Tribal Areas 27,220 Islamabad(Capital) 906
Population	212.72 million (2019)
Ethnic Composition	96.4% Muslims, 3.6% Other Minorities (Hindus, Christians, Sikhs, Ahmadis, Buddhists, Kalash, Bahais, Zoroastrians, Atheists etc.)
Per Capita Income	US$ 1641 (2019)
Currency	Pak Rupee
Exports	Cotton, textile goods, rice, leather items, carpets, sports goods, fruits, handicrafts, sea food (Fisheries)
Imports	Industrial equipment, vehicles, iron ore, petroleum, edible oil
Languages	Urdu (National language), English (Official) & other Languages include: Sindhi, Punjabi, Balochi, Pushto, Hindku, Kashmiri, Potohari, Brahvi, Balti, Seraiki, Shina, etc.
Languages Percentage	Punjabi = 48% Sindhi = 12% Seraiki = 10% Urdu = 8% Pushto = 8% Balochi = 3% Hindku = 2% Brahvi = 1% English & Other Languages = 8% [A total of 77 languages are spoken in Pakistan 72 of them are ancient local languages. 35% of languages face multi-natural threats of extinction)]
Literacy Rate	62 (2019)
Government	Parliamentary form
Parliament	It consists of two Houses i.e., the Senate (Upper House) and the National Assembly (Lower House). The Senate is a permanent legislative body and symbolises a process of continuity in the national affairs. It consists of 104 members. The four Provincial Assemblies, Federally Administered Tribal Areas (FATA) and Federal Capital form its electoral college. The National Assembly comprises of a total number of 342 seats, out of which 272 are general, 60 reserved for women and 10 non-Muslim seats.
Federal Ombudsman	Also called "Wafaqi Mohtasib" with its Headquarters in Islamabad and Regional Offices in Lahore, Sukkur, Quetta, Faisalabad, Multan, Dera Ismail Khan, Peshawar and Karachi. Federal Ombudsman started functioning on 8th August, 1983.
Pakistan National Flag	Dark green with a white vertical bar, a white crescent and a five-pointed star in the middle. The flag symbolises Pakistan's profound commitment to Islam and Islamic world.
National Anthem	Approved in June 1954 Verses composed by Abul Asar Hafeez Jullundhri. Tune Composed by: Ahmed G. Chagla. Duration: 80 seconds

National Tree	Cedrus Deodara (Deodar)
National Dress	Shalwar Kameez
National Juice	Sugarcane Juice
National Sweetmeat	Gulab Jaman
National Bird	Chukor
National Mammal	Indus River Dolphin
National Slogan	Pakistan Zinda Bad
National Game	Hockey
National Poet	Allama Iqbal
National Animal	Markhor
State Emblem	The State Emblem consists of: The crescent and star which is symbol of Islam. The shield in the centre shows four major crops. Wreath surrounding the shield represents cultural heritage. Scroll contains Quaid's motto: Unity, Faith, Discipline.
National Flower	Jasmine
National Fruit	Mango (Summer), Guava (Winter)
Flora	Pine, Oak, Poplar, Maple, Mulberry
Fauna	The Pheasant, Leopard, Deer, Ibex, Chinkara, Black Buk, Neelgai, Markhor, Marcopolo Sheep, Green turtles, River and Sea Fish, Crocodile, Water Fowls
Popular Games	Cricket, Hockey, Football, Billiards, Snooker, Volleyball, Tennis, Badminton, Kabbadi, Wrestling
Tourist Resorts	Murree, Quetta, Hunza, Ziarat, Swat, Kaghan, Chitral, Gilgit, Skardu, Kalam, Naran, Khyber Pass, Lahore, Islamabad, Neelam Valley, Shandur Pass, Shangrila, Kalash.
Archaeological Sites	Moenjodaro, Harappa, Taxila, Kot Diji, Mehrgarh, Thatta, Amn, Rehman Dheri, Soan Valley, Rohtas Fort.
Major Cities	Islamabad, Karachi, Lahore, Peshawar, Quetta, Rawalpindi, Hyderabad, Multan, Sialkot, Faisalabad, Gujranwala, Sukkur, Gujrat, Bahawalpur, Gilgit.
Agriculture	Major crops are cotton, wheat, rice and sugarcane
Total Cropped Area	22.14 million hectares
Industry	Textiles, cement, fertiliser, steel, sugar, electric goods, shipbuilding
Chambers of Commerce & Industry	37
Energy	Major sources: Oil, Coal, Hydel, Thermal, Nuclear and Liquid Petroleum Gas WAPDA's total installed power generating capacity: 22,797 MW CNG Stations: 3331
Health	Hospitals: 1207, Dispensaries: 5,382 Doctors (registered): 1,67,759 Dentists (registered): 13,716 Nurses (registered): 86,183
Education	Primary schools: 1,63,000 Middle schools: 41,456 High schools: 24,822 Arts & science colleges: 1,500 Professional colleges: 161 Universities: 203 (2014)
Transport & Communication	Total length of roads: 2,63,775 km Pakistan Railways network: 7,791 km Railway stations: 781 Pakistan International Airlines: Covers 30 international and 23 domestic stations. Major Airports: 13 - Islamabad, Karachi, Lahore, Quetta, Peshawar, Rahim Yar Khan, Sialkot, Multan, Faisalabad, Gwadar, Bahawalpur, Turbat, DG Khan.
Seaports	International : 3 - Karachi, Gwadar and Bin Qasim Domestic: 2 - Minora

	and Pasni
Communications	Post offices: 13,000, telephone connections: 7.38 million, public call offices: 10,000, mobile phone connections: 15 crore 70 lac. Mobile Phone users: 7 crore.
Employment	Total labour force: 52.7 million, Agriculture Sector: 45.1%, Manufacturing & Mining Sector: 13%, Others: 41.9%
Media	*a. Print Media* Dailies: 424 Weeklies: 718 Fortnightlies: 107 Monthlies: 553 *b. News Agencies* APP (official) PPI & NNI (Pvt.) *c. Electronic Media* Pakistan Television: Six TV centres at Islamabad, Lahore, Peshawar, Quetta, Karachi & Multan covering 90% population. Registered TV sets: 3,759,800 Viewership: 115 million Radio Stations: Total 25, Home services in 20 languages. External services cover 70 countries in 15 languages F.M. Radio Stations: 188
Banks	**Central Bank:** State Bank of Pakistan **Other Banks:** National Bank of Pakistan, Habib Bank Ltd., Muslim Commercial Bank Ltd., Allied Bank of Pakistan Ltd., First Woman Bank, Mehran Bank, Bank of Punjab, United Bank Ltd., Sindh Bank Ltd. **Specialised Banks:** Agricultural Development Bank of Pakistan, Federal Bank for Co-operatives, Industrial Development Bank of Pakistan, The Punjab Provincial Co-operative Bank, Banker's Equity and National Development Finance Corporation **First Islamic Bank:** Meezan Bank Ltd. **Islamic Banks:** 6 entire, 12 general banks, 1300 branches in 87 cities. [In 2001, Islamic banking system started in Pakistan]. **Islamic Bank Braches:** 2322 **Total Banks:** 38 **Foreign Banks:** 7 **Commercial Banks Branches:** 8,886
Micro-Finance Banks	Khushhali Bank Ltd; The First Micro-Finance Bank Ltd; Tameer Micro-Finance Bank Ltd; Pak-Oman Micro-Finance Bank Ltd; Rozgar Micro-Finance Bank Ltd; Network Micro-Finance Bank Ltd; Finca Micro-Finance Bank Ltd
Famous Mountain Peaks	K-2 (Mt. Godwin Austin): 28,250 ft/8611 m (2nd in World) Nanga Parbat: 26,660 ft./8126 m (8th in World) Gasherbrum-1: 26,470 ft/8068 m (IIth in World)
Famous Mountain Passes	The Khyber Pass The Kurram Pass The Tochi Pass The Gomal Pass The Bolan Pass The Lowari Pass
Rivers	The Indus 3896 km Jhelum 825 km Chenab 1242 km Ravi 901 km Sutlej1551 km Beas (Tributary of Sutlej) 398 km
Famous Glaciers	Siachin 75 km Batura 55 km Baltoro 62 km
Deserts	Thar: (Sindh) Cholistan: (Punjab) Thal: (Punjab)
Lakes	Manchar Sindh Keenjar Sindh

	Hanna Balochistan Saif-ul-Maluk Khyber Pakhtunkhwa Satpara Gilgit-Baltistan Kachura Gilgit-Baltistan
Major Dams	Mangla Dam Punjab Tarbela Dam Khyber Pakhtunkhwa Warsak Dam Khyber Pakhtunkhwa
National Debt	649.1 billion rupees (Jan. 2019)

GEOGRAPHICAL LOCATION

Pakistan is an important Muslim Republic of South Asia. It is located between the latitudes of 23°30' and 36°45' north and between the longitudes of 61° and 75°31' east.

Q. ***What is the length of Pakistan's common boundaries with its neighbours?***

Ans. Pakistan shares 595 km long border with China in the north, 2252 km long border (Durand Line) with Afghanistan in the North West, 805 km long boundary with Iran in South West and 1610 km long border with India in the East. The southern border of Pakistan consists of 700 kilometres long coastline which runs along the Arabian Sea from the border of Iran in the West to the Rann of Kutch in the East.

PHYSICAL FEATURES

Pakistan is a large country. It stretches over 1600 kms north to south and about 800 kms broad east to west covering an area of 796,096 square kms. Pakistan is divided into the following six types of natural regions:

(i) The Northern Mountain Ranges
(ii) The Western Mountain Ranges
(iii) The Salt Range and Pothwar Plateau
(iv) The Baluchistan Plateau
(v) The Indus Plain
(vi) The Coastal Region

(i) The Northern Mountain Ranges

The northern mountain ranges consist of the Himalaya mountains, the Karakoram mountains and the Hindukush mountains. The Himalayas lie towards the north and have an average height of 7000 metres. Nanga Parbat is the highest peak of this range with a height of 8126 metres/26660 feet. The Karakoram mountains guard the western side of Pakistan. K-2 (8611 metres/28250 feet) is the highest peak of Karakoram mountains. Renowned Karakoram Highway which connects Pakistan with China passes through this range. The Hindukush mountains cover the North West side of Pakistan. Its major portion lies in Afghanistan.

(ii) The Western Mountain Ranges

Pakistan's western mountain ranges consist of Koh-i-Sufaid, Waziristan hills, Sulaiman mountains and Kirthar hills.

(iii) The Salt Range and Pothwar Plateau

The salt range lies on the west bank of river Jhelum and runs from Bakralla hills to the Sulaiman Range.

(iv) The Baluchistan Plateau

The Baluchistan Plateau lies west of the Sulaiman and Kirthar hills. It has an average height of 600 to 900 metres.

(v) The Indus Plain

The Indus plain consists of the belt which stretches from the salt range in the north to the Arabian Sea in the South. This plain is irrigated by the Indus River.

(vi) The Coastal Region

Pakistan shares a 700 km long coastline with the Arabian Sea.

Q. ***Which is the highest peak of Pakistan?***

Ans. K-2 is the highest peak with a height of 8611 metres/28250 feet.

Q. ***What is the Karakoram Highway?***

Ans. Karakoram Highway is the land route which connects Pakistan with China through the

Karakoram mountains.

Q. *What is the height of Nanga Parbat and Tirich Mir Peaks?*

Ans. Nanga Parbat (8126 metres/26660 feet); Tirich Mir (7700 metres/25260 feet).

Q. *Give the location of Soan Valley.*

Ans. The Soan Valley is located in the salt range which lies between the Jhelum and Indus River in the northern Punjab.

DIVISIONS AND DISTRICTS

Politically Pakistan consists of four provinces (Punjab, Sindh, NWFP, Baluchistan), Tribal Areas and Federally Administered Area of Islamabad. The country is divided into the following 28 divisions and 118 districts. In addition, the FATA comprises of 13 Tribal Areas which cover 27220 sq. kms.

Sr.#	Province	Divisions	Districts
1.	Punjab	9	36
2.	Sindh	6	24
3.	KP	8	25
4.	Baluchistan	6	32
5.	Islamabad	-	1
Total	PAKISTAN	29	118

Note: (i) On 3rd Nov. 2008, Sahiwal was made the 9th division of Punjab.
(ii) On 26th Jan, 2009, Chiniot was made the 36th district of Punjab Province. It was inaugurated on July 1, 2009.
(iii) On 28th Jan., 2011, a new district "Torghar" was established in KP.
(iv) On 12th Oct. 2013, Sindh Government divided Thatta District into 2 parts, with the new district of "Sujawal".
(vi) Sindh Government created a new Bhambhore Division comprising Thatta, Sujawal and Badin Districts on April 24, 2014.

(i) Divisions and Districts of Punjab

Sr. No.	Divisions	Names of Districts	Total Districts
1.	Lahore	Lahore, Kasur, Sheikhupura, Nankana	4
2.	Rawalpindi	Rawalpindi, Attock, Jhelum, Chakwal	4
3.	Faisalabad	Faisalabad, Jhang, Toba Tek Singh, Chiniot	4
4.	Sargodha	Sargodha, Mianwali, Khushab, Bhakkar	4
5.	Gujranwala	Gujranwala, Sialkot, Gujrat, Narowal, Hafizabad, Mandi Bahauddin	6
6.	Multan	Multan, Vehari, Khanewal, Lodhran	4
7.	Bahawalpur	Bahawalpur, Bahawalnagar, Rahimyar Khan	3
8.	D.G. Khan	Dera Ghazi Khan, Rajanpur, Liah, Muzaffargarh	4
9.	Sahiwal	Sahiwal, Pakpattan, Okara	3
TOTAL			36

(ii) Divisions and Districts of Sindh

Sr. No.	Divisions	Names of Districts	Total Districts
1.	Karachi	Karachi	1
2.	Sukkur	Sukkur, Khairpur, Ghotki, Naushero Feroze	4
3.	Hyderabad	Shaheed Benazirabad, Hyderabad, Dadu, Tando Allahyar, Tando Muhammad Khan, Matiari, Jamshoro,	7
4.	Larkana	Larkana, Jacobabad, Shikarpur, Kamber Shahdadkot, Kashmore	5
5.	Mirpurkhas	Mirpurkhas, Thar, Sanghar, Umerkot	4
6.	Bhambhore	Thatta, Sujawal, Badin	3
TOTAL			24

(iii) Divisions and Districts of KP

Sr. No.	Divisions	Names of Districts	Total Districts
1	Peshawar	Peshawar, Nowshehra	2

Sr. No.	Divisions	Names of Districts	Total Districts
2	Kohat	Kohat, Karak, Hangu	3
3	D.I. Khan	Dera Ismail Khan, Tank	2
4	Malakand	Malakand, Swat, Chitral, Buner, Shangla, Upper Dir, Lower Dir	7
5	Hazara	Abbottabad, Haripur, Mansehra, Batagram, Kohistan, Torghar	6
6	Mardan	Mardan, Charsadda, Swabi	3
7	Bannu	Bannu, Lakki Marwat	2
TOTAL			25

(iv) Divisions and Districts of Baluchistan

Sr.No.	Divisions	Names of Districts	Total Districts
1	Quetta	Quetta, Pishin, Chaghai, Qilla Abdullah, Noshki	5
2	Kalat	Kalat, Khuzdar, Lasbella, Kharan, Mastung, Awaran, Washuk	7
3	Sibi	Sibi, Dera Bugti, Kohlu, Ziarat, Harnai, Lehri	6
4	Zhob	Sherani, Musakhail, Zhob, Loralai, Barkhan, Qilla Saifullah	6
5	Naseerabad	Naseerabad, Kachi, Jafarabad, Jhal Magsi, Sohbatpur	5
6	Makran	Kech, Panjgur, Gwadar	3
TOTAL			32

FEDERALLY ADMINISTERED TRIBAL AREAS (FATA)

(Population according to 1998 Census)

Sr.#	Names of Tribal Areas	Area in Sq. kms	Population
1	Peshawar Tribal Area	261	53,841
2	Kohat Tribal Area	446	88,456
3	D.I. Khan Tribal Area	3229	38,990
4	Bannu Tribal Area	877	19,593
5	Bajaur Agency	1290	595,227
6	Kurram Agency	3380	448,310
7	Mohmand Agency	2296	334,453
8	Khyber Agency	2776	546,730
9	N. Waziristan Agency	4707	361,246
10	S. Waziristan Agency	6620	429,841
11	Orakzai Agency	1538	225,441
12	Lakki Marwat Tribal Area	-	6,987
13	Tank Tribal Area	-	27,216
TOTAL		27220	3,176,331

FEDERAL CAPITAL ISLAMABAD

Population according to 1998 Census (E)

Sr.No.	Name of District	Area in Sq.kms	Population
1	Islamabad	906	805,000
TOTAL		906	805,000

Q. ***What is the number of districts in Punjab, Sindh, KP and Baluchistan provinces?***

Ans. There are 36 districts in Punjab, 24 districts in Sindh, 25 districts in KP and 32 districts in Baluchistan Province.

AREA

Pakistan covers an area of 796096 sq.km.

Sr.No.	Names of Province	Area in Sq.km.	Percentage of Total Area
1	Punjab	205,345	25.8
2	Sindh	140,914	17.7
3	KP	74,521	9.4
4	Baluchistan	347,190	43.6
5	Islamabad	906	0.1
6	FATA	27,220	3.4
TOTAL		796,096	100.0

Q. ***Which is the largest province of Pakistan in respect of area?***

Ans. Baluchistan is the largest province of Pakistan with an area of 347190 sq. kms. Punjab ranks second with 205,345 sq. kms.

Q. ***Which is the smallest province of Pakistan in respect of area?***

Ans. KP is the smallest province with an area of 74521 square kilometres.

Q. ***Give the areas of FATA and Federal Area of Islamabad.***

Ans. FATA covers 27220 square kms. whereas the Federal area of Islamabad extends over 906 sq. kms.

Expected Questions FOR COMING EXAMS.

1. **Sahibzada Abdul Qayyum (1863-1937) had rendered great services for the educational uplift of the Muslims of:**
   (A) Punjab (B) Sindh
   (C) NWFP (now KP)✓ (D) Balochistan
2. **The Central Muhammadan Association was founded in 1877 by:**
   (A) Chaudhri Rehmat Ali
   (B) Sir Syed Ahmad Khan
   (C) Syed Ameer Ali✓
   (D) Mohsin-ul-Mulk
3. **Under which act, the Muslims' demand of 'Separate Electorate' was first conceded by the British Government?**
   (A) The Indian Councils Act, 1892
   (B) The Indian Councils Act, 1909✓
   (C) The Government of India Act, 1919
   (D) The Government of India Act, 1935
4. **The constitution of the All India Muslim League was drafted by a Committee in 1907 headed by:**
   (A) Nawab Viqar-ul-Mulk
   (B) Nawab Mohsin-ul-Mulk
   (C) Maulana Muhammad Ali Jauhar✓
   (D) Justice Shah Din
5. **Which of the following amendments were proposed by Quaid-i-Azam in the Nehru Report 1928, to make it acceptable to the Indian Muslims?**
   (A) The Muslims should be given one third representation in the Central Legislature
   (B) For ten years, the Muslims should be represented in Punjab and Bengal according to their population
   (C) Residuary powers should be given to the provinces
   (D) All of the above✓
6. **Maulana Muhammad Ali Jauhar had started publishing his famous English Newspaper "Comrade" from the year:**
   (A) 1911✓ (B) 1913
   (C) 1922 (D) 1925
7. **What was the significances of 21st Annual Session of All India Muslim League?**
   (A) Quaid-i-Azam presented Fourteen Points
   (B) Allama Iqbal delivered Allahabad Address✓
   (C) Lahore Resolution was passed
   (D) Quaid-i-Azam was elected as permanent President of All India Muslim League
8. **Which of the following leaders helped Quaid-i-Azam in the preparation of his Fourteen Points in 1929?**
   (A) Maulana Muhammad Ali Jauhar✓
   (B) Maulana Shaukat Ali
   (C) Liaquat Ali Khan

(D) Maulana Hasrat Mohani

9. **Under Gandhi-Irwin Pact of 5th March 1931, it was decided that:**
(A) The System of Dyarchy will be abolished
(B) The System of Separate Electorate will be retained for the Muslims
(C) Congress will represent low caste Hindus in the elected bodies
(D) The Congress will call off its Civil Disobedience Movement✓

10. **In the Provincial Elections of 1937, All India Muslim League won largest number of seats in the:**
(A) United Provinces (UP)✓
(B) Sindh Province
(C) Punjab Province
(D) Central Provinces (CP)

11. **The Indian Muslims observed 'Day of Deliverance' after the RESIGNATION of Congress Ministries on:**
(A) 12 September, 1939
(B) 22 September, 1939
(C) 12 December, 1939
(D) 22 December, 1939✓

12. **Chaudhri Rehmat Ali first used the word 'Pakistan' in his pamphlet 'Now or Never' in:**
(A) 1933✓ (B) 1935
(C) 1937 (D) 1938

13. **When did Quaid-i-Azam say that "Hindu India and Muslim India parted and parted forever"?**
(A) When Congress launched non-cooperation movement in 1920
(B) When Congress rejected his proposed modification in the Nehru Report 1928✓
(C) After failure of Third Round Table Conference in 1932
(D) Whe the Lahore Resolution was passed on 23rd March 1940

14. **By "Satyagraha", Gandhi appealed for:**
(A) Boycotting English/foreign goods
(B) Hunger strike till death
(C) Civil disobedience✓
(D) Social ostracism

15. **Lahore Resolution of 23rd March 1940, was seconded from Sindh Province by:**
(A) Begum Maulana Muhammad Ali Jauhar
(B) Chaudhri Khaliq-uz-Zaman
(C) Abdullah Haroon✓
(D) Nawab Muhammad Ismail

16. **Congress launched "Quit India Movement" against the British Government in:**
(A) 1940 (B) 1941
(C) 1942✓ (D) 1944

17. **Who presided over the Simla Conference in 1945?**
(A) Lord Minto
(B) Lord Wavell✓
(C) Lord Irwin
(D) Lord Mountbatten

18. **In the Interim Government of 1946, the Minister of Health was:**
(A) Sardar Abdur Rab Nishtar
(B) Jag Jivan Ram
(C) Asif Ali
(D) Ghazanfar Ali Khan✓

19. **After Sir Agha Khan, the next President of All India Muslim League was:**
(A) Viqar-ul-Mulk
(B) Maulana Zafar Ali Khan
(C) Raja Sahib of Mahmoodabad✓
(D) Mian Muhammad Shafi

20. **The Hindus had launched 'Swadeshi Movement" (to boycott English made goods) in the wake of:**
(A) The Urdu-Hindi Controversy 1867
(B) Partition of Bengal 1905✓
(C) Jallianwala Bagh Tragedy 1919
(D) All of the above

21. **The Pirpur Report on the brutalities of the Congress Ministries 1937-39, was compiled by:**
(A) A.K. Fazl-ul-Haq
(B) Raja Muhammad Mehdi✓
(C) Nawab Salim Ullah Khan
(D) M. Sharif

22. **The British parliament passed Indian Independence Act on:**
(A) 3 June 1947✓ (B) 14 June 1947
(C) 14 July 1947 (D) 24 July 1947

23. **Which of the following leaders had translated the Lahore Resolution from English to Urdu on 23rd March 1940:**
(A) Maulana Zafar Ali Khan✓
(B) Chaudhri Khaleeq-uz-Zaman
(C) Dr. Muhammad Alam
(D) Sir Sikandar Hayat

24. **The first Urdu newspaper (Daily) published after the creation of Pakistan was:**
(A) Mashriq **(B) Imroze✓**
(C) Watan (D) None of these

25. **The first foreign head of the state visited Pakistan after independence was the President of:**
(A) India **(B) Indonesia✓**
(C) Iran (D) China

26. **Sahibzada Abdul Qayyum (1863-1937) had rendered great services for the educational uplift of the Muslims of: -**
(A) Balochistan (B) Punjab
(C) Sindh **(D) N.W.F.P. ✓**

27. **Kanpur Mosque Tragedy had taken place in:**
(A) 1915 (B) 1909
(C) 1910 **(D) 1913✓**

28. **On July 9, 1950, Pakistan became a member of:**
(A) Paris Club
(B) IMF
(C) World Bank
(D) None of the above✓

29. Decimal System was introduced in Pakistan on First January:
(A) 1963 (B) 1951
(C) 1959 **(D) 1961✓**

30. On July 9, 1948, Pakistan issued its first: -
(A) Postal Stamp✓ (B) Coin
(C) Currency Note
(D) All of the above

31. The first Princely State to accede to Pakistan after partition was: -
(A) Kalat (B) Swat
(C) Hunza **(D) Bahawalpur✓**

32. The designation of Governor-General was changed to President in:
(A) 1959 **(B) 1956✓**
(C) 1957 (D) 1958

33. Name the Chief Minister of Sindh from August 1947 to April 1948.
(A) Noor Talpur (B) Nisar Khoro
(C) Ayub Khoro✓ (D) Rahim Talpur

34. Who was the first Chief Minister of Khyber Pakhtunkhwa?
(A) Dr. Ali Khan
(B) Khan Abdul Qayyaum Khan
(C) Dr. Khan Sahib✓
(D) Abdur Rehman Hoti

35. M.A.O College of Aligarh got the status of University in:
(A) 1920✓ (B) 1917
(C) 1918 (D) 1919

36. Name the person who took part in all three Round Table Conferences of 1930-32 and was the first Foreign Minister of Pakistan.
(A) Sir Muhammad Zafarullah✓
(B) Chaudhary Muhammad Ali
(C) Sikandar Mirza
(D) Ghulam Muhammad

37. Name the first Governor of Sindh from August 1947 to October 1948:
(A) Hamida Khoro
(B) Ghulam Hussain Hidayatullah✓
(C) Nabi Baksh Talpur
(D) None of them

38. Name the first Governor of NWFP from August 1947 to April 1948.
(A) Sir George Canningham✓
(B) Sir Francis Moody
(C) Allan Perry Keane
(D) Sir Francis Messervy

39. The origin of the idea of Pakistan is associated with the name of:
(A) Liaquat Ali Khan
(B) Sir Syed Ahmad Khan
(C) Allama Iqbal✓
(D) Quaid-e-Azam

40. Khilafat Movement was launched in the Subcontinent in:
(A) 1920 (B) 1917
(C) 1918 **(D) 1919✓**

41. The first President of the All India Muslim League was:
(A) Nawab Mohsin-ul-Mulk
(B) Nawab Saleemullah
(C) Sir Agha Khan✓
(D) Nawab Viqar ul Mulk

42. Name the educational institution founded by Sahibzada Abdul Qayyum in Khyber Pakhtunkhwa (former NWFP).
(A) Frontier University
(B) Peshawar College
(C) Islamia High School Peshawar
(D) Islamia College Peshawar✓

43. Who was the Prime Minister of Great Britain when the Partition Plan was announced in 1947?
(A) Attlee✓ (B) Churchill
(C) Stanley Baldwin (D) Anthony Eden

44. By the end of August 1947, all the Hindu majority states had acceded to India except:
(A) Hyderabad (B) Junagarh
(C) Both of them✓ (D) None of them

45. Who was the first Governor of Punjab?
(A) Sardar Abdur Rab Nishtar
(B) Francis Moody✓
(C) Mian Amin-ud-Din
(D) I.I. Chundrigar

46. Who was Punjab's first Inspector General, Police?
(A) Mian Anwar Ali
(B) A.B. Awan
(C) S.N. Alam
(D) Qurban Ali Khan✓

47. The Congress and the Muslim League boycotted the Simon Commission. Who led the breakaway section of the Muslim League, which supported the Simon Commission?
(A) Mian Barkat Ali
(B) Mian Ejaz Shafi
(C) Mian Muhammad Shafi✓
(D) Mian Ahmad Ali

48. In 1932, the British Prime Minister announced the Communal Award granting separate electorate to the depressed classes. Name the British Prime Minister.
(A) C. Attlee
(B) Harold McMillan
(C) Winston Churchill
(D) Ramsay Macdonald✓

49. When Chaudhry Rehmat Ali issued the pamphlet "Now or Never" in 1933, where was he studying?
(A) Harvard **(B) Cambridge✓**
(C) Oxford (D) Aligarh

50. In 1911, on the occasion of his coronation at the Delhi Darbar, King George V announced the:
(A) Annulment of partition of Bengal✓
(B) Partition of Bengal
(C) Separate electorate

(D) None of these

51. The Jallianwala massacre took place in:
(A) April 1920 **(B) April 1919✓**
(C) December 1919 (D) April 1921

52. An Interim Government was formed in India in 1946, who was the Prime Minister of the Interim Government?
(A) Liaqat Ali Khan
(B) Jawaharlal Nehru
(C) Lord Wavell
(D) None of them✓

53. When was the Kashmir issue taken to the United Nations by India?
(A) 1 Jan 1948✓ (C) 11 Nov 1947
(D) 16 Dec 1947 (B) None of these

54. The three Round Table Conferences were held in London during _____
(A) 1935 - 1937 (B) 1929 - 1931
(C) 1928 – 1930 **(D) 1930 – 1932✓**

55. Allama Iqbal gave his idea of a country for Indian Muslims in December 1930 at _____.
(A) Delhi (B) Lucknow
(C) Abbottabad **(D) Allahabad✓**

56. Who was the first Prime Minister of Pakistan?
(A) Hussain Shaheed Suharwardy
(B) I.I. Chundrigar
(C) Liaqat Ali Khan✓
(D) Ghulam Muhammad

57. Who was the first President of the Islamic Republic of Pakistan?
(A) Iskandar Mirza✓
(B) Sardar Abdur Rab Nishtar
(C) Ch. Muhammad Zafarullah
(D) Ayub Khan

58. Maulana Muhammad Ali Johar was _____.
(A) Islamic Scholar **(B) Politician✓**
(C) Preacherr (D) Poet

59. All Indian Muslim League was founded in _____.
(A) 1906 in Dhaka✓
(B) 1908 in Calcutta
(C) 1903 in Chittagong
(D) 1900 in Lahore

60. The first Constitution of Pakistan was promulgated on _____.
(A) 20 January 1954
(B) 21 March 1956
(C) 23 March 1956✓
(D) 7 October 1958

61. Quaid-e-Azam Muhammad Ali Jinnah was born in _____.
(A) 1881 (B) 1878
(C) 1870 **(D) 1876✓**

62. Lucknow Pact was signed between Congress and Muslim League in _____.
(A) 1916✓ (B) 1920
(C) 1918 (D) 1922

63. Quaid-e-Azam Muhammad Ali Jinnah remained the Governor General of Pakisan for almost:
(A) 13 months✓ (B) 11 months
(C) 12 months (D) 10 months

64. Which area of Punjab with Muslim majority was awarded to India by the Boundary Commission in 1947?
(A) Hoshiarpur (B) Jalandhar
(C) Amritsar **(D) Ferozepur✓**

65. Quaid-e-Azam Muhammad Ali Jinnah started his law practice in:
(A) Kolkata **(B) Bombay✓**
(C) Delhi (D) Karachi

66. Quaid-e-Azam Muhammad Ali Jinnah was sworn in as the Governor General of Pakistan on:
(A) 17th August 1947
(B) 15th August 1947✓
(C) 16th August 1947
(D) 14th August 1947

67. The All India Muslim League was founded in 1906 in:
(A) Allahabad **(B) Dhaka✓**
(C) Lahore (D) Delhi

68. Who succeeded Quaid-e-Azam Muhammad Ali Jinnah as the Governor General of Pakistan?
(A) Muhammad Ali Bogra
(B) Liaquat Ali Khan
(C) Sikandar Mirza
(D) Khawaja Nazimuddin✓

69. Which of the following leaders took part in Presidential Election?
(A) Mohtarma Fatima Jinnah✓
(B) Begum Qazi Esa
(C) Begum Liaqat Ali Khan
(D) Shaista Ikramullah

70. In 1906, the Muslim League was founded at:
(A) Allahabad (B) Karachi
(C) Dacca✓ (D) Lahore

71. Who was the first Chief Justice of Pakistan?
(A) M.R. Kiyani
(B) Maulvi Tamiz-ud-Din
(C) Mian Abdul Rashid✓
(D) A.R. Cornelius

72. Mohtarma Fatima Jinnah was a _____ by profession.
(A) Dentist✓ (B) Lawyer
(C) Economist (D) Doctor

73. Who is called "Sher-e-Bengal" amongst the following leaders?
(A) Nawab Waqar-ul-Mulk
(B) A.K. Fazal-ul-Haq✓
(C) Ch. Khaleez-uz-Zaman
(D) Sh. Mujeeb-ur-Rehman

74. In 1930, the first Round Table Conference was held in:

(A) Dehli (B) Simla
(C) London✓ (D) Lahore

75. Quaid-e-Azam presented his Fourteen Points in response to:
(A) Nehru Report✓
(B) Lucknow Pact
(C) Quit India Movement
(D) 3rd June Plan

76. Quaid-e-Azam joined Muslim League in:
(A) 1916 (B) 1914
(C) 1911 (D) 1913✓

77. Who was the first Governor of State Bank of Pakistan?
(A) Rashid Naqvi
(B) Saeed Hamid
(C) Zahid Hussain✓
(D) Ishrat Kamal

78. Who composed the verses of the National Anthem?
(A) Ab'ul Asar Hafeez Jullundhri✓
(B) Josh Malih Abadi
(C) Ahmad Nadim Qasmi
(D) Faiz Ahmad Faiz

79. Who presented the National Flag for formal approval to the Constituent Assembly on 11th of August, 1947?
(A) Liquat Ali Khan✓
(B) Muhammad Ali Bogra
(C) Fazl-e-Haque
(D) Quaid-e-Azam

80. Who was the Viceroy of India from 1889 to 1905?
(A) Lord Attlee
(B) Mountbatten
(C) Lord Irwin
(D) Lord Curzon✓

81. To reconcile Hindus and Muslims, a new religion Din-i-Ilahi was introduced by:
(A) Akbar✓ (B) Humayun
(C) Jahangir (D) Babur

82. Who was the leader of "Quit India Movement"?
(A) Sir Syed Ahmed Khan
(B) Maulana Muhammad Ali Jauhar
(C) Mahatma Gandhi✓
(D) Muhammad Ali Jinnah

83. Objectives Resolution was presented by:
(A) Sardar Abdur Rab Nishtar
(B) Quaid-i-Azam Muhammad Ali Jinnah
(C) Liaqat Ali Khan✓
(D) Ch. Rehmat Ali

84. What was the cause of Quaid-i-Azam Muhammad Ali Jinnah's death?
(A) Diabetes (B) Cancer
(C) Tuberculosis✓ (D) Heart attack

85. Pakistan's first constitution was adopted in:
(A) 1973 (B) 1956✓
(C) 1962 (D) 1952

86. The Lahore Resolution was passed in:
(A) 1945 (B) 1938
(C) 1940✓ (D) 1935

87. Which name is associated with Khilafat Movement?
(A) Ch. Rahmet Ali
(B) Allama Muhammad Iqbal
(C) Maulana Muhammad Ali Jauhar✓
(D) Quaid-i-Azam Muhammad Ali Jinnah

88. Quaid-i-Azam Mohammad Ali Jinnah started his Law practice in:
(A) Bombay✓ (B) Karachi
(C) Calcutta (D) Delhi

89. The head of the Boundary Commission for demarcation of borders between India and Pakistan was:
(A) Lord Wavell
(B) Lord Mountbatten
(C) Sir Cyril Radcliffe✓
(D) Sir Stafford Cripps

90. 'K' in Pakistan stands for:
(A) Karakuram (B) Khyber
(C) Kashmir✓ (D) Karachi

91. Pakistan became a member of the United Nations in:
(A) Jan. 1948 (B) Sept. 1947✓
(C) Dec. 1947 (D) Aug. 1947

92. All India Muslim League came into being in:
(A) 3 Nov.1930
(B) 29 Dec. 1906
(C) Aug. 1947
(D) 30 Dec. 1906✓

93. Lahore Resolution was passed on:
(A) 23 March 1940✓ (B) 14 Aug. 1947
(C) 14 Aug. 1947 (D) 20 March 1940

94. Objectives Resolution was passed on:
(A) Sept. 1947 (B) 14 Aug. 1947
(C) 12 March 1949✓ (D) 23 March 1940

95. Nehru Report was presented by:
(A) Patel
(B) Motilal Nehru✓
(C) Jawaharlal Nehru
(D) Gandhi

96. Separate Electorate was granted to the Muslims by the British under the:
(A) Act of 1861 (B) Act of 1919
(C) Act of 1935 (D) Act of 1909✓

97. The first session of All India Muslim League was held at:
(A) Lahore (B) Aligarh
(C) Karachi✓ (D) Dacca

98. The Quaid-i-Azam became _____ of Pakistan.
(A) President
(B) Chief Minister
(C) Governor-General✓
(D) None of those

99. _____ was the founder of Two Nations Theory.
(A) Ch. Rehmat Ali
(B) Allama Iqbal
(C) The Quaid-i-Azam

(D) Sir Syed Ahmed Khan✓

100. Who was known as 'Ambassador of Hindu-Muslim Unity'?
(A) The Quaid-I-Azam✓
(B) Motilal Nehru
(C) Lord Mountbatten
(D) Gandhi

101. Who was Cyril Radcliffe?
(A) Judge (B) Professor
(C) Lawyer✓ (D) Doctor

102. State Bank of Pakistan came into operation on:
(D) Aug. 1947 (B) July 1948✓
(C) Dec. 1948 (A) Jan. 1949

103. Who was appointed as Pakistan's first woman ambassador?
(A) Ra'ana Liaquat Ali Khan✓
(B) Begum Jahan Ara Shahnawaz
(C) Mohtarma Fatima Jinnah
(D) Begum Shaista Ikramullah

104. Who was the Prime Minister when Pakistan's first Constitution was framed?
(A) Feroz Khan Noon
(B) Ch. Muhammad Ali✓
(C) Khawaja Nazimuddin
(D) M. Ali Bogra

105. Sir Syed founded the Muhammadan Educational Conference in:
(A) 1889 (B) 1881
(C) 1886✓ (D) 1880

106. Partition of Bengal took place in 1905 under the supervision of:
(A) Lord Canning
(B) Lord Mountbatten
(C) Lord Curzon✓
(D) Lord Mayo

107. Before Mountbatten, who was the Viceroy?
(A) Wavell✓ (B) Canning
(C) Mayo (D) Curzon

108. The Montagu-Chelmsford Reforms were in:
(A) 1924 (B) 1919✓
(C) 1913 (D) 1911

109. The Cripps Mission came to India in:
(A) 1946 (B) 1942✓
(C) 1944 (D) 1940

110. What was the role of the Quaid-I-Azam for enacting the Rowlett Act?
(A) None of the above
(B) Opposed it✓
(C) Proposed it
(D) Supported it

111. Who was the ruler of Kashmir in 1947?
(A) Ghulam Muhammad
(B) Hari Singh✓
(C) Sheikh-Abdullah
(D) Gulab Singh

112. Which of the following Acts gave representation to Indians for the first time in the legislature?
(A) Indian Councils Act 1909
(B) Indian Councils Act 1919
(C) Government of India Act 1935✓
(D) None of the above

113. Quaid-I-Azam wanted three law lords from the United Kingdom as important members to be appointed to the:
(A) Communal Award
(B) Boundary Commission✓
(C) August Offer
(D) None of the above

114. Who was the President of first Constituent Assembly of Pakistan?
(A) Quaid-I-Azam✓
(B) Liqauat Ali Khan
(C) Maulvi Tamiz-ud-din
(D) None of these

115. When Radcliffe Award was announced?
(A) 17t August 1947✓
(B) 18th July 1947
(C) 15th August 1947
(D) 17th June 1947

116. What document was drafted first to give pace to constitution making process?
(A) 1973 Constitution
(B) 1962 Constitution
(C) Objectives Resolution✓
(D) 1956 Constitution

117. When did the Constituent Assembly passed the Objectives Resolution?
(A) 12th March 1949✓
(B) 22th March 1948
(C) 22th May 1949
(D) 22th March 1947

118. When did Mohammad Ali Bogra presented Bogra Formula in the assembly?
(A) October 1953✓ (B) April 1953
(C) September 1953 (D) January 1953

119. Who was Mohammad Ali Bogra?
(A) Governor
(B) Prime Minister✓
(C) President
(D) Speaker

120. What is the other name of Mohammad Ali Bogra Formula?
(A) Constitutional Formula✓
(B) Pakistan Report
(C) Third Report
(D) New Law of Pakistan

121. On which date, first constitution of Pakistan was enforced?
(A) 23rd March 1956✓
(B) 23rd March 1953
(C) 23rd March 1955
(D) 13th March 1952

122. On which date, Pakistan become member of the United Nations?
(A) 20th Sep 1950
(B) 13th Sep 1949
(C) 18th Sep 1948
(D) 30th Sep 1947✓

123. Bengal was divided into two provinces in 1905 by _____.
(A) Sir James Oliver
(B) Viceroy Curzon✓
(C) Lord Linlithgow
(D) Lord Ripon

124. Chairman of the first session of the all India Muslim League was:
(A) Nawab Viqar-ul-Mulk
(B) Sir Agha Khan
(C) Nawab Saleemullah
(D) Sir Adamjee Pirbhai✓

125. After the assassination of Liaqat Ali Khan, who became the Prime Minister of Pakistan?
(A) Khawaja Nazimuddin✓
(B) Ms. Fatima Jinnah
(C) Abdul Rab Nishter
(D) Ghulam Muhammad

126. The All India Muslim League was founded in:
(A) 1910 (B) 1995
(C) 1906✓ (D) 1900

127. The Boundary Commission appointed at the time of independence was headed by:
(A) Lord Radcliffe✓
(B) Lord Wawell
(C) Lord Mountbatten
(D) Stafford Cripss

128. Who became the Governor General of Pakistan after the death of Quaid-e-Azam Muhammad Ali Jinnah?
(A) Mohammad Ali Bogra
(B) Khawaja Nazimuddin✓
(C) Ghulam Mohammad
(D) Liaquat Ali Khan

129. Mohammadan Anglo-Oriental College was founded by:
(A) Ch Rehmat Ali
(B) Muhammad Ali Jauhar
(C) Allama Iqbal
(D) Sir Syed Ahmed Khan✓

130. The first President of Muslim League was:
(A) Maulana Fazal-ul-Haq
(B) Sir Syed Ahmed Khan
(C) Allama Iqbal
(D) Nawab Viqar-ul-Mulk✓

131. Govt. of Pakistan constituted a Committee under the chairmanship of Sardar Abdur Rab Nishtar for selecting National Anthem in December _____.
(A) 1948✓ (B) 1950
(C) 1949 (D) 1947

132. The search for suitable words of National Anthem with the music set by A.G. Chagla finally ended with the approval on 13th August _____.
(A) 1956 (B) 1954✓
(C) 1955 (D) 1953

133. Simla Deputation (October 1906) comprised of _____ Muslim leaders.
(A) 50 (B) 35✓
(C) 40 (D) 18

134. Maulana Muhammad Ali Jauhar was buried in?
(A) Makkah (B) Lucknow
(C) Jerusalem✓ (D) Delhi

135. The Pakistan Resolution was translated in Urdu by:
(A) Maulvi A.K. Fazal-ul-Haq
(B) Nawabzada Liaqat Ali Khan
(C) Sir Zafrullah Khan
(D) Maulana Zafar Ali Khan✓

136. Which Muslim woman participated in all the three Round Table Conferences?
(A) Banu Begum
(B) Amjadi Begum
(C) Fatima Jinnah
(D) Begum Shah Nawaz✓

137. Which woman was part of the delegation first sent to UNO after the creation of Pakistan?
(A) Fatima Jinnah
(B) Fatima Sughra
(C) Begum Salma Tasadduq
(D) Begum Raana Liaqat Ali Khan✓

138. Who was the ruler of Kashmir at the time of partition?
(A) Ranjeet Singh (B) Gulab Singh
(C) Hari Singh✓ (D) Gureet Singh

139. The 'Day of Deliverance' by All India Muslim League was observed on:
(A) 14th September, 1939
(B) 10th November, 1939
(C) 20th October, 1939
(D) 22nd December, 1939✓

140. In 1946, the mission sent by British Govt. was called:
(A) Boundary Commission
(B) Cripps Mission
(C) Cabinet Mission✓
(D) Simon Commission

141. The most important and famous Urdu newspaper published from Lahore by Maulana Zafar Ali Khan was:
(A) Zamindar✓ (B) Nawa-i-Waqt
(C) Koh-i-Noor (D) Hamdard

142. English newspaper "Comrade" in India was published from:
(A) Calcutta (B) Delhi✓
(C) Madras (D) Lucknow

143. On behalf of the Muslim League, Quaid-e-Azam signed the Lucknow Pact. Who signed it on behalf of the Congress?
(A) A.K. Azad
(B) Mahatama Gandhi
(C) A.C. Mujamdar✓
(D) Motilal Nehru

144. Who resigned from the Imperial Legislative Council in sheer protest against the Rowlatt Act?

(A) Mian Shafi (B) Nehru
(C) Quaid-e-Azam✓ (D) Gandhi

145. **Who was appointed the 1st Secretary of All India Khilafat Committee?**
(A) Nawab Liaqat Ali Khan
(B) Maulana Shaukat Ali✓
(C) Seth Jan Muhammad Chottani
(D) Maulana Muhammad Ali Johar

146. **The deputation of Muslim leaders to the Viceroy, Lord Minto II, seeking separate electorate was headed by:**
(A) Maulana Shaukat Ali
(B) Agha Khan✓
(C) M.A. Jinnah
(D) Sir Syed Ahmad Khan

147. **Why Muslims observed 'Day of Deliverance'?**
(A) End of non-cooperation movement
(B) End of Congress Ministries✓
(C) Return of Simon Commission
(D) None of the above

148. **Name the eminent leader of Pakistan Movement who in 1949 took over as the first Governor of Punjab Muslim League.**
(A) Iftikhar Hussain
(B) Nazim-ud-Din
(C) I.I. Chundrigar
(D) Abdur Rab Nishtar✓

149. **Who was the first leader of opposition in the first National Assembly constituted under the 1962 Constitution of Pakistan?**
(A) Fatima Jinnah✓
(B) Abdul Wali Khan
(C) Mumtaz Daultana
(D) Sardar Bahadur Khan

150. **The origin of the idea of Pakistan is associated with the name of:**
(A) M.A. Jauhar
(B) Allama Iqbal✓
(C) Quaid-e-Azam
(D) Sir Syed Ahmad Khan

151. **According to Cabinet Mission Plan, in which group Punjab and Sindh were included?**
(A) Fourth (B) Third
(C) Second✓ (D) First

152. **Simla Conference was started on:**
(A) 22nd September, 1946
(B) 24th June, 1946
(C) 22nd September, 1945
(D) 24th June, 1945✓

153. **The issue which made Sir Syed Ahmad Khan to conclude that Hindus and Muslims could not work together any more was:**
(A) Issue of Muslim University
(B) Hindi Urdu Controversy✓
(C) Albert Bill
(D) Congress behavior

154. **When was M.A.O. College established in Aligarh?**
(A) 1877✓ (B) 1862
(C) 1875 (D) 1859

155. **Who prepared Pirpur Report?**
(A) Quaid-e-Azam
(B) Zakir Hussain
(C) Abul Kalam Azad
(D) Raja Syed Mehdi✓

156. **During the period of One Unit, first Governor of West Pakistan was:**
(A) Mushtaq Ahmed Gurmani✓
(B) Abdul Jabbar Khan
(C) Ameer Muhammad Khan
(D) Akhtar Hussain

157. **Who presented the 'Chenab Formula' to resolve the Kashmir dispute?**
(A) Ghulam Abbas
(B) Sardar Ibrahim Khan
(C) Ali Shah Gillani
(D) Sardar Abdul Qayyum Khan✓

158. **Pakistan's Standard Time was suggested by:**
(A) Dr. Munir Ahmed Khan
(B) Professor Muhammad Anwar✓
(C) Chaudary Rehmat Ali
(D) Maulana Mazhar-ud-Din

159. **Muhammadan Educational Conference was established by Sir Syed Ahmed Khan in:**
(A) 1898 **(B) 1886✓**
(C) 1867 (D) 1863

160. **The Cabinet Mission announced its plan on:**
(A) 16th July 1946 (B) 16th May 1945
(C) 3rd June 1947 **(D) 16th May 1946✓**

161. **The National Flag of Pakistan was designed by:**
(A) Abdul Hameed
(B) Ameer-ud-Din Kidwai✓
(C) A.K. Chagla
(D) Hafeez Jalandhari

162. **When did the Pakistan Government approve the National Anthem?**
(A) 1954✓ (B) 1948
(C) 1852 (D) 1947

163. **The 3rd June Plan announced partition of the Subcontinent into:**
(A) 5 states (B) 3 states
(C) 4 states **(D) 2 states✓**

164. **The oath of Governor General was administered to Quaid-e-Azam by:**
(A) Justice Shah Din
(B) Justice Patel
(C) Justice Munir
(D) Justice Abdur Rasheed✓

165. **What was the number of Muslim League Ministers in the Interim Government of 1946?**
(A) 5✓ (B) 3
(C) 4 (D) 2

166. **Who was the Chairman of the Boundary Commission for the Subcontinent in 1947?**
(A) George Radcliffe
(B) William Radcliffe

(C) David Radcliffe
(D) Cyril Radcliffe✓

167. Maulana Muhammad Ali Johar issued Comrade English newspaper from Calcutta on:
(A) 27th January 1912
(B) 14th January 1911✓
(C) 27th January 1911
(D) 27th January 1912

168. Before Referendum, Sylhet was the part of:
(A) Assam✓ (B) Bihar
(C) Chitagong (D) U.P

169. Muslim Students Federation (MSF) was established in 1937 by:
(A) Abdur Rab Nishtar
(B) Raja Sahib of Mehmud Abad✓
(C) Raja Gazanfar Ali
(D) Sir Agha Khan

170. Where Quaid-e-Azam stayed during his last illness in 1948?
(A) Hanna Lake (B) Kohlu
(C) Ziarat✓ (D) Makran

171. After Independence, the first industrial unit inaugurated by Quaid-i-Azam was:
(A) Pakistan Jute Mills
(B) Valika Textile Mills✓
(C) Karachi Shipyard and Engineering Works
(D) Adamjee Paper Mills

172. During the Pakistan Movement, Qazi Muhammad Isa rendered great services for the Muslims of:
(A) Balochistan✓ (B) Bengal
(C) KP (D) Sindh

173. Who was the first Defence Minister of Pakistan?
(A) Feroz Khan Noon
(B) Ayub Khoro
(C) Nawab Liaqat Ali Khan✓
(D) General Gracy

174. Which is called the parliament of world?
(A) WTO
(B) General Assembly✓
(C) Security Council
(D) UNO

175. UNO Day is observed on:
(A) 5th October (B) 24th October✓
(C) 21st October (D) 15th October

176. The rupee coin was first minted in India during the rule of:
(A) Razia Begum
(B) Sher Shah Suri✓
(C) East India Company
(D) Shahjahan

177. Liaqat Ali Khan joined all India Muslim League as a member in:
(A) 1923✓ (B) 1919
(C) 1921 (D) 1916

178. In the Provincial Elections of 1937, All India Muslim League won largest number of seats in the:
(A) Central Provinces (C P)
(B) Sindh province
(C) Punjab province
(D) United Provinces (UP)✓

179. Identify the Secretary of State for India who led the cabinet mission in 1946.
(A) Sir Anthony McDonald
(B) A. V. Alexander
(C) Lord Pethick Lawrence✓
(D) Sir Stafford Cripps

180. Mohtarma Fatima Jinnah joined All India Muslim League in:
(A) 1940 (B) 1938
(C) 1939✓ (D) 1937

181. Congress launched "Quit India Movement" against the British Government in:
(A) 1944 (B) 1941
(C) 1942✓ (D) 1940

182. In the Interim Government of 1946, the Health Minister was:
(A) Ghazanfar Ali Khan✓
(B) Jag Jivan Ram
(C) Asif Ali
(D) Abdur Rab Nishtar

183. After Sir Agha Khan, the next President of All India Muslim League was:
(A) Nawab Ismail Khan
(B) Maulana Zafar Ali Khan
(C) Raja Mahmoodabad✓
(D) Viqar-ul-Mulk

184. The Hindus had launched "Swadeshi Movement" (to boycott English made goods) in the wake of:
(A) The Urdu Hindi Controversy 1867
(B) Partition of Bengal 1905✓
(C) Jallianwala Bagh Tragedy 1919
(D) All of these

185. The British parliament passed Indian Independence Act on:
(A) 24 July 1947 (B) 14 June 1947
(C) 14 July 1947✓ (D) 3 July 1947

186. The first Muslim Inspector General of Prisons Punjab after independence in 1947 was:
(A) Lt. Col. B.H. Syed
(B) Lt. Col. H.H. Mehmood✓
(C) Lt. Col. G.K. Khan
(D) None of these

187. After independence, on August 14, 1947, how many jails have been constructed in Punjab so far?
(A) 19 (B) 15
(C) 17 (D) 13✓

188. Who was first Inspector General Prison Punjab after independence on 14th August 1947?
(A) Sheikh Ikram Ali
(B) Lt. Col. H.H. Mahmood
(C) Lt. Col. B.H. Syed
(D) Lt. Col. G.K. Khan✓

189. **When first census was conducted in Pakistan?**
(A) 1954 (B) 1952
(C) 1953 **(D) 1951✓**

190. **The Muslim demand for Separate Electorate presented by the Simla Deputation 1906 was incorporated in the:**
(A) Quaid's Fourteen Points
(B) Montague-Chelmsford Reforms
(C) Simon Commission Report
(D) Minto Morley Reforms✓

191. **Mopla Revolt took place in the year:**
(A) 1925 **(B) 1921✓**
(C) 1923 (D) 1919

192. **The Round Table Conferences (1930-32) were convened by the British Prime Minister:**
(A) Neville Chamberlain
(B) James Ramsay McDonald✓
(C) Sir Winston Churchill
(D) Clement R. Attlee

193. **During the Congress Rule 1937-39, Vidya Mandar Educational Scheme was prepared by:**
(A) Bankim Chatterjee
(B) Abu-al-Kalam Azad
(C) Dr. Zakir Hussain✓
(D) M.K. Ghandi

194. **Which radio station already existed at the time of creation of Pakistan?**
(A) Peshawar **(B) Lahore✓**
(C) Quetta (D) Multan

195. **The British Cabinet Mission visited India in _____.**
(A) 1947 **(B) 1946✓**
(C) 1944 (D) 1945

196. **Who founded the Indian National Congress?**
(A) Mahatma Gandhi
(B) Dadabhoy Naorojee
(C) Bal Gangadhar Tilak
(D) A.O. Hume✓

197. **After independence the first Governor of Punjab province was _____**
(A) Sir John Lawrence
(B) Mumtaz Ahmad Khan Daultana
(C) Nawab Mamdot
(D) Sir Francis Moody✓

198. **Quaid-i-Azam married his cousin _____ before going to London for higher studies in 1892.**
(A) Maryam **(B) Emibal✓**
(C) Nasreen (D) Jameela

199. **Identify the person who took part in all three Round Table Conferences (1930-32)**
(A) Sir Muhammad Zafarullah✓
(B) Sikandar Mirza
(C) Ghulam Muhammad
(D) Chaudhary Muhammad Ali

200. **Identify the Secretary of State for India who led the Cabinet Mission in 1946:**
(A) Sir Anthony Macdonald
(B) A.V. Alexander✓
(C) Lord Pethick Lawrence
(D) Sir Stafford Cripps

201. **Who presided over the Simla Conference in 1945?**
(A) Lord Mountbatten
(B) Lord Wavell✓
(C) Lord Irwin
(D) Lord Minto

202. **First meeting of Constituent Assembly of Pakistan was held on:**
(A) 13th August 1947
(B) 11th August 1947
(C) 12th August 1947
(D) 10th August 1947✓

203. **Who was the last Viceroy?**
(A) Lord Linlithgow
(B) Lord Mountbatten✓
(C) Lord Wavell
(D) Lord Irwin

204. **Who was the first Chief Election Commissioner of Pakistan?**
(D) G.I. Khan
(B) S.A Rehmat
(C) F.M. Khan✓
(A) Justice S.K. Bashir

205. **Where the Pakistan's first radio station was setup?**
(A) Islamabad **(B) Karachi✓**
(C) Multan (D) Lahore

206. **Who conceived the idea of Pakistan?**
(A) H.S. Suharwardy
(B) Chowdhary Rahmat Ali✓
(C) Mohammad Ali Jinnah
(D) Allama Iqbal

207. **The Quit India Movement was started at:**
(A) Wardha on Aug.7, 1942
(B) Bombay on Aug. 8 1942✓
(C) Lahore on July 7, 1942
(D) Delhi on Aug. 15, 1942

208. **When for the rehabilitation of refugees, emergency was declared for the first time in the history of Pakistan?**
(A) September 25, 1948
(B) August 27, 1948✓
(C) July 25, 1948
(D) November 25, 1948

209. **The first Gazette of Pakistan was issued on August 15, 1947:**
(A) For the appointment of Chief Rehabilitation Commissioner
(B) For appointment of Governor-General of Pakistan✓
(C) For appointment of Chief Justice of Pakistan
(D) For announcement of independence of Pakistan

210. **Who was the Pakistan's first Minister of Religious Affairs?**

(A) Kausar Niazi✓
(B) Abdus Sattar
(C) Ijaz-ul-Haq
(D) None of above

211. The Khaksar Tahrik was established by Allama Inayatullah Khan Mashriqi in:
(A) 1933✓ (B) 1930
(C) 1932 (D) 1931

212. Which Viceroy convened the 'Simla Conference' in 1945?
(A) Lord Willington
(B) Lord Wavell✓
(C) Lord Linlithgow
(D) Lord Mountbatten

213. In 1947, two largest Muslim majority provinces, Bengal and _____ were partitioned.
(A) Punjab✓ (B) Sindh
(C) NWFP (D) Assam

214. Which one of the following Governor Generals was impeached by the British Parliament?
(A) William Bentinck
(B) Warren Hastings✓
(C) Lord Canning
(D) Lord Curzon

215. The Muslim demand of Separate Electorate presented by the Simla Deputation 1906 was incorporated in the:
(A) 3rd June Plan
(B) Govt. of India Act
(C) Mountbatten Plan
(D) Minto-Morley Reforms✓

216. Mohammadan Anglo Oriental College was founded by:
(A) Ch. Rehmat Ali
(B) Muhammad Ali Jauhar
(C) Allama Iqbal
(D) Sir Syed Ahmed Khan✓

217. The Government of India Act was passed in:
(A) 1936 (B) 1932
(C) 1935✓ (D) 1930

218. India's partition plan was announced on?
(A) June 3, 1947✓
(B) July 3, 1947
(C) July 18, 1947
(D) August 14, 1947

219. Who was the last Governor General of Pakistan?
(A) Quaid-i-Azam
(B) Ghulam Muhammad
(C) Iskandar Mirza✓
(D) Ayub Khan

220. The Pakistan Resolution was translated in Urdu by:
(A) Maulana Zafar Ali Khan✓
(B) Nawabzada Liaqat Ali Khan
(C) Sir Zafrullah Khan
(D) Maulvi A.K. Fazl-ul-Haq

221. Radcliffe was by profession:
(A) A doctor (B) An engineer
(C) A lawyer✓ (D) A dentist

222. "Jinnah of Pakistan", a famous book was written by:
(A) Ishtiaq Hussain Qureshi
(B) Stanley A. Wolpert✓
(C) K.B. Sayyed
(D) K.K. Aziz

223. "Day of Deliverance" was observed on:
(A) 23rd March 1940
(B) 14th August 1947
(C) 15th August 1940
(D) 22nd December 1939✓

224. Sir Sikandar Hayat became Chief Minister of the Punjab in:
(A) 1937✓ (B) 1929
(C) 1946 (D) 1935

225. Before Referendum, Sylhet was the part of:
(A) Assam✓ (B) Bihar
(C) Chittagong (D) U.P

226. Name the first book of Allama Iqbal in Urdu.
(A) Ilm-ul-Iqtissad✓
(B) Bang-e-Dara
(C) Javed Name
(D) Bal-e-Jibril

227. Which Pakistani Prime Minister visited China first?
(A) Liaqat Ali Khan
(B) Hussain Shaheed Suharwardi✓
(C) Khawaja Nazimuddin
(D) Muhammad Ali Bogra

228. Pakistan recognized China in which year?
(A) 1948 (B) 1949
(C) 1950✓ (D) 1951

229. When the Muslim League joined the interim government in 1946, Liaquat Ali Khan was assigned the portfolio of:
(A) Foreign Affairs (B) Home
(C) Finance✓ (D) Defence

230. Who was the Chairman of Boundary Commission to define the boundaries of the dominions under the Indian Independence Act of 1947?
(A) Lord Wavell
(B) Stafford Cripps
(C) Lord Mountbatten✓
(D) Cyril Radcliffe

231. Sylhet District at the time of partition was part of the province of:
(A) Bengal
(B) Assam✓
(C) Bihar
(D) United Provinces

232. The first Chief Minister of Punjab after creation of Pakistan was:
(A) Sir Sikandar Hayat Khan
(B) Nawab Iftikhar Hussain Mamdot✓
(C) Mian Mumtaz Khan Daultana
(D) Nawab Sir Khizar Hayat Tiwana

233. The tune of the national anthem of Pakistan

was composed by:
(A) Khawaja Khurshid Anwar
(B) Naushad Ali
(C) Sohail Rana
(D) Ahmad G. Ghagla✓

234. In the elections of 1945-46 out of total Muslim seats of 119, how many seats Bengal Muslim League won?
(A) 114 (B) 110
(C) 115 (D) 113✓

235. Sindh was separated from Bombay in:
(A) 1935✓ (B) 1937
(C) 1938 (D) 1939

236. When was created the Pakistan Fund?
(A) 1947✓ (B) 1948
(C) 1951 (D) 1950

237. What deadline did the British Prime Minister Clement Attlee announce for granting of independence to India on February 20, 1947?
(A) June 1947 (B) August 1947
(C) June 1948✓ (D) August 1948

238. Quaid-i-Azam resigned from the membership of Indian National Congress in_____.
(A) 1913 (B) 1917
(C) 1920✓ (D) 1928

239. About whom Quaid-i-Azam had stated that he was his "Chief Lieutenant" and "Right hand"?
(A) Liaqat Ali Khan✓ (B) Ayub Khan
(C) Abdul Rab Nishtar (D) Ch. Muhammad Ali

240. Women joined All India Muslim League in _____
(A) 1906 (B) 1940
(C) 1947 (D) 1937✓

241. The author of National Anthem of Pakistan is _____
(A) Ch. Rehmat Ali (B) Hafeez Jalandhri✓
(C) Allama Iqbal (D) Quaid-i-Azam

242. First population census in Pakistan was conducted in _____.
(A) 1947 (B) 1949
(C) 1951✓ (D) 1953

243. Pakistan became the 57th member of UNO on _____.
(A) 30 September 1947✓
(B) 30 August 1947
(C) 3 November 1947
(D) 3 December 1947

244. Quaid-i-Azam's favourite game was:
(A) Chess (B) Cricket
(C) Tennis (D) Billiard✓

245. Quaid-i-Azam resigned from the Indian National Congress as a protest against:
(A) Nehru Report
(B) Mopla Revolt
(C) Gandhi's Non-Cooperation Movement
(D) Satyagraha Movement✓

246. The name of All India Muslim League was proposed in 1906 by:
(A) Quaid-i-Azam
(B) Nawab Saleem Ullah Khan
(C) Sir Muhammad Shafi✓
(D) None of these

247. On 14 August 1947, the only fully operational Muslim bank in Pakistan's territory was:
(A) National Bank of Pakistan
(B) Habib Bank Ltd
(C) Allied Bank Ltd✓
(D) United Bank Ltd

248. Mention the first female member of parliament in Pakistan.
(A) Aneesa Akhtar (B) Zubaida Jalal
(C) Begum Shaista Ikramullah✓
(D) Begum Ra'na Liaqat Ali

249. When Muslim League demanded for principle of self-rule for India?
(A) 1909 (B) 1914
(C) 1915 (D) 1913✓

250. The permanent envoy of Pakistan in the UN is:
(A) Hussain Haqqani
(B) Wajid Shams-ul-Hassan
(C) Abdullah Hussain Haroon✓
(D) Ahmad Aziz

251. Who made the official announcement of the annulment of the partition of Bengal, in 1911?
(A) Sir John Jenkins
(B) Lord Hastings
(C) King George III
(D) King George V✓

252. In which pact did the leaders of the Congress and the Muslim League agree on Constitutional Reforms in India including separate electorate for Muslims?
(A) Bombay Pact (B) Lahore Pact
(C) Lucknow Pact✓ (D) Delhi Pact

253. In 1927, the British Parliament appointed a Commission to report on the working of Dyarchy in Indian provinces. Who was the head of this Commission?
(A) Sir John Simon✓
(B) Sir Stafford Cripps
(C) Lord Chelmsford
(D) Sir George Money

World Current Affairs MCQs –2019-2020

Here you will find latest World current affairs MCQs which are from Current International Issues, Geography, Atmosphere, Science & Literature, International Organizations and events. Latest and updated MCQs of Current Affairs of the world.

1. When US assassinated Iranian General Qassem Soleimani?
   A. Jan. 3, 2020✓ B. Jan. 5, 2020
   C. Jan 7, 2020 D. Jan. 9, 2020
2. Iranian General Qassem Soleimani was assassinated in:
   A. Tehran B. Isphahan
   C. Mosul D. Baghdad✓
3. On Jan, 10, 2020, sultan Qaboos bin Said of _____ died.
   A. Jordan B. Kuwait
   C. Oman✓ D. Yemen
4. When US and Taliban clinched historic deal for Afghan deal?
   A. Jan. 2020 B. Feb 2020✓
   C. March 2020 D. April 2020
5. When WHO declared Europe a new epicentre of coronavirus?
   A. Jan 2020 B. Feb. 2020
   C. March 2020✓ D. April 2020
6. Corona Viruses were discovered in the:
   A. 1950s B. 1960s✓
   C. 1970s D. 1980s
7. Novel Coronavirus, a pneumonia outbreak was firstly reported in:
   A. China✓ B. Hong Kong
   C. Taiwan D. Singapore
8. According to a new UN report, which continent could see 300,000 COVID-19 deaths this year?
   (A) Asia (B) North America
   (C) Africa✓ (D) Europe
9. When is World Hemophilia Day observed?
   (A) April 16th (B) April 17th✓
   (C) April 18th (D) April 19th
10. South Korea's ruling party has won by a landslide in the parliamentary election held in Apr 2020, winning_____of the 300 seats of the National Assembly.
    (A) 160 (B) 165
    (C) 175 (D) 180✓
11. The South Korean general election, in which the electoral reforms gave 18 year olds the vote for the first time, were held on_____.
    (A) Apr 13, 2020 (B) Apr 14, 2020
    (C) Apr 15, 2020✓ (D) Apr 16, 2020
12. Pakistani-American doctor and a state senator for Connecticut who helped develop a ventilator device that makes it possible to treat seven COVID-19 patients at once is:
    (A) Dr Imtiaz Hussain
    (B) Dr Saud Anwar✓
    (C) Dr Ejaz Khan
    (D) Dr Shahid Anwar
13. Ocean researchers have found the world's "longest animal ever, 150ft long" in deep sea canyon off Australian coast. The name of the animal is_____.
    (A) Siderophore
    (B) Siphonophore✓
    (C) Sirhonophore
    (D) Physlia
14. Who has been named as The Leading Cricketer in the 2020 edition of Wisden's Cricketers' Almanack?
    (A) Babar Azam
    (B) Eoin Morgan
    (C) Virat Kohli
    (D) Ben Stokes✓
15. Which country banned the use of saliva, sweat to shine Cricket ball under COVID-19 guidelines?
    (A) Australia✓ (B) India
    (C) England (D) Pakistan
16. The virtual Summit of the Non Aligned Movement (NAM) on COVID-19 pandemic has been organised at the initiative of which country?
    (A) Kazakhstan (B) Azerbaijan✓
    (C) Uzbekistan (D) None of above
17. Who is the Current Ambassador of the European Union to Pakistan?
    (A) Jean-Micheal Dumond
    (B) Androulla Kaminara✓
    (C) Jean-Francois Cautain
    (D) Gerhard Sabathil
18. Jack Dorsey, Twitter co-founder pledged $1 billion for coronavirus relief, which makes approximately_____% of his wealth.
    (A) 25% (B) 28%✓
    (C) 30% (D) 38%
19. Bernie Sanders suspended his presidential campaign, clearing the way for Joe Biden to become the Democratic Party's nominee on?
    (A) Apr 7, 2020 (B) Apr 8, 2020✓
    (C) Apr 9, 2020 (D) Apr 10, 2020
20. Leonardo Dicaprio, the Hollywood star recently launched a coronavirus fund by the name of_____.
    (A) America's Health Relief

(B) America's Food Relief
(C) America's Health Fund
(D) America's Food Fund✓

21. China to host 3rd Asian Youth Games in Shantou from_____.
(A) Nov 10, 2021 (B) Nov 15, 2021
(C) Nov 20, 2021✓ (D) Nov 22, 2021

22. "The Cockroach," a satirical new Brexit novella, is authored by_____.
(A) Leo McEwan (B) Iriel McEwan
(C) Ian McEwan✓ (D) Lee McEwan

23. Which two countries have been banned from participating in Tokyo Olympics in weightlifting competition by IWF on disciplinary grounds?
(A) Indonesia and Malaysia
(B) Malaysia and Thailand✓
(C) Indonesia and Thailand
(D) Thailand and Russia

24. The official name of the virus causing the COVID-19 given by WHO is_____.
(A) SARS-CoV 1 (B) MERS -CoV 1
(C) SARS-CoV 2✓ (D) MERS-CoV 2

25. Which country became the first to suspend the use of the video-conferencing tool Zoom by teachers on Apr 11, 2020?
(A) Sri Lanka **(B) Singapore✓**
(C) Malaysia (D) China

26. Recently, Opec + agreed to cut oil output by a record amount, representing around 10% of the global supply. As per the agreement the daily production will cut by_____.
(A) 9.5 million B/D (B) 9.6 million B/D
(C) 9.7 million B/D✓ (D) 9.8 million B/D

27. Which company on 7 April 2020 introduced new policy that limits on message forwarding as part of an effort to curb the spread of misinformation about the corona virus pandemic?
(A) Facebook (B) Instagram
(C) WhatsApp✓ (D) Twitter

28. India announced new Kashmir Domicile Law on _____.
(A) 1st January 2020
(B) 1st February 2020
(C) 1st March 2020
(D) 1st April 2020✓

29. In Wuhan (China), Lockdown was lifted after how many days ?
(A) 66 days **(B) 76 days✓**
(C) 80 days (D) 82 days

30. Prince Harry and Meghan Markle are planning to launch a charitable organisation named Archewell, the name Archewell is inspired from a Greek word meaning_____.
(A) Source of Nation (B) Source of Light
(C) Source of Action✓
(D) Source of Passion

31. In 2022, which city will become the first-ever city that has held both the summer and the winter Olympic Games.
(A) Tokyo **(B) Beijing✓**
(C) Pyeongchang (D) Paris

32. The 2020 Davis Cup will be the_____edition of the Davis Cup, a tournament between national teams in men's tennis.
(A) 106th **(B) 109th✓**
(C) 100th (D) 103rd

33. From which country the first case of a Tiger tested positive of COVID-19 has been reported?
(A) UK **(B) USA✓**
(C) UAE (D) India

34. The 3rd Asian Youth Games 2021 will be held in _____.
(A) Singapore **(B) China✓**
(C) Taiwan (D) Hong Kong

35. Which of following became first city in China to ban the consumption of dog and cat meat?
(A) Wuhan **(B) Shenzhen✓**
(C) Guangzhou (D) None of these

36. Mahmoud Jibril has died of Coronavirus after spending two weeks in an Egyptian hospital, he was Former Prime Minister of which of the following country?
(A) Iraq **(B) Libya✓**
(C) Turkey (D) Egypt

37. Who was selected as leader of Labour party in UK in April 2020?
(A) Sadiq Khan **(B) Keir Starmer✓**
(C) Angela Rayner (D) Johnson Slate

38. The speed of hypersonic missile is _____ the speed of sound which is launched by US Navy?
(A) 20 times (B) 15 times
(C) 10 times **(D) 5 times✓**

39. Who is Current Secretary General of South Asian Association for Regional Cooperation (SAARC)?
(A) Arjun Bahadur Thapa
(B) Amjad Hussain Sial
(C) Esala Weerakoon✓
(D) None of these

40. Tony Lewis, famous for Duckworth-Lewis-Stern method passed away, Duckworth-Lewis-stern method is associated with:
(A) Cricket✓ (B) Football
(C) Hockey (D) Golf

41. NASA has selected a new mission named as _____ to study Gaint Solar Particle Storms.
(A) Sundeep (B) Sunfire
(C) SunRise✓ (D) Poineer

42. Which member State assumed Presidency of United Nations Security Council in April 2020?
(A) Germany (B) Portugal

(C) Poland (D) Dominican Republic✓

43. Recently, which country's princess Maria Teresa became the first to die from COVID-19?
(A) Germany (B) Spain✓
(C) Italy (D) UK

44. Which country recommended all the world countries to use Tan Re Qing to treat COVID-19?
(A) CHINA✓ (B) CUBA
(C) RUSSIA (D) USA

45. Which of the following country has cancelled its multilateral air exercise "Exercise Red Flag"?
(A) UAE (B) UK
(C) FRANCE (D) USA✓

46. Abbott Laboratories has unveiled a coronavirus test which will tell if someone is infected within 5 minutes. The lab is in which country?
(A) USA✓ (B) Australia
(C) Japan (D) Russia

47. _____ scientist in US developed coronavirus testing device, which can give positive results in 5 minutes & negative results in 13 minutes?
(A) Indian (B) Pakistani✓
(C) British (D) Japanese

48. Name the country which has joined as the 30th member of North Atlantic Treaty Organization (NATO) on 27 March 2020?
(A) North-Macedonia✓
(B) Kosova
(C) Bosnia (D) Russia

49. How many countries are the members of NATO?
(A) 30✓ (B) 29
(C) 28 (D) 27

50. Which country's Finance Minster committed suicide because of "deeply worried" over how to cope with the economic fallout from the COVID-19?
(A) Spain (B) Italy
(C) Denmark (D) Germany✓

51. United Nations (UN) estimated international tourism to drop 3% due to virus resulting a loss up to_____ globally.
(A) $50 Billion (B) $100 Billion
(C) $150 Billion (D) $200 Billion

52. Who is the current Prime Minister of Itlay?
(A) Giuseppe-Conto✓
(B) Nicola-Sturgeon
(C) Pedro-Sanchez
(D) None of these

53. The 26th Commonwealth heads of government meeting (CHOGM) 2020 will be held in _____.
(A) England (B) Scotland
(C) Rwanda ✓ (D) Samoa

54. The 2019 Wimbledon championships singles (Women) title was won by_____.
(A) Petra Kvitrova (B) Maria Sharapova
(C) Simona Halep✓ (D) Caroline Wozniacki

55. Which of the following country's Prime Minster has tested positive for coronavirus on 27th March, 2020?
(A) Canada (B) UK✓
(C) Portugal (D) Spain

56. 'Spartly Island' in the South China Sea are disputed between China and_____.
(A) Vietnam (B) Malaysia
(C) Philippines (D) All of these✓

57. When was the first virtual G20 summit held?
(A) 25th March 2020
(B) 26th March 2020✓
(C) 27th March 2020
(D) None of these

58. Khaleda Zia was released from jail on Mar 25, 2020, She was former Prime minister of:
(A) Malaysia (B) Indonesia
(C) Bangladesh✓ (D) Morocco

59. Recently Huntington disease is in news, which of the following body part gets affected by Huntington disease?
(A) Brain✓ (B) Lungs
(C) Heart (D) Skin

60. Who ranked at 1st position in the heritage foundation index 2020 of economic freedom?
(A) Hong Kong (B) Italy
(C) Singapore✓ (D) Indonesia

61. The Tokyo 2020 Olympics have been postponed to _____ due to coronavirus pandemic.
(A) 2021✓ (B) 2022
(C) 2023 (D) None of these

62. How is HPS (Hantavirus Pulmonary Syndrome) treated?
(A) With antibiotics
(B) With oxygen therapy✓
(C) With chemotherapy
(D) None of the above

63. How is the Hantavirus transmitted?
(A) When a mouse or rat bites you
(B) When you inhale airborne particles that contain the hantavirus
(C) When you eat food contaminated with the hantavirus
(D) All of the above✓

64. Jazz legend Manu Dibango died of corona-virus on _____ in Paris.
(A) 24 January 2020
(B) 24 February 2020
(C) 24 March 2020✓
(D) 2 April 2020

65. What group(s) of people has/have a higher risk of developing severe disease and death due to Coronavirus (Covid-19)?
I. Women and Children

II. 60 years old or above
III. people already underlying medical conditions ;
(A) I only (B) II only
(C) I and II (D) II and III✓

66. What is the rank of Pakistan in World Happiness Report 2020?
(A) 68/156 (B) 68/156
(C) 66/156✓ (D) 144/156

67. The oldest fossil of a modern bird has been discovered and has named as_____.
(A) Lesula (B) Epimeria
(C) Kipunji (D) Wonderchiken✓

68. According to the World Happiness Report 2020, which is the happiest country in the world?
(A) Denmark (B) Finland✓
(C) Singapore (D) USA

69. Which decade is announced as international decade for people of African Descent?
(A) 2015-2024✓ (B) 2017-2026
(C) 2020-2029 (D) None of these

70. Which country has successful conducted a test-flight of a Hypersonic Missile after Russia?
(A) USA✓ (B) North Korea
(C) France (D) Israel

71. Who was nominated as Prime Minister of Iraq by President Barham Salih on 17 March 2020?
(A) Mohammed Tawfiq Allawi
(B) Adnan al- Zurfi✓
(C) Adel Abdul Mahdi
(D) None of them

72. Which of the following disease(s) is/ are related to Coronavirus?
(A) SARS (B) MERS
(C) Both A and B✓ (D) None of above

73. The first ever prisoner exchange talks between Afghan government and Taliban held on:
(A) 20 March 2020 (B) 21 March 2020
(C) 22 March 2020✓ (D) 23 March 2020

74. Video conference of SAARC leaders on COVID-19 held on which date?
(A) 14 March 2020 (B) 15 March 2020✓
(C) 16 March 2020 (D) None of these

75. Who is the incumbent President of FIFA?
(A) Gianni Infantino✓
(B) Michael Garcia
(C) Jerome Champagne
(D) Robbert Whem

76. What is the name of Pak-Bahrain joint exercise held in national counterterrorism center Pabbi?
(A) Al-Saif IV
(B) Al-Asr III
(C) Al-Badar IV✓
(D) None of these

77. Who is the Current Prime Minister of New Zealand?
(A) Jacinda Ardern✓
(B) Simon Bridges
(C) Sophie Wilms
(D) None of these

78. In March 2020, Turkish prosecutors charged _____ suspects over the brutal murder of Jamal Khashoggi?
(A) 10✓ (B) 20
(C) 15 (D) 5

79. The International Monetary Fund (IMF) announced aid package to help fight the Coronavirus of:
(A) $35 billion (B) $43 billion
(C) $50 billion✓ (D) $54 billion

80. The First Cricket Match of One Day International series played in front of no crowd was between?
(A) Australia vs New Zealand✓
(B) New Zealand vs England
(C) India vs New Zealand
(D) Pakistan vs Sri Lanka

81. Which global organisation has launched the "COVID Action Platform" to convene the business community to support for COVID-19?
(A) World Bank
(B) World Economic Forum✓
(C) International Monitory Fund
(D) United Nations

82. In March 2020, the World Health Organization (WHO) decleared Covid-19 as a_____.
(A) Pandemic✓
(B) Endemic
(C) Epidemic
(D) Zoonotic

83. According to the report published by Stockholm International Peace and Research Institute (SIPRI) on 9 March 2020, which country is the 11th largest arms importer in the world?
(A) India (B) Afghanistan
(C) Bangladesh (D) Pakistan✓

84. Who is the Current Prime Minister of Denmark?
(A) Helle Thorning-Schmidt
(B) Inger Støjberg
(C) Mette Frederiksen✓
(D) None of these

85. Who is the current Prime Minister of Belgium?
(A) Kolinda Graber-Kitarovic
(B) Katrin Jakobsdottir
(C) Sophie Wilmes✓
(D) None of these

86. Which country witnessed the swearing in of two Presidents on March 10, 2020?
(A) Nepal
(B) Afghanistan✓

(C) Malaysia
(D) Sri Lanka

87. Which country hosted the 56th Munich Security Conference(MSC) 2020?
(A) Austria
(B) France
(C) Germany✓
(D) Spain

88. What is the name of NASA's rover for Mars Mission 2020?
(A) Prospect
(B) Call
(C) Innovation
(D) Perseverance✓

89. The World Bank has announced how much aid package to help countries combat Coronavirus outbreak?
(A) USD 10 billion
(B) USD 12 billion✓
(C) USD 14 billion
(D) USD 16 billion

90. Bangladesh is going to celebrate the "Mujib Borsho' in which year?
(A) 2021
(B) 2020✓
(C) 2019
(D) 2022

91. Recently which of the following African country has been listed in FATF's Grey list?
(A) Mauritius✓
(B) Kenya
(C) Zimbabwe
(D) Ethiopia

92. Which Country has won the ICC Women's T20 World Cup 2020?
(A) India
(B) Australia✓
(C) England
(D) South Africa

93. Which country has won the ICC Women's T20 World Cup maximum times?
(A) West Indies
(B) England
(C) Australia✓
(D) New Zealand

94. How many teams participated in the Women's World Cup T20, 2020?
(A) 7
(B) 8
(C) 9
(D) 10✓

95. How many times Australian women's cricket team won the T20 World Cup title out of 7 tournaments held from 2009 to 2020?
(A) 1
(B) 3
(C) 5✓
(D) 7

96. Women's T20 World Cup 2020 was the _____ World Cup held by ICC .
(A) 5th (B) 6th
(C) 7th✓ (D) 8th

97. Name the First Muslim Hijab woman elected as Member of Israel Parliament in March 2020 elections?
(A) Hanadi Saleh
(B) Iman Khatib-Yasin✓
(C) Sarah Jabara
(D) Nayla Haya

98. In which year, the Taliban office was opened in Qatar?
(A) 2003 (B) 2010
(C) 2013✓ (D) 2020

99. According to the "Hurun Global Rich list 2020" which country has the highest number of billionaires?
(A) USA (B) Saudi Arabia
(C) China✓ (D) Russia

100. After how many years' the United States & Taliban signed historic peace agreement in Doha, Qatar?
(A) 16 (B) 18✓
(C) 20 (D) None of these

101. Muhyiddin Yassin was sworn in as the _____ PM of Malaysia.
(A) 6th (B) 8th✓
(C) 10th (D) None of these

102. Janez Jansa has been appointed as a new Prime Minister of which country?
(A) Nepal (B) Ghana
(C) Slovenia ✓ (D) Madagascar

103. Which country has recently withdrawn from UNHCR?
(A) Argentina (B) Maldives
(C) Bahamas (D) Sri Lanka✓

104. The Diamond Princess cruise ship, which witnessed the largest coronavirus outbreak, is quarantined in which country?
(A) China (B) South Korea
(C) Japan✓ (D) Iran

105. Who becomes the first country with free public transport?
(A) America (B) Japan
(C) Finland (D) Luxembourg✓

106. Where Afghan-Peace-Deal was signed?
(A) Kabul
(B) New York
(C) Doha✓
(D) Islamabad

107. Who signed the Afghan-Peace-Deal on the behalf of USA?
(A) Donald Trump
(B) Zalmy Khalilzad✓
(C) Mike Pompeo
(D) James Mattis

108. Afghan Peace Deal was signed between?
(A) Afghanistan Govt. & USA
(B) Al-Qaeda & USA
(C) Taliban & USA✓
(D) Afghanistan Govt. & NATO

109. Who signed the peace accord on behalf of the Islamic Emirate of Afghanistan?
(A) Hibatullah Akhundzada
(B) Akhtar Mohammad Mansour
(C) Mullah Abdul Ghani Baradar✓
(D) Mullah Naseer Ahmad

110. On which date, Afghan Peace Deal was signed?
(A) 14 Feb. 2020
(B) 20 Feb. 2020
(C) 29 Feb. 2020✓
(D) 3 March 2020

111. Which country is the first to develop an antibody test to identify the novel coronavirus (COVID-19)?
(A) China
(B) USA
(C) Singapore✓
(D) Japan

112. Who became the first woman in Saudi Arabia to head the Saudi Arabia's Music Commission?
(A) Jihad Al-Khalidi✓
(B) Reema Bint Bandar
(C) Sadia Bint Khalid
(D) None of these

113. Former President of Egypt Muhammad Hosni Mubarak served as the_____ president of Egypt from 1981 to 2011.
(A) Third
(B) fourth✓
(C) fifth
(D) None of these

114. Former Egyptian President Hosni Mubarak died on 25 February 2020 at the age of_____.
(A) 91✓ (B) 90
(C) 89 (D) 93

115. AIBA_Boxing World Cup 2020 to be held in_____.
(A) Russia ✓ (B) UK
(C) USA (D) Bolivia

116. When did Malaysian Prime Minister Mahathir Mohamad send resignation from Premiership and asked the Malaysian King to form a new Government ?
(A) 19 February 2020
(B) 21 February 2020
(C) 23 February 2020
(D) 24 February 2020✓

117. What is the name of the United State's first lady?
(A) Melania Trump✓
(B) Martha Trump
(C) Michelle Trump
(D) Rachel Trump

118. Patricia Scotland is the _____ Commonwealth Secretary-General.
(A) 5th **(B) 6th✓**
(C) 7th (D) 8th

119. Darren Sammy a famous cricket player was born in_____.
(A) Saint Lucia✓
(B) Jamaica
(C) Saint Vincent
(D) Barbados

120. The Secretary General is nominated by Commonwealth leaders and can serve a maximum of _____ term(s) of 4 years each?
(A) Four
(B) Two✓
(C) Three
(D) None

121. Patricia Janet Scotland the current Secretary General of the Common wealth was born in:
(A) Dominica✓
(B) Jamaica
(C) Ireland
(D) Ecuador

122. Which city hosted the 3rd Global Ministerial Conference on Road Safety?
(A) Helsinki
(B) Stockholm✓
(C) Oslo
(D) Rome

123. What is the name of the storm which hit the United Kingdom in February 2020?
(A) Storm Habin
(B) Storm Kyar
(C) Storm Cirar
(D) Storm Dennis✓

124. How many teams participated in Kabaddi 2020 World Cup?
(A) 8 (B) 9
(C) 10✓ (D) 11

125. What is the hottest recorded Temperature in Antarctica?
(A) 16.3°C (B) 17.3°C
(C) 18.3°C✓ (D) 19.3°C

126. UK officially left European Union after _____ years.
(A) 40 **(B) 47✓**
(C) 50 (D) 48

127. Becoming the world's first climate-neutral continent by 2050, the European Commission presented the:
(A) European Green Deal
(B) Green European Deal✓
(C) Clean European Deal
(D) None of these

128. In Gallup International's annual popularity index of world political leaders, who emerged as the topmost Muslim leader for the year 2020?
(A) PM Pakistan Imran Khan
(B) Turkish President Recep Tayyip Erdoğan✓
(C) Iranian President Rouhani
(D) Saudi Prince Muhammad bin Salman

129. The 43rd session of International Fund for Agricultural Development (IFAD) was held in _____ from 11-12 February 2020
(A) Rome, Italy✓
(B) Islamabad, Pakistan
(C) Delhi, India
(D) Paris, France

130. What is the name of the Turkey's first lady?
(A) Emine Erdogan✓
(B) Zehra Erdogan
(C) Esma Erdogan
(D) None of these

131. Bashar Al Asad is the President of which country ?
(A) Jordan
(B) Palestine
(C) Syria✓
(D) Yemen

132. World Health Organization named deadly virus from China as _____.
(A) COVID-19✓
(B) NOVID-19
(C) NCV-19
(D) None of these

133. According to researchers from South China Agricultural University, which animal has been identified as potential link for novel Coronavirus spread?
(A) Pangolin✓ (B) Snake
(C) Bat (D) Rat

134. Which country revealed that it has 'neutralised' 101 Syrian troops on February 11, 2020 ?
(A) Qata (B) UAE
(C) Indonesia (D) Turkey✓

135. Sheikh Khalid bin Khalifa bin Abdulaziz Al Thani appointed as new Prime Minister of _____.
(A) Qatar✓ (B) Iraq
(C) Lebanon (D) Jordan

136. About how many years Sultan Qaboos ruled in Oman?
(A) 20 years (B) 30 years
(C) 40 years (D) 50 years

137. Sultan Qaboos, who died recently, belongs to which country?
(A) Kuwait (B) Oman
(C) Iran (D) Saudi Arabia

138. Which country launches gigantic telescope "Sky Eye" for hunt of life beyond earth?
(A) India (B) China
(C) USA (D) Russia

139. Qaboos bin Said Al Said was the Sultan of Oman. He died on _____ ?
(A) 09 January 2020
(B) 10 January 2020
(C) 11 January 2020
(D) 12 January 2020

140. Who sworn in as new Sultan of Oman?
(A) Quboos said al said
(B) Saad bin saad
(C) Salman bin al saud
(D) Haitham bin Tariq Al Said

141. What was the age of Sultan 'Qaboos bin Said Al Said' of Oman who died on Jan 10, 2020?
(A) 69 (B) 79
(C) 80 (D) 81

142. Who is the supreme leader of Iran?
(A) Zarif Javed
(B) Qasem soleimani
(C) Ayatollah Ali Khamenei
(D) Hisbollah

143. Which Country has developed a Laser-based Aerial defense system?
(A) Iran (B) North Korea
(C) Israel (D) Turkey

144. The Commonwealth Games 2022 will be held between _____ ?
(A) 25 June to 25 July 2022
(B) 27 July to 7 August 2022
(C) 29 September to 28 October 2022
(D) 20 November to 19 December 2022

145. The Commonwealth Games 2022 will be held in Birmingham. It is the _____ time when England will host the event.
(A) 2nd Time (B) 3rd Time
(C) 4th Time (D) None of these

146. Which city will host the 2022 Commonwealth Games _____?
(A) Moscow
(B) Birmingham
(C) Colombo
(D) Jakarta

147. Colombo declaration is related to _____?
(A) Anti- drug Trafficking
(B) Economic Interests
(C) Infrastructure development
(D) Marine security

148. Which nation has recently banned the ' reef toxic' Sunscreen?
(A) New Zealand
(B) Palau
(C) Australia
(D) Nauru

149. World Braille day celebrated every year on_____?
(A) January 2 (B) January 3
(C) January 4 (D) January 5

150. Qassem soleimani who was killed in US air strike was the Iranian Military Commander began his Military career at the start of Iran-Iraq war during the _____?
(A) 1960s (B) 1970s
(C) 1980s (D) 1990s

151. The Iranian Commander General Qassem soleimani laid to rest after Iran attacks US airbases on_____?
(A) 5 january 2020
(B) 6 january 2020

(C) 7 january 2020
(D) 8 January 2020

152. The Iranian commander General Qassem Soleimani was laid to rest in his hometown of_____?
(A) Shiraz **(B)Kerman**
(C) Tehran (D)Isfahan

153. Daniele De Rossi, who announced his retirement recently, is a world cup winning footballer of which country_____?
(A) France (B)Brazil
(C) Itlay (D)Germany

154. The Ukrainian Boeing-737-800 plane crashed at the _____ in Tehran on January 08, 2020?
(A) Parsabad Airport (PFQ)
(B) Imam Khomeini Airport (IKA)
(C) Shahid Hashemi Nejad Airport (MHD)
(D) Mehrabad Airport (THR)

155. The Ukrainian Boeing-737-800 plane crashed at the Imam Khomeini Airport in Tehran on _____?
(A) 7th January 2020
(B) 8th January 2020
(C) 6th January 2020
(D) 5th January 2020

156. Ukrainian Boeing 737-800 crashed in which nation on January 8, 2020, killing all onboard passengers?
(A) Iran (B)Iraq
(C) Turkey (D)Afghanistan

157. Which country launched missiles at US troops in Iraq on 7 January 2020?
(A) Turkey (B)U.K
(C) Afghanistan **(D)Iran**

158. _____ became as World's Youngest Chancellor?
(A) Sebastian Kurz
(B) Sana mariland
(C) Greta thunberg
(D) Angelena

159. Donald Trump become third President in US history to be impeached by the House of Representives. Who are the other two presidents to be impeached by the House of Representatives?
(A) Ronald Reagon and Bill Clinton
(B) Richard Nixon and Andrew Jackson
(C) Andrew Johnson and Bill Clinton
(D) Ronald Reagon and Richard Nixon

160. In some states of which country, CROWN Act has been passed to protect people of colour from being discriminated against for their natural hair.
(A) Australia **(B)USA**
(C) China (D)Germany

161. US space agency NASA is developing 'X-59'. what is this?
(A) A prototype of house to built on Mar
(B) Space plane faster than speed of sound
(C) A Lander for landing on the South Pole of the Moon
(D) Spacecraft to explore the interteller world

162. Which animal species has been most adversely impacted by Australia's wildfire?
(A) Koala (B)Kangaroo
(C) Mandook (D)Polar Bear

163. Qassim Soleimani ,who was killed in the US airstrike was the Military Commander of which country?
(A) Iran (B)Libya
(C) Iraq (D)Syria

164. Who has become the seventh batsman in the world to hit 6 sixes in an over?
(A) Leo Carter (B)John Morrison
(C) Berry Headly (D)Geoff Howarth

165. Who is the current President of Guinea Bissau?
(A) Alpha Condé
(B) Ahmed Sékou Touré
(C) Lansana Conté
(D) Umaro Cissoko

166. Which country recently elected Umaro Cissoko as its new President in January 2020?
(A) Guinea Bissau
(B) Ghana
(C) Indonesia
(D) Nigeria

167. Iranian General Shaheed Qasim Sulemani was Born in_____?
(A) 1955 **(B)1957**
(C) 1960 (D)1962

168. The US aviation regulator has warned American airlines from operating in the airspace of which Country?
(A) Pakistan (B)India
(C) China (D)South Korea

169. Who killed Major General Qassim Sulemani in an overnight airstrike at the Baghdad Airport?
(A) UK (B)Russia
(C) USA (D)China

Pakistan Current Affairs MCQs – 2019-2020

Here you will find updated 2019-2020 Current Affairs of Pakistan MCQs.

1. Approximate number of cancer cases yearly reported in Pakistan is _____.
   A. 1480 B. 14800
   C. 15000 D. 148000✓
2. "Standard & Poor's" (S&P) downgraded Pakistan's credit rating from B to_____.
   A. B PLUS B. B NEGATIVE✓
   C. C D. C NEGATIVE
3. Who is the current Ambassador of Pakistan to UK?
   A. Masood Khalid B. Nafees Zakaria✓
   C. Ali Jahangir Siddiqui
   D. Syed Ibn-e-Abbas
4. Who is the current Ambassador of Pakistan to Saudi Arabia?
   A. Sajid Bilal B. Masood Khalid
   C. Brig Bilal Asad D. Raja Ali Ijaz✓
5. Who is the current Ambassador of Pakistan to Canada?
   A. Mr. Raza Sher Tarar✓
   B. Riaz Mohammad Khan
   C. Mr Masood Khalid
   D. Salman Bashir
6. Who became first Asian woman to play 100 T20s?
   A. Sana Mir✓ B. Mithali Raj
   C. Bismah Maroof D. Sidra Ameen
7. Pakistan has been hosting the maritime multinational naval drill 'AMAN' since_____.
   A. 2006 B. 2007✓
   C. 2008 D. 2009
8. What is name of satellite developed by The King Abdul Aziz City for Science and Technology (KACST) and Lockheed Martin Space on 5 Feb 2019?
   A. SGS-1✓ B. SGS-2
   C. SJS-1 D. None of these
9. When Eighteenth Amendment of the Constitution of Pakistan was passed by the National Assembly of Pakistan?
   A. April 8, 2018 B. April 8, 2019
   C. April 8, 2010✓ D. April 8, 2011
10. The Ninth National Finance Commission (NFC) meeting was deadlocked since_____.
    A. July 2015✓ B. July 2016
    C. July 2017 D. July 2018
11. How many families from all over the country will be given Sehat Card by Sehat Sahulat Program (SSP) from Govt. of Pakistan?
    A. 10 million B. 15 million✓
    C. 20 million D. 25 million
12. Which of the following Pakistani company was shortlisted at the GSMA Global Mobile Awards (GLOMO Awards) for the year 2019?
    A. Zong Group B. JS Bank✓
    C. Telenor Group D. Habib Bank
13. Until January 2019, Pakistan Army had completed how much length of fence near Afghanistan boundary?
    A. 700km B. 800km
    C. 900km✓ D. 1200km
14. How many national and international companies have been blacklisted by PPRA in Jan 2019?
    A. 50 B. 45✓
    C. 40 D. 35
15. According to new policy of government of Pakistan on 1st February, 2019, how much price was fixed to perform Hajj?
    A. Rs. 280,000 B. Rs. 360,000
    C. Rs. 456,000 ✓ D. Rs. 524,000
16. Night navigation system for the large vessels was launched at Port _____ for the very first time in the history of Pakistan.
    A. Qasim✓ B. Gwadar
    C. Karachi D. Pasni
17. The Karakoram International Alpine Ski Cup 2019 was held in_____.
    A. China B. Pakistan✓
    C. Afghanistan D. Nepal
18. How many countries participated in Karakoram International Alpine Ski Cup 2019?
    A. 11 Countries B. 13 Countries✓
    C. 15 Countries D. 17 Countries
19. Which Pakistani teacher won the coveted World's Dedicated Teacher award announced by Cambridge University?
    A. Ahmed Jabar B. Ahmed Saya✓
    C. Saeed Ahmed D. Syed Ahmed Shah
20. Name the Pakistani Journalist who won the AFP's Kate Webb Prize 2018.
    A. Asad Hashim✓ B. Hamid Mir
    C. Javed Chaudhry D. None of the above
21. First Captain of Pakistan National Women Blind Cricket Team is _____.
    A. Salma Javed B. Nazia Beenish
    C. Rabia Shahzadi✓
    D. Firdus Malik

22. On 31-January-2019, federal cabinet approved what percent increase in Hajj cost?
A. 61 percent B. 62 percent
C. 63 percent✓ D. 64 percent

23. Pakistan Govt started the first-ever "Islamabad Deworming Initiative" on _____which will deworm 250,000 children.
A. 30 Jan 2019✓ B. 29 Jan 2019
C. 28 Jan 2019 D. None of them

24. Who is the current Ambassador/ Permanent Representative of Pakistan to World Trade Organization (WTO)?
A. Muhammad Mohsin Rafiq
B. Shahid Bashir✓
C. Dr. Syed Tauqir Shah
D. Muhammad Pervaiz Malik

25. Corruption Perception Index 2018 released by the Transparency International on 29 January, 2019 ranked Pakistan _____ out of 180 countries.
A. 110 B. 112
C. 116 D. 117✓

26. Corruption Perceptions Index 2018 released by the Transparency International on 29 January, 2019 scored Pakistan _____ out of 100.
A. 33✓ B. 34
C. 35 D. 36

27. The first-ever Cardiac Hospital in Gilgit Baltistan was inaugurated on 30 Jan 2019 by_____.
A. Chief Minister Gilgit Baltistan✓
B. Governor Gilgit Baltistan
C. Health Minister Gilgit Baltistan
D. None of these

28. Who was appointed as Pakistan's first Hindu Civil Judge?
A. Seema Bedi
B. Krishna Kumari
C. Suman Bodani✓
D. None of these

29. Which of the following political party of Pakistan on 28 Jan, 2019 submitted in the National Assembly a constitutional amendment bill for the creation of the Bahawalpur and South Punjab Provinces?
A. PPP B. PTI
C. PML-N✓ D. PML-Q

30. What is the name of dollar-denominated diaspora bond which was set by Pakistani Government on 31 January 2019 for overseas Pakistanis to increase foreign exchange reserves?
A. Pakistan Banao Certificate✓
B. Qarz Utaro Certificate
C. Khoshhal Pakistan Certificate
D. Pakistan Overseas Certificate

31. In which country, Pakistani renowned actress Roohi Bano passed away?
A. Egypt B. UAE
C. Turkey✓ D. Iran

32. When Sahiwal incident was happened in which four people – including two women – were killed in the 'encounter' involving Punjab's Counter Terrorism Department (CTD) personnel on a highway in the Qadirabad area of Sahiwal district?
A. 11 Jan 2019
B. 15 Jan 2019
C. 19 Jan 2019✓
D. 23 Jan 2019

33. Pakistan Navy hosted AMAN 19 Excercise with slogan of _____.
A. Together for peace✓
B. To fight for peace
C. To learn for peace
D. None of these

34. Pakistan won 19th Asian Junior Squash Tournament's final on _____.
A. 18 January 2019
B. 20 January 2019✓
C. 19 November 2018
D. None of these

35. According to "New Visa Policy" Visa on arrival is for 50 countries but previously, nationals of only _____ countries had that option.
A. 15 B. 20
C. 24✓ D. 32

36. When Government of Pakistan introduced a "New Visa Policy" to encourage tourism in the country?
A. 20 December 2018
B. 30 December 2018
C. 10 January 2019
D. 25 January 2019✓

37. Who became the second fastest player to reach the milestone by scaling the 1000 run mountain in just 19 ODI matches?
A. Shoaib Malik
B. Fakhar Zaman
C. Imam-ul-Haq✓
D. Babur Azam

38. Pakistan successfully conducted the training launch of the Nasr – a short-range surface-to-surface ballistic missile on_____.
A. 12-January-2018 B. 12-January-2019
C. 24-January-2018 D. 24-January-2019✓

39. Which country lifted ban on import of Pakistani Rice?

A. Kuwait B. Iran
C. Qatar✓ D. Saudi Arabia

40. When Supreme Court of Pakistan imposed ban on Basant festival?
A. 2004 **B. 2005✓**
C. 2007 D. 2009

41. Which Pakistani politician was named among Foreign Policy Magazine's 2019 list of Global Thinkers?
A. Asad Umer **B. Imran Khan✓**
C. Shah Mahmood D. Umer Ayub

42. When Finance Minister Asad Umar presented the Third Finance Bill 2018-19 (Mini-Budget) in the National Assembly?
A. 22 January 2019
B. 23 January 2019✓
C. 24 January 2019
D. 25 January 2019

43. The 10th meeting of the SAARC Food Bank Board was held in_____on 21st to 22nd January 2019.
A. Kathmandu B. New Delhi
C. Islamabad✓ D. Male

44. Which country doubled the quantum of wheat from 40,000 tonnes to 80,000 tonnes as its share for the 'Regional Food Bank' maintained by the South Asian Association for Regional Cooperation (SAARC)?
A. India B. Bangladesh
C. Pakistan✓ D. Sri Lanka

45. The State Bank of Pakistan (SBP) on 22 January signed an agreement with Abu Dhabi Fund for Development (ADFD) for_____to be deposited in the SBP account.
A. $3 billion✓ B. $4 billion
C. $5 billion D. $7 billion

46. Iran-Pakistan Free Economic Zone is going to establish in which city to increase bilateral trade with Pakistan?
A. Mirjaveh city✓ B. Gwadar
C. Dalbandin D. Tehran

47. According to Democracy Index 2018 published by The Economist, Pakistan is placed under _____ category.
A. Full Democracy
B. Flawed Democracy
C. Hybrid Regime✓
D. Authoritarian

48. Democracy Index 2018 published by The Economist ranked Pakistan _____ out of 167 countries.
A. 110 **B. 112✓**
C. 114 D. 116

49. Who is the current Captain of Pakistan Woman Cricket Team?
A. Sana Mir B. Javeria Khan
C. Nain Abidi **D. Bisma Maroof✓**

50. The Provincial Cabinet of Sindh on January 21, 2019, in a landmark decision approved to replace 100 years old Prison Act 1894 with new act titled:
A. Sindh Prisons Reform Act 2019
B. Rehabilitation Of Prisons Sindh Act 2019
C. Sindh Prison and Correction Act 2019✓
D. None of these

51. Which judge of Indian Supreme Court attended the Pakistan Chief Justice Asif Saeed Khosa's Oath Taking Ceremony on 18-January-2019?
A. Justice Ranjan Gogoi✓
B. Justice Sharad Arvind Bodbe
C. Justice N.V. Ramana
D. Justice Dipak Misra

52. Asif Saeed Khosa, 26th CJP Supreme Court of Pakistan belongs to:
A. Balochistan High Court
B. Lahore High Court✓
C. Sindh High Court
D. Peshawar High Court

53. Which two Asian countries are ranked with 89% of people expressing patriotism towards their homeland?
A. Pakistan & Vietnam✓
B. Pakistan & Bangladesh
C. Afghanistan & India
D. China & India
E. None of these

54. PM Imran Khan received 'Golden Kalashinkov' as a gift from _____.
A. Turkey **B. Saudi Arabia✓**
C. UAE D. None of these

55. APS Survivor _____ became third Pakistani to receive Points of Light Award.
A. Ahmed Ali **B. Ahmed Nawaz✓**
C. Noman Ahmed D. None of these

56. APS Survivor Ahmed Nawaz received 'Points Of Light' Award in _____.
A. U.S.A B. U.A.E
C. U.K✓ D. None of these

57. Who become first wicket keeper-Captain to take 10 catches in a Test match?
A. Sarfraz Ahmed✓
B. M.S Dhoni
C. B. Taylor
D. de Kock

58. According to report of UNICEF, an estimate of how many babies were were born in the world on new year day in 2019?

A. 395,000✓ B. 398,072
C. 400,500 D. 400,250

59. According to report of UNICEF, an estimate how many babies were born in Pakistan on new year day in 2019?
A. 10,000 B. 15,000✓
C. 20,000 D. 25,000

60. Indus Water Treaty 1960 requires the water commissioners of Pakistan and India to meet _____ a year.
A. Once B. Twice✓
C. Thrice D. None

61. Who is the Commissioner for Indus Water of Pakistan?
A. Mehmood Khan
B. Ali Akbar
C. Syed Muhammad Mehar Ali Shah✓
D. Ameen Khan

62. CPEC has how many Special Economic Zones?
A. 6 B. 8
C. 9✓ D. 5

63. Who is the current Captain of "Pakistan National Football Team"?
A. Javed Hussain
B. Saddam Hussain✓
C. Nazir Hussain
D. Bilal Hussain

64. In Pakistan history, which first Sikh "PRO" to Punjab Governor was appointed?
A. Sardar Jaswant Singh
B. Sardar Mohan Singh
C. Sardar Pawan Singh Arora✓
D. Sardar Jaipal Singh

65. Which of the following is the author of the book "We Are Displaced"?
A. Reham Khan
B. Malala Yosufzai✓
C. Nadia Murad
D. Sharmeen Obaid

66. The under-construction Gulpur Hydropower Project to generate 102 MW of electricity is located in _____.
A. Jhelum B. Kotli✓
C. Mirpur D. Gilgit

67. Multan metro bus project was funded by _____.
A. Punjab Government✓
B. World Bank
C. Asian Development Bank (ADB)
D. International Monitory Fund (IMF)

68. How much bailout package was formalized by Abu Dhabi Crown Prince?
A. 5.2bn USD B. 6.2bn USD✓
C. 7.2bn USD D. 3.2bn USD

69. After how many years, UAE Prince Sheikh Mohammed bin Zayed bin Sultan Al-Nahyan visited Pakistan on Jan 6, 2019?
A. 7 Years B. 9 Years
C. 12 Years✓ D. 14 Years

70. When Abu Dhabi Crown Prince Sheikh Mohammed bin Zayed bin Sultan Al-Nahyan visited Pakistan?
A. 4th January 2019
B. 5th January 2019
C. 6th January 2019✓
D. 7th January 2019

71. Which two legends of Football arrived in Pakistan on 10th January 2019?
A. Kaka and Figo✓
B. Figo and Luka
C. Kaka and Messi
D. Messi and Ronaldo

72. _____ has been titled the "Mountain Princess" by Pakistan's mountaineering community?
A. Samina Baig B. Selena Khawaja✓
C. Uzma Shah D. Momina Saleem

73. Who is current Chief Justice of Pakistan?
A. Justice Anwar Zaheer Jamali
B. Justice Mian Saqib Nisar
C. Justice Asif Saeed Khan Khosa✓
D. Justice Iftikhar Muhammad Chaudhry

74. The current National Assembly is _____ in the country's history.
A. 14th B. 15th✓
C. 16th D. 18th

75. Pakistan's first electronic grave belongs to_____.
A. Abdul Sattar Edhi
B. Dr. Ruth Pfau✓
C. John Elia
D. None of these

76. First-ever female ombudsperson appointed in the history of KP is _____.
A. Shafqat Ara
B. Rakhshanda Naz✓
C. Naseema Khattak
D. Gulalai Ismail

77. Pakistan's first ever ice-hockey match was won by_____.
A. GB Scouts
B. Pakistan's Air Force✓
C. Navy
D. Chitral Scouts

78. Renowned Urdu Scholar Dr. Saleem Akhtar died on_____.
A. 28 December 2018
B. 29 December 2018
C. 30 December 2018✓
D. 31 December 2018

79. Which Pakistani woman Cricketer was named in ICC Women ODI Team of the Year 2018?
A. Javeria Khan B. Bisma Maroof
C. Sana Mir✓ D. Nain Abidi

80. Chief Justice Sardar Muhammad Shamim Khan is the _____.
A. 40th Chief Justice of Lahore High Court
B. 48th Chief Justice of Lahore High Court✓
C. 13th Chief Justice of Lahore High Court
D. 22nd Chief Justice of Lahore High Court

81. Pakistan is _____ largest sugar producer and eighth largest consumer in the world.
A. 4th **B. 5th✓**
C. 6th D. 7th

82. Pakistan declared 1,000 years old Hindu temple as national heritage, named:
A. Krishna Temple
B. Panj Tirath✓
C. Laxmi Temple
D. Nar Singh Mandir

83. What is the name of shelters for homeless which are being built by Govt of Pakistan?
A. Ashiana **B. Panah Gah✓**
C. Old House D. Shelter House

84. Which airways announced to resume flights to Pakistan after 10 years?
A. Norway Airlines
B. Australia Airways
C. British Airways ✓
D. None of these

85. According to 2018 report compiled by the Education Management Information System (EMIS), _____ girls quit primary schools in tribal districts.
A. 79pc✓ B. 89pc
C. 69pc D. 59pc

86. For how many years, former Pakistani Prime Minister Nawaz Sharif was sentenced to jail in Al-Azizia Reference on 24 Dec 2018?
A. 3 **B. 7✓**
C. 10 D. None of these

87. The Triangular Initiative Meeting held at Islamabad between Pakistan, Afghanistan and Iran, it was _____.
A. 11th Triangular Initiative Meeting
B. 12th Triangular Initiative Meeting
C. 13th Triangular Initiative Meeting✓
D. 14th Triangular Initiative Meeting

88. What is "Triangular Initiative Meeting" held at Islamabad on Dec 11-12 2018?
A. Drug control✓ B. Sports
C. Education D. Travelling facilities

89. Which founding member of Pakistan Women Cricket Team recently died in Dec 2018?
A. Nida Dar B. Shazia Khan
C. Sharmeen Khan✓
D. None of these

90. Shaikh Rasheed inaugurated "Rahman Baba Express" train, it will travel from Peshawar to_____.
A. Sukkur **B. Karachi✓**
C. Kotri D. Larkana

91. Which bank proposed a $7.5-billion lending programme for Pakistan for next three years?
A. World Bank **B. ADB✓**
C. Islamic Bank D. AIIB

92. Pakistan plans to send first astronaut to space in_____.
A. 2020 **B. 2022✓**
C. 2024 D. 2026

93. The Asian Development Bank (ADB) agreed to provide Rs_____ billion for the construction of Naulong Dam in Balochistan.
A. 25.6 billion **B. 26.6 billion✓**
C. 27.5 billion D. 28.5 billion

94. Pakistani Cricketer Yasir Shah became the fastest bowler to reach 200 wickets in Test Cricket breaking Australia's _____ record set 82 years ago.
A. Clarrie Grimmett✓
B. Bobby Simpson
C. Denis Lillie
D. Neil Harvey

95. According to World Bank Report 2018, trade between Pakistan and South Asia valued at_____.
A. $ 2 Billion B. $ 4 Billion
C. $ 5.1 Billion✓ D. $ 39.7 Billion

96. According to World Bank Report 2018, trade between Pakistan and India values little over 2 Billion, whereas without trade barriers, it could reach _____.
A. $25 Billion B. $31 Billion
C. $37 Billion✓ D. $48 Billion

97. According to Henley Passport Index 2018, Pakistani Passport has visa free access to how many countries?
A. 25 B. 30
C. 33✓ D. 40

98. The Supreme Court ordered the government of Pakistan not to appoint _____ on top posts and to draft laws in this regard after approval from the cabinet?
A. Minority nationals
B. Dual nationals✓

C. An individual having age less than 25 years
D. All of the above

99. The Asian Development Bank (ADB) proposed a _____ lending programme for Pakistan for next three years on 14th Dec 2018.
A. $3 billion B. $5 billion
C. $7.5 billion✓ D. $10 billion

100. Who is the President of Pakistan Hockey Federation (PHF)?
A. Abdullah Sultan
B. Khalid Sajjad Khokhar✓
C. Muhammad Haroon
D. Tauqeer Dar

101. The 2018 ACC Emerging Teams Asia Cup was held in _____.
A. Pakistan B. India
C. Sri Lanka D. UAE
E. A & C✓

102. PM Imran Khan inaugurated shelter home for homeless people in _____ on 14th Dec 2018.
A. Hyderabad **B. Peshawar✓**
C. Quetta D. Rawalpindi

103. Chief Justice of Pakistan inaugurated the building of the Supreme Court's registry in _____ on 10th DEC 2018.
A. Turbat **B. Quetta✓**
C. Khuzdar D. Kalat

104. Which of the following Pakistani boy topped in the list of top security researchers who have contributed research to the Microsoft products and services?
A. Ahsan Mujtaba **B. Ashar Javed✓**
C. Ahmed Hussain D. Hamza Wajih

105. Who announced "sin" taxes on tobacoo and sugary drinks in Pakistan?
A. Aamir Mehmood Kiani✓
B. Asad Umar
C. Shireen Mazari
D. None of above

106. Which PTI minister resigned from his portfolio over accusations of being involved in occupying state land & alleged abuse of power?
A. Babar Awan
B. Azam Swati✓
C. Jahangir Tareen
D. Aleem Khan

107. How many times Pakistan won the "Blind Cricket World Cup"?
A. 0 B. 1
C. 2✓ D. 3

108. Which country's Prime Minister was asked by Donald Trump in a letter, to play his rule in resolving Afghan issue?
A. PM of India
B. PM of Pakistan✓
C. PM of Afghanistan
D. PM of Russia

109. LHC stays demolition of Punjab Governor House Wall on:
A. Dec. 1, 2018 B. Dec. 2, 2018
C. Dec. 3, 2018✓ D. Dec. 6, 2018

110. Pakistan was elected as a member for the council of _____ for a four-year term (2019-2022) after securing 155 out of a total of 177 votes in November 2018.
A. International Organisation for Migration
B. International Telecommunication Union✓
C. International Commission on Missing Persons
D. International Center for Migration Policy Development

111. China and Pakistan together launched the bus service to facilitate tourists as part of an initiative to connect both countries via road under the CPEC. The bus will travel from _____.
A. Lahore-Kashgar
B. Kashgar-Lahore
C. Karachi-Kashgar
D. Rawalpindi-Kashgar
E. A & B✓

112. Who was named as new chief Jamiat Ulema Islam Sami (JUIS) after assassination of previous chief Maulana Sami ul Haq?
A. Maulana Abdul Haq
B. Maulana Hamid ul Haq✓
C. Maulana Bashir Ahmed
D. Maulana Sultan Ahmed

113. Sardar Khalid Ibrahim passed away due to brain hemorrhage on 4th November 2018. He was a renowned politician from _____.
A. Gilgit Baltistan
B. Azad Jammu and Kashmir✓
C. FATA
D. Balochistan

114. Who is the current Chief Justice of Islamabad High Court?
A. Justice Iqbal Hameed-ur-Rahman
B. Justice Sheikh Najam-ul-Hassan
C. Justice Muhammad Anwar Khan Kasi
D. Justice Athar Minallah✓

115. Who holds the record of taking most wickets in a single test game by a Pakistani Bowler?
A. Imran Khan B. Yasir Shah

C. Muhammad Abbas
D. Saeed Ajmal
E. A & B✓

116. Pakistan has decided to build Kartarpur Corridor in Nankana Sahib. The corridor will provide visa-free access to the Indian _____ pilgrims to the shrine.
A. Muslim B. Sikh✓
C. Hindu D. Christian

117. Which former Indian Cricket star arrived in Pakistan to attend the groundbreaking ceremony of the Kartarpur Corridor in Nankana Sahib on 28th November 2018?
A. Kapil Dev
B. Navjot Singh Sidhu✓
C. Sunil Gavaskar
D. Sachin Tendulkar

118. The Human Resources Committee (HRC) of the World Bank Board has elected Pakistan's executive director _____ as its chairman for a period of two years.
A. Muhammad Nabi
B. Shahid Ashraf Tarar✓
C. Anwar Ali Qureshi
D. Abdul Majeed Sial

119. Who announced to launch and lead awareness campaign for family planning?
A. PM of Pakistan
B. CJP✓
C. Information Minister
D. Human Rights Minister

120. Terror attack on Chinese Consulate that was carried out on 23rd November 2018 was later foiled by a team of police officials led by _____.
A. SSP Naureen Akbar
B. SSP Suhai Aziz✓
C. SSP Aneela Qadir
D. SSP Fida Hussain Mastoi

121. Terror attack on Chinese Consulate that was carried out on 23rd November 2018 was claimed by _____.
A. TTP
B. Baloch Liberation Army✓
C. Sindhudesh Liberation Army
D. Baluch Liberation Front

122. How many terrorists were killed by security forces in the operation against terror attack on Chinese Consulate on 23rd November 2018?
A. 1 B. 9
C. 3✓ D. 7

123. Which provincial government decided to dissolve Provincial Ehtisab Commission and to transfer the Rs300 million allocated fund of Ehtisab Commission to Anti-Corruption Department?
A. Punjab B. KP✓
C. Sindh D. Balochistan

124. The route of new train "Shah Abdul Latif Bhittai Express" will be from _____ to _____.
A. Karachi, Kashmore
B. Karachi, Mirpurkhas✓
C. Karachi, Shahdadpur
D. Karachi, Bhit Shah

125. The route of new train "Sindh Express" will be from _____ to _____.
A. Karachi, Kashmore
B. Karachi, Sukkur✓
C. Karachi, Hyderabad
D. Karachi, Larkana

126. Haji Muhammad Abdul Wahab died on 18th November 2018. He was the chief of which organisation?
A. Dawat-e-Islami
B. Tableeghi Jamaat✓
C. Deobandi Jamaat
D. None of these

127. Final match of PSL-4 was played in _____ on 17th March 2019 as per official announcement by PCB?
A. Lahore B. Karachi✓
C. Abu Dhabi D. Dubai

128. How many matches of PSL-4 were played in Pakistan as per official announcement by PCB?
A. 3 B. 5
C. 8✓ D. 11

129. Pakistan signed MoU with _____ to partially abolish visa requirements on 21st November 2018.
A. Malaysia✓ B. China
C. S.Arabia D. UAE

130. Renowned poetess, writer, Fahmida Riaz passed away at age of_____ on November 21, 2018.
A. 70 B. 73
C. 74 D. 72✓

131. First Pakistani Lady Cop to receive 'Sword of Honour' is_____.
A. Shaista Riffat B. Qurat-ul-Ain
C. Faryal Fareed✓ D. Soniya Noor

132. ICC dismissed Pakistan's case against India that the PCB had filed over BCCI's refusal to play with Team Green. The PCB had filed a compensation claim of _____ dollars?
A. 10 million B. 40 million
C. 70 million✓ D. 100 million

133. How many times Pakistan has borrowed from IMF since Dec 8, 1958?

A. 12 times B. 21 times✓
C. 27 times D. 33 times

134. When did Pakistan became member of IMF?
A. 1947 B. 1948
C. 1950✓ D. 1951

135. Which of the following Company get penalized by Supreme Court amounting for Rs100 million in dam fund?
A. Bahria Town
B. Nestle Pakistan
C. DG Cement✓
D. Dandot Cement

136. Pakistan and _____ signed an agreement to further strengthen their cooperation to deal with transnational organised crime, including drug trafficking, money laundering and human trafficking on 18th November 2018?
A. UAE✓ B. S.Arabia
C. China D. UK

137. Which country has shown its will to collaborate with Pakistan in fight against terrorism by carrying out joint border operations and putting in place an effective intelligence sharing mechanism on 18th November 2018?
A. Iran✓ B. India
C. Afghanistan D. Iraq

138. Which of the following provincial government imposed a ban on the manufacture, sale and purchase of non-biodegradable polythene bags in the province?
A. Punjab B. Sindh✓
C. KP D. Balochistan

139. Supreme Court of Pakistan ordered D.G Khan Cement Company Limited to deposit _____ into the SC Dam Fund as penalty in the Katas Raj pond case.
A. RS 300 million
B. RS 200 million
C. RS 100 million✓
D. RS 50 million

140. Which country announced to provide $4.6 million in grant-aid to Pakistan to support the supply of essential polio vaccine for the campaigns during the 2018-19?
A. Japan✓ B. China
C. S.Arabia D. Malaysia

141. Which of the following Pakistani woman featured on "BBC's 100 Women 2018" List?
A. Asma Jahangir
B. Ruth Pfau
C. Krishna Kumari✓
D. Malala Yusufzai

142. According to the Human Rights Watch (HRW) 2018 report, over _____ children are out of school in Pakistan.
A. 11.8 million B. 18.4 million
C. 22.5 million✓ D. 26.2 million

143. The Assets Recovery Unit (ARU) of the government traced over _____ fake bank accounts which were allegedly used to stash billions of dollars abroad.
A. 5000✓ B. 6000
C. 7000 D. 8000

144. Government's Assets Recovery Unit has identified properties of Pakistanis worth _____in 10 countries.
A. 3.3 billion B. 4.4 billion
C. 5.3 billion✓ D. 6.3 billion

145. When did Imran Khan visited China in 2018?
A. 1 November to 5 November✓
B. 1 October to 5 October
C. 1 September to 5 September
D. 1 December to 5 December

146. According to NACTA, how many people killed in drone attacks since 2004 to 2018?
A. 2,500 B. 2,714✓
C. 2,890 D. 3,412

147. According to National Counter Terrorism Authority (NACTA), a total of _____ drone attacks have been conducted in Pakistan since January 2004 to 2018.
A. 209 B. 309
C. 409✓ D. 509

148. Which country will host SAFF (South Asian Football Federation) Championship in 2020?
A. Bangladesh B. India
C. Pakistan✓ D. UAE

149. Who is the leader of the opposition in National Assembly of Pakistan?
A. Khurshid Shah
B. Maulana Fazl-ur-Rehman
C. Shahbaz Sharif✓
D. Farooq Sattar

150. The National Highway Authority fetched over _____ by auctioning its 201 vehicles in Nov 2018.
A. Rs 200 million
B. Rs 210 million
C. Rs 220 million
D. Rs 213 million✓

Islamic Studies:

Al-Quran: It is the Holy Book which was sent by Allah to Hazrat Muhammad Rasool Allah Khatam-un-Nabiyeen (صلی اللہ علیہ وعلی آلہ واصحبہ وسلم).

No. of Surahs in Holy Quran	:	114
No. of Paras in Holy Quran	:	30
No. of Ayats in Holy Quran	:	6666 In some books, 6236 Ayots are mentioned)
First Surah in Holy Quran	:	Surah-e-Fatiha
Last Surah in Holy Quran	:	Surah-e-Nas
Longest Surah in Holy Quran	:	Bakra
Shortest Suran in Holy Quran	:	Surah-e- Kausar
First revealed Surah	:	Surah Al-Alaq
The years to complete revelation	:	23 years
Rukoos	:	558 (In some books, 540 Rukoos are mentioned)
Number of Makki Surahs	:	87
Number of Madni Surahs	:	27
Author of Holy Quran	:	Allah Almighty

Name of Prophets mentioned in the Quran:

(1) Hazrat Adam (علیہ السلام)
(2) Hazrat Ayub (علیہ السلام)
(3) Hazrat Dawood (علیہ السلام)
(4) Hazrat Haroon (علیہ السلام)
(5) Hazrat Ibrahim (علیہ السلام)
(6) Hazrat Idrees (علیہ السلام)
(7) Hazrat Isa (علیہ السلام)
(8) Hazrat Ilyas (علیہ السلام)
(9) Hazrat Ishaq (علیہ السلام)
(10) Hazrat Ismail (علیہ السلام)
(11) Hazrat Loot (علیہ السلام)
(12) Hazrat Moosa (علیہ السلام)
(13) Hazrat Nooh (علیہ السلام)
(14) Hazrat Saleh (علیہ السلام)
(15) Hazrat Shuaib (علیہ السلام)
(16) Hazrat Sulaiman (علیہ السلام)
(17) Hazrat Yahya (علیہ السلام)
(18) Hazrat Yaqoob (علیہ السلام)
(19) Hazrat Yusuf (علیہ السلام)
(20) Hazrat Younus (Jones) (علیہ السلام)
(21) Hazrat Zakaria (علیہ السلام)
(22) Hazrat Zulkiff (علیہ السلام)
(23) Hazrat Hood (علیہ السلام)
(24) Hazrat Uzair (علیہ السلام)
(25) Hazrat Sheis (علیہ السلام)
(26) And the Khatam-un-Nabiyeen Prophet Hazrat Muhammad (صلی اللہ علیہ وآلہ وسلم)

Hazrat Muhammad Rasool Allah Khatam-un-Nabiyeen (صلی اللہ علیہ وعلی آلہ واصحبہ وسلم):

Date of Birth	:	571 A.D. Makkah
Father's name	:	Hazrat Abdullah
Mother's name	:	Hazrat Aminah Bibi
Grandfather's name	:	Hazrat Abdul Mutalib
Uncle's Name	:	Hazrat Abu Talib
Foster Mother's name	:	Hazrat Halima
First wife's name	:	Hazrat Khadija (رضی اللہ عنہا)
Year of Nabowwat	:	610 A.D.
Year of Hijrat	:	622 A.D. (12th Rabi-ul-Awwal)
Year of Conguest of Makkah	:	629 A.D.
Year of Demise	:	632 A.D.
Age at the time of Nabowwat	:	40 years

Children of Khatam-un-Nabiyeen Holy Prophet (ﷺ):

SONS	DAUGHTERS
1. Hazrat Qasim (رضی اللہ عنہ)	1. Hazrat Zainab (رضی اللہ عنہا)
2. Hazrat Abdullah (Tahir) (رضی اللہ عنہ)	2. Hazrat Ruqayyah (رضی اللہ عنہا)
3. Hazrat Ibrahim (رضی اللہ عنہ)	3. Hazrat Um-i-Kalsoom (رضی اللہ عنہا)
	4. Hazrat Fatima (رضی اللہ عنہا)

Important Articles of the Faith in Islam:

To believe that there is no God except Allah;
To believe in all of His Angels ;
To believe in all of His Prophets ;
To believe in all of His Books;
To believe in the Day of Resurrection;

Fundamental Principles of Islam: There are five fundamental principles of Islam. They are:

(1) The declaration of La--ila—ha-il--lal-la--hu mu--ham--ma--dur ra--su--lul--lah. This means there is no God but Allah and Muhammad is His Prophet.
(2) The observance of prayers five times a day.
(3) To distribute Zakat among the deserving people.
(4) To observe fast during the day time during the whole month of Ramazan.
(5) To perform Haj at Makkah at least once in life, if circumstances permit.

Kalima:

(1) Kalima Tayyabah (2) Kalima Shahadat
(3) Kalima Tamjeed (4) Kalima Tauheed
(5) Kalima Astaghfar (6) Kalima Rad-e-Kufar

Namaz: It is special way of worship taught by Allah in the Holy Quran elucidated and explained practically by Prophet Muhammad (Peace Be Upon Him).

Fajr	:	04 Rakats	:	2 Sunnat, 2 Farz
Zuhr	:	12 Rakats	:	4 Sunnat, 4 Farz, 2 Sunnat, 2 Nafal
Asr	:	08 Rakats	:	4 Sunnat, 4 Farz
Maghrib	:	07 Rakats	:	3 Farz, 2 Sunnat, 2 Nafal
Isha	:	17 Rakats	:	4 Sunnat, 4 Farz, 2 Sunnat, 2 Nafal, 3 Witr (Wajeb), 2 Nafal

Juma Prayer: It is observed on every Friday.

Fasting: It is one of the five fundamentals of Islam. It means obstinence (Parhez).

Zakat: Zakat is one of the five fundamentals of Islam. It means purity and cleanliness.

Nisab of Zakat

Silver : 52½ tolas Gold : 7½ tolas

Some renowned Muslim Saints and Suffis :

- Hazrat Data Ganj Bakhsh (Syed Ali Hajweri) (رحمۃ اللہ علیہ) — Lahore (Pakistan)
- Hazrat Khwaja Muinuddin Chishti (رحمۃ اللہ علیہ) — Ajmer Sharif India)
- Hazrat Abdul Qadir Jilani (رحمۃ اللہ علیہ) — Baghdad (Iraq)
- Hazrat Shah Jilal (رحمۃ اللہ علیہ) — Sylhet (Bangladesh)
- Hazrat Nizam-ud-Din Aulia (رحمۃ اللہ علیہ) — Delhi (India)
- Hazrat Mujaddid Alf-e-Sani (رحمۃ اللہ علیہ) — Sirhind (India)

Sources of Islamic Laws :

(1) Al-Quran (2) Sunnat (Hadith) (3) Ijma__General consensus of Ulema
(4) Ijtihad (5) Qiyas

Main Sects in Islam:

- Sunni are those who follow the teachings of Prophet Muhammad (ﷺ).
- Shia are those who in addition to Prophet's teachings, give special attachment & reverence to Hazrat Ali(رضی اللہ عنہ).

Khulfa-e-Rashedin: The reign of the first four Khulfa of Islam *i.e.*

Name	Period of Khilafat
Hazrat Abu Bakr (رضی اللہ عنہ)	632-634 A.D.
Hazrat Umer (رضی اللہ عنہ)	634-644 A.D.
Hazrat Usman (رضی اللہ عنہ)	644-656 A.D.
Hazrat Ali (رضی اللہ عنہ)	656-661 A.D.

Hazrat Abu Bakr (رضی اللہ عنہ)

Birth	:	573 A.D.
Surname	:	Abu Bakr
Real name	:	Abdullah
Death	:	22 Jamadi-us-Sani (13 Hijra) 634 A.D.
Father's name	:	Usman Abu Qahafa
Mother's name	:	Salma Umm-ul-Khair

Hazrat Umer (رضی اللہ عنہ):

Birth	:	581 A.D.
Surname	:	Abu Hafs
Death	:	644 A.D.
Father's name	:	Khattab ibn Nufayl
Mother's name	:	Hantamah bint Hisham

Hazrat Usman (رضی اللہ عنہ):

Birth	:	573 A.D.
Belong	:	Banu Umayyah
Surname	:	Abu Amar
Father's name	:	Affan
Mother's name	:	Arvi Bint-e-Kuraiz
Death	:	656 A.D.

Hazrat Ali (رضی اللہ عنہ):

Father name	:	Abu Talib
Surname	:	Abu Turab
Death	:	Jan. 27, 661 A.D.
Father's name	:	Abi Talib
Mother's name	:	Fatima bint Asad

Generals in Islamic History :

Abu Sufiyan	Abu Ubaidah-bin-Jarah
Amir Hamza	Sad-bin-Waqas
Khalid-bin-Walid	Umer-bin-As
Musa-bin-Naseer	Sharjil-bin-Hassana
Salah-ud-Din	Abdur Rahman-bin-Abu Bakr
Tariq-bin-Ziyad	Akrama-bin-Abu Jahal
Muhammad-bin-Qasim	

Muslim Calendar :

1. Moharram	2. Safar	3. Rabi-ul-Awwal	4. Rabi-us-Sani
5. Jamadi-ul-Awwal	6. Jamadi-us-Sani	7. Rajab	8. Shaaban
9. Ramazan	10. Shawwal	11. Ziqa'ad	12. Zilhaj

Important Angels: Angels are the creatures of Allah and they are made of light. They are invisible.

Hazrat Gibra'il (AS)	Who brought Allah's books, commands and messages to His Prophets.
Hazrat Meka'il (AS)	Incharge of protection and also to bring rains.
Hazrat Israfil (AS)	Who will blow the trumpet on the Day of Judgment.
Hazrat Izra'il (AS)	Incharge of taking the life of living creatures.

Other Important Angels :

Kiraman-Katabin	Incharge of right and left shoulders.
Munkar & Nakir	Incharge of grave.

Lineage of the Hazrat Muhammad Rasool Allah Khatam-un-Nabiyeen (صلی اللہ علیہ وعلی آلہ واصحابہ وسلم)

Prophet Muhammad (Peace Be Upon Him) was the son of Hazrat Abdullah, who was the [illegible] Hazrat Abdul Mutalib, who was the son of Hazrat Hashim, who was the son of Hazrat Abd[illegible]

Names of the Holy Books:

Taurat	revealed to Prophet Musa (AS).
Zabur	revealed to Prophet Daud (AS).

Injeel	revealed to Prophet Isa (AS).
Quran-al-Karim	revealed to Prophet Muhammad (ﷺ)

Books of Different Religions :

Revealed Religion	**Holy Books**
Islam	Al-Quran
Jewish	Taurat
Christianity	Injeel
Other Religions	
Hinduism	Vedas, Gita Puranas
Zoroastrianism	Zind-a-besta
Buddhism	Tripitak
Sikhism	Guru Granth Sahib

Names of Some Muslim Scholars:

Abu Kamil	A mathematician (Kitab-ul-Hind)
Al Farabi	A philosopher
Al Basudi	Geographer and Encyclopaedists
Al Bairuni	Geographer and Historian
Ibrahim-bin-Sina	Mathematician and Physician
Jabir-bin-Hayan	Chemist
Muhammad-bin-Musa	
Umer-i-Khayam	Mathematician
Yaqub-bin-Tariq	Astronomer
Yaqub Kundi	Musician

Ashra Mubashra: Those who were informed by the Khatam-un-Nabiyeen Holy Prophet (ﷺ) about the award of Paradise for them during their life-time are known as Ashra Mubashra. They are ten in number:

(1) Hazrat Abu Bakr (رضی اللہ عنہ) (2) Hazrat Umer Farooq (رضی اللہ عنہ)
(3) Hazrat Usman (رضی اللہ عنہ) (4) Hazrat Ali (رضی اللہ عنہ)
(5) Hazrat Abu Talha (رضی اللہ عنہ) (6) Hazrat Zubair ibn Awam (رضی اللہ عنہ)
(7) Hazrat Abu Obaida ibn-al-Jarah (رضی اللہ عنہ)(8) Hazrat Abdul Rehman ibn A'uf (رضی اللہ عنہ)
(9) Hazrat Sa'ad ibn Abi Waqas (رضی اللہ عنہ) (10) Hazrat Saeed ibn Zaid (رضی اللہ عنہ)

SACRED PLACES ETC:

Ka'aba: It is the first mosque at Makkah the oldest city in the world. There is a black stone (Hajr-e-Aswad) housed in this mosque. This stone is believed to have been brought from Heaven.

Bait-ul-Mukaddas. It is the Qibla Awwal.

Mount Hira. It is a cave in Makkah where angel Gibra'il for the first time revealed the Message of Allah to our Khatam-un-Nabiyeen Holy Prophet (ﷺ) at the age of 40.

Tur-e-Sina. It is the place (Mount Sinai) where Hazrat Musa (AS) Moses Prophet of Allah received Allah's message.

Janat-ul-Bakee. It is a graveyard where companions of the Khatam-un-Nabiyeen Holy Prophet (ﷺ) are buried.

SOME ISLAMIC TERMS:

1. **Islam.** It means complete submission to the will of Allah *i.e.* to submit to the orders of Allah and act with His commands.
2. **Mumins and Muslims.** Those who believe in Allah and obey Him.
3. **Musthhab.** Which is not clear rather it is correct or not.
4. **Makruh.** Mukruh is that which is not Haraam but is not appreciated.
5. **Kafar.** Anyone who does not believe in Allah, Islam (*i.e.* Tauhid, Prophets, Holy Revealed Books, Angels, Day of Judgment).
6. **Ramazan.** It is one of Islamic months specified for keeping fasts.

7. **Fasts.** They are observed during the holy month of Ramazan.
8. **Miraj Sharif.** One night, our Khatam-un-Nabiyeen Holy Prophet Muhammad (Peace Be Upon Him) by the order of Allah, travelled from Makkah to Bait-ul-Muqaddas and then from there to the seven heavens and beyond where Allah wanted him. The Khatam-un-Nabiyeen Holy Prophet (P.B.U.H) visited the Paradise and Hell and then returned to Makkah the same night. This is known as Miraj Shanf.
9. **Haraam.** Anything which is legally forbidden and absolutely proved to be so by Dalil-e-Qatai (undeniable argument). One who does it is Fasiq and deserves punishment.
10. **Makruh Tahrimi.** It is near about Haraam. It is forbidden and proved to be so by Dalil-e-Zanni, but who does not accept it is not Kafir but is very sinful.
11. **Makruh Tanzihi.** It is near about Hilal, the act of which brings God's blessings if avoided. If done, it is bad but not punishable.
12. **Mubah.** It is an act or doing of which brings neither any blessings nor punishment.
13. **Qira'at.** It is the recitation of the Holy Quran.
14. **Iman.** It means belief in Allah and all His qualities, angels, heavenly body and prophets by heart and to believe as true all that the Khatam-un-Nabiyeen Holy Prophet (Peace Be Upon Him) brought from Allah and to proclaim this belief.
15. **Kufr.** It is the act of not believing in any one of the important articles of Iman.
16. **Shirk.** It is the act of making somebody share in Allah's qualities or in his person.
17. **A'itikaf.** Staying in a mosque or at home in a separate room for devotion and prayers is called A'itikaf in the last ten days of the month of Ramazan.
18. **Zakat.** It is that part of the wealth which is given away to the poor according to Allah's order. It is worked out at the rate of 2½% on 7½ Tola gold or 52½ Tola silver which remains with one for full one year.
19. **Sadaqa-e-Fitr.** It is that amount which is paid after the expiry of Ramazan on Eid day as a mark of gratitude. It is worked out equivalent to the marked value of two kilos of wheat on that day, and must be paid before Eid Prayer.

SOME MUSLIM HISTORIANS :

1. Abu Abdullah Muhammad Bin Umer Al-Waqdi, 747 A.D.
2. Ibne Sa'd-Abu Abdullah Al Basri 845 A.D.
3. Ahmed Bin Yahya Bin Jaber Al Balazri, 892 A.D.
4. Ibn Qatbah Abu Abad Muhammad Bin Muslim Al Kuni, 828 A.D. to 889 A.D.
5. Ahmed Bin Abi Yaqub Yaqubi, 897 A.D.
6. Uzzud Din Abdul Hassan Ibne Taser 1160 A.D. to 1234 A.D.
7. Abu Jaffer Muhammad Bin Jareer Tabri, 893 A.D. to 922 A.D.
8. Ibn-e-Khalmqan, 1211 A.D. to 1282 A.D.
9. Ibn-ul-Jozi, 1116 A.D. to 1201 A.D.
10. Ibn-e-Kaseer, 1301 A.D. to 1373 A.D.
11. Jalal-ud-Din Siyuti, 1445 to 1506 A.D.

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SOME MUSLIM SCHOLARS AND SCIENTISTS

(i) **ALLAMA DR. MUHAMMAD IQBAL (1877-1938):** Born in Sialkot (Pakistan). After taking early education in Pakistan, took his Ph.D. degree from Germany. Regarded as one of the greatest philospher poets of the world His national poetry inspired the Muslims to freedom. Wrote many poetical works, e.g. Bang-e-Dara, Bal-e-Jibreel, Zarb-e-Kalim, Zabur-e-Ajam etc.

(ii) **Al-FARABI (870-950 A.D.):** Born in Transoxiana in 870 A.D. He travelled widely and studied Aristotle and Plato and wrote many commentaries on these Greek philosphers. His works include al-Siyasha-al-Madaniyah (a treatise on political economy), Risala Fusus-al-Hakima (Gems of Wisdom) and Kitab-al-Musiqi-al-Kabir.

(iii) **AL-RAZI (865-925 A.D.):** Born at Rayy (Iran) in 865 A.D. He is regarded as one of the greatest physicians of medieval age. His books on medical science include Kitab-al-Hawi (the comprehensive book) in 20 volumes and Kitab-al-Asrar (the book of secrets).

(iv) **IBN-ARABI (1165-1240 A.D.):** Born in Murcia (Spain) in 1165 A.D. He was a great scholar, mystic and theologian. He travelled extensively and visited Baghdad, Mosal, Egypt, Asia Minor and Arabia. His book Al-Futuhat Al-Makkiya (Makkah Revelations) is very important.

(v) **IBN-KHALDUN (1332-1406 A.D.):** Born in Tunis in 1332 A.D. He is ranked among the greatest historians of all ages. Considered as the father of sociology. His Muqaddimah (Preface) of his work Kitab-al-Ibar contains his theory about the rise and fall of societies. He also served as Grand Qazi of Egypt.

(vi) **IBN-SINA (980-1037 A.D.):** Born near Bukhara. He was the greatest Muslim physician and scholar. Known as Avicenna in Europe. He wrote many works of which Kitab-ul-Shifa (the book of healing) and Kitab-ul-Insaf are important treatises on medicine and philosophy respectively.

(vii) **JABIR IBN-HAYYAN (777-813 A.D.):** Born near Kufah in 777 A.D. Discovered Sulphuric Acid, Nitric Acid, Aqua Regia etc. Regarded as the father of Chemistry. He obtained many substances like Antimony, Soda, Boric, Arsenic and Alum in pure form. His works include Kitab-al-Tajmi (Book of Concentration), Kitab-al-Rahmah and al-Zibaq-al-Sharqi.

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THE HOLY QURAN & HADITH

Q. What is the importance of the Holy Quran?

Ans. The Holy Quran is the sacred book which was revealed to the Khatam-un-Nabiyeen Holy Prophet Muhammad (ﷺ). This divine book comprises of precepts of Islam which serve as a code of conduct for the Muslims. Billions of Muslims all over the world recite Holy Quran regularly. Thus it is the book which is read by majority of the world population.

Q. Which angel brought the divine revelation to the Khatam-un-Nabiyeen Holy Prophet (ﷺ)?

Ans. Hazrat Jibrael (AS).

Q. What was the age of the Khatam-un-Nabiyeen Holy Prophet (ﷺ) when he received the first revelation?

Ans. Forty years.

Q. At which place, the Khatam-un-Nabiyeen Holy Prophet (ﷺ) received the first revelation?

Ans. Cave Hira (Ghar-e-Hira).

Q. What was the first revelation?

Ans. Translation, "Read in the name of Allah".

Q. In which month, the Khatam-un-Nabiyeen Holy Prophet (ﷺ) received the first revelation?

Ans. On the 17th of the month of Ramadan.

Q. How much time it took for the complete revelation of the Holy Quran?

Ans. 22 years, 2 months and 22 days.

Q. What is the total number of Paras in the Holy Quran?

Ans. Thirty.

Q. What is the total number of Surahs in the Holy Quran?

Ans. 114.

Q. What is the number of Ayats in Holy Quran?

Ans. 6236 (In some books the no. of Ayats is given 6666).

Q. Which is the first Surah of the Holy Quran?

Ans. Surah Al-Fatah.

Q. Which is the last Surah of the Holy Quran?

Ans. Surah Al-Nas.

Q. Which is the longest Surah of the Holy Quran?

Ans. Surah Al-Baqrah.

Q. Which is the shortest Surah of the Holy Quran?

Ans. Surah Al-Kausar.

Q. Name the Surah of the Holy Quran which was first revealed to the Khatam-un-Nabiyeen Holy Prophet (ﷺ).

Ans. Surah Al-Alaq.

Q. Which Surah was the last to be revealed?

Ans. Surah Al-Nasr.

Q. What is the number of Makki Surahs?

Ans. 87.

Q. What is the number of Madni Surahs?

Ans. 27.

Q. What is the name of those words in the Holy Quran whose meaning was not disclosed by the Khatam-un-Nabiyeen Holy Prophet (ﷺ)?

Ans. Haroof-e-Mukatiyat.

Q. How many stages are there in the Holy Quran?

Ans. Seven stages.

Q. What is the name of the night in which the Holy Quran was first revealed?

Ans. Laila-tul-Qadar.

Q. What is the number of Surahs in the first stage of the Holy Quran?

Ans. Seven.

Q. How many Surahs are there in the second stage of the Holy Quran?

Ans. Five.

Q. What is the total number of Surahs in the

third, fourth, fifth, sixth and seventh stage of the Holy Quran?

Ans. Seven, Fifteen, Eleven, Thirteen and Fifty-Six, respectively.

Q. **What is the total number of "Ruku" in the Holy Quran?**

Ans. 558 (According to some books 540).

Q. **What is the total number of Ayat-e-Waada in the Holy Quran?**

Ans. 1,000.

Q. **What is the total number of Ayat-e-Tasbeeh in the Holy Quran?**

Ans. 100.

Q. **What is the total number of Sajdah-e-Talawat in the Holy Quran?**

Ans. Fourteen.

Q. **What is the total number of Alphabets (Haroof) in the Holy Quran?**

Ans. 32,06,270.

Q. **What is the total number of Kalimat in the Holy Quran?**

Ans. 86,430.

Q. **Which Surah is called "Bab-ul-Quran"?**

Ans. Surah Al-Fatah.

Q. **For how many times advice has been given for the prayer (Salat)?**

Ans. Seven hundred (700).

Q. **Which Surah is called the Heart of Holy Quran?**

Ans. Surah Yaseen.

Q. **Which Sahabi (Companion) was the first Hafiz of the Holy Quran?**

Ans. Hazrat Usman (رضی اللہ عنہ).

Q. **Which Para contains the first Sajidah Talawat?**

Ans. Para number nine.

Q. **How many Parahs of Holy Quran commence with Haroof-e-Mukatiyat?**

Ans. Two.

Q. **How many Surahs start with Haroof-e-Mukatiyat?**

Ans. Five.

Q. **Which Surah of Holy Quran does not begin with Bismillah?**

Ans. Surah Al-Taubah.

Q. **According to Surah Al-Younas in how many days Allah created the universe?**

Ans. Six days.

Q. **How many doors does the Hell has according to the Holy Quran?**

Ans. Seven.

Q. **Which Surah is named after the name of a canal in the Paradise?**

Ans. Surah Al-Kausar.

Q. **Which Surah contains the mention of Yajooj Majooj?**

Ans. Surah Al-Ambia.

Q. **Which Surah was being recited by the sister of Hazrat Umer (رضی اللہ عنہ) after listening to which he embraced Islam?**

Ans. Surah Al-Taha.

Q. **Which Surah had been recited by Hazrat Jaffar Tayyar before King Najashi?**

Ans. Surah Al-Mariam.

Q. **How many Surahs of the Holy Quran begin with the word "Subhan"?**

Ans. Seven.

Q. **Which Surah was c...pi..ted first of all?**

Ans. Surah Al-Fatah.

Q. **What is meant by Rooh-ul-Amin?**

Ans. It is the title of Hazrat Jibrael (AS) as mentioned in the Holy Quran.

Q. **Which Caliph started the work of the compilation of the Holy Quran in written form?**

Ans. Hazrat Abu Bakr (رضی اللہ عنہ).

Q. **Which Parah of the Holy Quran contains the first Sajdah-e-Talawat?**

Ans. Parah Number Nine.

Q. **Which Sahabi (Companion of Khatam-un-Nabiyeen Holy Prophet) is given the name of Jamia-ul-Quran?**

Ans. Hazrat Usman Ghani (رضی اللہ عنہ).

Q. **What is the number of the Sahaba Karam who got the honour of writing the divine revelation?**

Ans. 35.

Q. **What is the number of the Muslim ladies who learnt the Holy Quran by heart (Hafiz-e-Quran) during the period of the Khatam-un-Nabiyeen Holy Prophet (صلی اللہ علیہ وسلم)?**

Ans. Four ladies namely:

(1) Umul Momineen Hazrat Ayeshah Siddiqah (رضی اللہ عنہا).

(2) Umul Momineen Hazrat Hifsa (رضی اللہ عنہا).

(3) Umul Momineen Hazrat Um-e-Salma (رضی اللہ عنہا).

(4) Ume Warqa bin Naufal (رضی اللہ عنہا).

Q. **Who translated Holy Quran into the Persian language?**

Ans. The Holy Quran was translated into Persian by Hazrat Shah Wali Ullah.

Q. **When was the Holy Quran first translated into Urdu?**

Ans. Hazrat Shah Rafi-ud-Din translated the Holy Quran into Urdu in the year 1776.

Q. **In which language was the Holy Quran translated first of all?**

Ans. Latin language

Q. **In which year, the Holy Quran was recorded in the Kufi script?**

Ans. 160 A.H.

Q. **Give the name of the stage of the Holy Quran in which Surah Al-Yaseen is located.**

Ans. In the 5th stage.

Q. **How many Surahs of the Holy Quran consist of only one Ruku each?**

Ans. 36 Surahs.

Q. **Which Ghazwah has been mentioned in the Surah Al-Imran?**

Ans. Ghazwah Uhad (Battle of Uhad).

Q. **Magicians of which country have been mentioned in Surah Al-Airaf?**

Ans. Egypt.

Q. **In which Ayat of Surah Al-Hood, Hazrat Noah (AS) was ordered to prepare a boat?**

Ans. 37th Ayat of Surah Al-Hood.

Q. **What is the colour of the clothes of the resident of Paradise?**

Ans. Green.

Q. **Give the name of that Surah of the Holy Quran which contains Bismillah twice.**

Ans. Surah Al-Namal.

Q. **Which Surah contains the narrative of the defeat of Abraha?**

Ans. Surah Al-Feel.

AL-HADITH

Q. **What is the literal meaning of the term Al-Hadith?**

Ans. Al-Hadith is the saying of Khatam-un-Nabiyeen Holy Prophet (ﷺ) which is narrated by any of his Companions (Sahaba Karam).

Q. **What is a Musnad?**

Ans. It is a type of Hadith in which narration reaches a Sahabi through authenticated narrators in a continuous manner.

Q. **What is "Musalsal Halaf"?**

Ans. It is a Hadith in which all narrators take hand in hand while narrating in order to give surety.

Q. **Define "Musalsal Aleed".**

Ans. In this type of Hadith, all narrators take hand in hand while narrating to give surety.

Q. **What is Hadith Mutasil?**

Ans. In this Hadith, chain of narrators is complete without a break.

Q. **Define "Hadith Munqatah".**

Ans. In Hadith Munqatah, the chain of narrators is broken at a Tabee.

Q. **What is Hadith Mursil?**

Ans. In this Hadith, the chain of narration should break at a Sahabi only viz. the Tabee must quote directly from the Khatam-un-Nabiyeen Holy Prophet (ﷺ).

Q. **What is Hadith Muzil?**

Ans. In this Hadith, two or more than two narrators may be unknown.

Q. **What is Hadith Mu'anan?**

Ans. In this Hadith, a narrator must use the word UN while narrating.

Q. **Define Hadith Muajam?**

Ans. It is the Hadith in which the narrator does not know the name of another narrator and uses the word 'Rajal'.

Q. **Give the names of the six books which are called Sahah-e-Sitta.**

Ans.
(1) Sahih Bukhari
(2) Sahih Muslim
(3) Sunan Abu Daud
(4) Sunan Tirmzi
(5) Sunan Nisai
(6) Sunan Ibn-e-Majah

Q. **What is Sahih Bukhari?**

Ans. It is considered the most authentic book on Hadith. Imam Muhammad bin Ismail Bukhari compiled this book which comprises of 9,082 Ahadith.

Q. **What is Sahih Muslim?**

Ans. Imam Muslim Qasheeri Nishapuri compiled this work which consists of about 4,000 Ahadith. Sahih Muslim is regarded as the second most authentic work after Sahih Bukhari.

Q. **Throw light on Sunan 'Tirmzi'.**

Ans. It is a collection of Ahadith which was compiled by Imam Muhammad bin Isa Tirmzi.

Q. **What is Sunan Abu Daud?**

Ans. Imam Abu Daud Sajistani compiled this work of Ahadith. There are 4,800 Ahadith in this collection.

Q. **What is Sunan Nisai?**

Ans. This collection of Ahadith is the work of Imam Abu Abdul Rehman Ahmed bin Shoaib Nisai. It contains 5,761 Ahadith.

Q. **Sunan Ibn-e-Majah is great work of Hadith which is distinguish for its beautiful arrangement. Comment.**

Ans. Imam Muhammad Abu Abdullah Ibn Majah compiled this work which comprises of 4,000 Ahadith. In this book, the Ahadith have been arranged in a beautiful manner.

Q. **What is the importance of Ahadith?**

Ans. Hadith is the second most authentic source of Islamic jurisprudence.

Q. **Give the types of Hadith in term of meaning.**

Ans. There are three types:
(1) Hadith Qauli (2) Hadith Faeli
(3) Hadith Taqrir

Q. **Give the types of Hadith in term of 'Sanad'.**

Ans. There are three types:
(1) Hadith Marfu (2) Hadith Mauqoof
(3) Hadith Maqtu

Q. **Give the types of Hadith in term of narrators.**

Ans. There are four types:
(1) Hadith Matwatar (2) Hadith Mashhoor (3) Hadith Aziz (4) Hadith Ghareeb

Q. **What is Sahih?**

Ans. It is the Hadith whose narrators are Adil and whose sanad is Mutasil.

Q. **Give the number of Ahadith which have been narrated by Hazrat Abu Hurairah (رضی اللہ عنہ).**

Ans. 5,374.

Q. **How many Ahadith are related to Hazrat Ayeshah (رضی اللہ عنہا)?**

Ans. 2,210.

Q. **What is meant by the word Tabaeen?**

Ans. The Tabi'un-meaning "followers" — are the generation of Muslims who were born after the passing of Prophet Muhammad (صلی اللہ علیہ وسلم) but who were contemporaries of the Sahaba ("companions").

Q. **Give the names of Aema Muhaddaseen.**

Ans. Imam Abu Hanifah, Imam Ahmed bin Hanbal, Asad bin Musa, Usman bin Abi Shaibah and Ishaq bin Rahu etc.

Expected Questions *Sure Shot+*

1. **In which Surah of Quran, there is mention of Zulqarnain?**
   (A) A'ssuff (B) Alkahaf✓
   (C) Al Mujadala (D) Al Imran
2. **Muslims are the best of all due to:**
   (A) Justice (B) Simplicity
   (C) Truthfulness✓ (D) Moderation
3. **Sahib Us-Ser is the nickname of:**
   (A) Hazrat Huzaifa (R.A)✓
   (B) Hazrat Uqba (R.A)
   (C) Hazrat Saad (R.A)
   (D) Hazrat Khuzaifa (R.A)
4. **Masjid-e-Khaif is located in:**
   (A) Muzdilifa (B) Arafat
   (C) Mina✓ (D) None
5. **Ghassel-ul-Malaika is the title of:**
   (A) Hazrat Abu Talha (R.A)
   (B) Hazrat Khuzaifa (R.A)
   (C) Hazrat Hanzala (R.A)✓
   (D) Hazrat Jaffar (R.A)
6. **Who was the grandfather of the Khatam-un-Nabiyeen Holy Prophet (PBUH)?**
   (A) Hazrat Abu Talib
   (B) Hazrat Abbas (RA)
   (C) Hazrat Abdul Muttalib✓
7. **Who was a historian, jurist, philosopher, as well as a politician?**
   (A) Shams-ud-Din Ibn-i-Khalkan
   (B) Abdur Rehman Ibn Khaldoon✓
   (C) Abu Bakar Muhammad Ibn-i-Yahya
8. **When law of inheritence was revealed?**
   (A) Three Hijrah
   (B) Four Hijrah✓
   (C) Five Hijrah (D) Six Hijrah
9. **Who was the last Commander-in-Chief for Ghazwa-e-Mautah?**
   (A) Hazrat Khalid bin Waleed (R.A)✓
   (B) Abdur Rehman bin Auf (R.A)
   (C) Abdullah bin Rawaha (R.A)
10. **Whose title is Asad-ullah?**
    (A) Omar (R.A) (B) Ali (R.A) ✓
    (C) Usman (R.A)
11. **Who was born inside Kaaba?**
    (A) Zaid (R.A) (B) Usman (R.A)
    (C) Ali (R.A) ✓
12. **Ali (R.A) was married to Fatima (R.A) in?**
    (A) 5 Hijrah (B) 2 Hijrah✓
    (C) 4 Hijrah
13. **Africa was conquered in the reign of?**
    (A) Omar (R.A) (B) Usman (R.A)✓
    (C) Ali (R.A)
14. **Hazrat Usman (R.A) migrated?**
    (A) Thrice (B) Once (C) Twice✓
15. **Corpse of Usman (R.A) remained unburied for?**
    (A) 3 days✓ (B) 5 days
    (C) 1 days
16. **Usman (R.A) was younger to the Prophet (S.A.W) by?**
    (A) 3 years (B) 4 years

(C) 5 years✓

17. Who liberated Bilal (R.A)?
(A) Omar (R.A)
(B) Abu Bakr (R.A) ✓
(C) Ali (R.A)

18. First to accept Islam among men was?
(A) Ali (R.A)✓ (B) Zaid (R.A)
(C) Abu Bakr (R.A)

19. Younas (A.S) remained in the belly of the whale?
(A) 20 days (B) 40 days✓
(C) 10 days

20. Messengers mentioned in the Quran are?
(A) 23 (B) 25✓
(C) 28

21. Which Prophet is most mentioned in the Holy Quran?
(A) Jesus (A.S)
(B) Dawood (A.S)
(C) Moses (A.S) ✓

22. "Sahaif" revealed on Idress (A.S) were?
(A) 30✓ (B) 40
(C) 50

23. Who is called "Khateeb-ul-Anbia"?
(A) Hood (A.S) (B) Nuh (A.S)
(C) Shoaib (A.S) ✓

24. Who could play flute very well?
(A) Hood (A.S)✓ (B) Nuh (A.S)
(C) Yaqoob (A.S)

25. Who is called "Zul-Nun"?
(A) Moosa (A.S)
(B) Younas (A.S)✓
(C) Jesus (A.S)

26. Which Messenger made "Soap"?
(A) Younas (A.S) (B) Nuh (A.S)
(C) Saleh (A.S) ✓

27. "Sahaif" revealed on Ibrahim (A.S) were?
(A) 3✓ (B) 4
(C) 5

28. Ayub (A.S) was well-known for?
(A) Tolerance (B) Patience✓
(C) Love

29. How many Prophets came to Bani-Israil?
(A) 50 thousand (B) 60 thousand
(C) 70 thousand✓

30. Who conquered Egypt?
(A) Amar bin Al-Aas (R.A)✓
(B) Ali (R.A) (C) Usman (R.A)

31. Banu Ghassan is in?
(A) Iraq✓ (B) Syria
(C) Egypt

32. Battle of Yamama was fought against?
(A) Romans (B) Egyptians
(C) Musailma Kazzab✓

33. Who penned down peace treaty on the conquest of Jerusalem?
(A) Omar (R.A)✓ (B) Ali (R.A)
(C) Khalid Bin Walid (R.A)

34. Koofa was built on the orders of?
(A) Usman (R.A) (B) Ali (R.A)
(C) Omar (R.A)✓

35. Tripoli was conquered in the reign of?
(A) Usman (R.A)✓ (B) Omar (R.A)
(C) Ali (R.A)

36. Which battle decided the fate of Syria?
(A) Badr (B) Yarmuk
(C) Hunain✓

37. Omar (R.A) established regular military institution in?
(A) 10 Hijrah (B) 13 Hijrah
(C) 15 Hijrah✓

38. Muslims martyred in the war against Musailma Kazzab were?
(A) 12000 (B) 1500
(C) 1300
(D) 1000✓

39. When Usman (R.A) accepted Islam, what was his age?
(A) 30 years (B) 34 years✓
(C) 40 years

40. Abu Ayub Ansari (R.A) is buried in?
(A) Mecca (B) Egypt
(C) Constantinople✓

41. Which battle was fought between Ali (R.A) and Ameer Muawiya (R.A)?
(A) Safeen✓ (B) Jaml (C) Mota

42. Mother of Hazrat Ali (R.A) was?
(A) Asma (R.A)
(B) Fatima (R.A)✓
(C) Salma (R.A)

43. Bait-ul-Muqaddas was conquered in the reign of?
(A) Abu Bakr (R.A) (B) Ali (R.A)
(C) Omar (R.A)✓

44. Wife of Usman (R.A) was?
(A) Nayla (R.A)
(B) Ruqayya (R.A)✓
(C) Zainab (R.A)

45. Length of the Ameer-ul-Momenin canal is?
(A) 90 miles (B) 99 miles✓
(C) 79 miles

46. Rate of Zakat is?
(A) 2% (B) 3% (C) 2 1/2%✓

47. House of Usman (R.A) remained besieged for?
(A) 40 days✓ (B) 45 days
(C) 30 days

48. Ali (R.A) changed his capital from Madina to?
(A) Syria (B) Koofa✓
(C) Basra

49. Khusro Pervaiz was the king of?
(A) Rome (B) Egypt
(C) Iran✓

50. Najeebullah is the title of:
(A) Hazrat Yahya (AS)
(B) Hazrat Yaqoob (AS)
(C) Hazrat Shoaib (AS)
(D) None✓

Geography:

Geography is a field of science devoted to the study of the lands, the features, the inhabitants, and the phenomena of Earth. The first person to use the word "γεωγραφία" was Eratosthenes (276–194 BC). Geography is an all-encompassing discipline that seeks an understanding of the Earth and its human and natural complexities—not merely where objects are, but how they have changed and come to be. It is often defined in terms of the two branches of human geography and physical geography. The four historical traditions in geographical research are: spatial analyses of natural and the human phenomena, area studies of places and regions, studies of human-land relationships, and the Earth sciences. Geography has been called "the world discipline" and "the bridge between the human and the physical sciences".

Introduction

Geography is a systematic study of the Earth and its features. Traditionally, geography has been associated with cartography and place names. Although many geographers are trained in toponymy and cartology, this is not their main preoccupation. Geographers study the space and the temporal database distribution of phenomena, processes, and features as well as the interaction of humans and their environment. Because space and place affect a variety of topics, such as economics, health, climate, plants and animals, geography is highly interdisciplinary. The interdisciplinary nature of the geographical approach depends on an attentiveness to the relationship between physical and human phenomena and its spatial patterns.

Names of places...are not geography...know by heart a whole gazetteer full of them would not, in itself, constitute anyone a geographer. Geography has higher aims than this: it seeks to classify phenomena (alike of the natural and of the political world, in so far as it treats of the latter), to compare, to generalize, to ascend from effects to causes, and, in doing so, to trace out the laws of nature and to mark their influences upon man. This is 'a description of the world'—that is Geography. In a word Geography is a Science—a thing not of mere names but of argument and reason, of cause and effect.

Geography as a discipline can be split broadly into two main subsidiary fields: human geography and physical geography. The former largely focuses on the built environment and how humans create, view, manage, and influence space. The latter examines the natural environment, and how organisms, climate, soil, water, and landforms produce and interact. The difference between these approaches led to a third field, environmental geography, which combines physical and human geography and concerns the interactions between the environment and humans.

BRANCHES

Physical geography

Physical geography (or physiography) focuses on geography as an Earth science. It aims to understand the physical problems and the issues of lithosphere, hydrosphere, atmosphere, pedosphere, and global flora and fauna patterns (biosphere).

Human geography

Human geography is a branch of geography that focuses on the study of patterns and processes that shape the human society. It encompasses the human, political, cultural, social, and economic aspects.

- **Human geography can be divided into many broad categories, such as:**

Various approaches to the study of human geography have also arisen through time and include:

- Behavioral geography
- Feminist geography
- Culture theory
- Geosophy

Integrated geography

Integrated geography is concerned with the description of the spatial interactions between humans and the natural world. It requires an understanding of the traditional aspects of physical and human geography, as well as the ways that human societies conceptualize the environment. Integrated geography has emerged as a bridge between the human and the physical geography, as a result of the increasing specialisation of the two sub-fields. Furthermore, as human relationship with the environment has changed as a result of globalization and technological change, a new approach was needed to understand the changing and dynamic relationship. Examples of areas of research in the environmental geography include: emergency management, environmental management, sustainability, and political ecology.

Geomatics

Geomatics is concerned with the application of computers to the traditional spatial techniques used in cartography and topography. Geomatics emerged from the quantitative revolution in geography in the mid-1950s. Today, geomatics methods include spatial analysis, Geographic information systems (GIS), Remote sensing, and Global positioning systems (GPS). Geomatics has led to a revitalization of some geography departments, especially in Northern America where the subject had a declining status during the 1950s.

Regional geography

Regional geography is concerned with the description of the unique characteristics of a particular region such as it natural or human elements. The main aim is to understand, or define the uniqueness, or character of a particular region that consists of natural as well as human elements. Attention is paid also to regionalization, which covers the proper techniques of space delimitation into regions.

Related fields

- Urban planning, regional planning, and spatial planning: Use the science of geography to assist in determining how to develop (or not develop) the land to meet particular criteria, such as safety, beauty, economic opportunities, the preservation of the built or natural heritage, and so on. The planning of towns, cities, and rural areas may be seen as applied geography.
- Regional science: In the 1950s, the regional science movement led by Walter Isard arose to provide a more quantitative and analytical base to geographical questions, in contrast to the descriptive tendencies of traditional geography programs. Regional science comprises the body of knowledge in which the spatial dimension plays a fundamental role, such as regional economics, resource management, location theory, urban and regional planning, transport and communication, human geography, population distribution, landscape ecology, and environmental quality.
- Interplanetary Sciences: While the discipline of geography is normally concerned with the Earth, the term can also be informally used to describe the study of other worlds, such as the planets of the Solar System and even beyond. The study of systems larger than the Earth itself usually forms part of Astronomy or Cosmology. The study of other planets is usually called planetary science. Alternative terms such as Areology (the study of Mars) have been proposed but are not widely used.

Techniques

As spatial interrelationships are key to this synoptic science, maps are a key tool. Classical cartography has been joined by a more modern approach to geographical analysis, computer-based geographic information systems (GIS).

In their study, geographers use four interrelated approaches:

- Systematic — Groups geographical knowledge into categories that can be explored globally.
- Regional — Examines systematic relationships between categories for a specific region or location on the planet.
- Descriptive — Simply specifies the locations of features and populations.
- Analytical — Asks *why* we find features and populations in a specific geographic area.

Cartography

Cartography studies the representation of the Earth's surface with abstract symbols (map making). Although other subdisciplines of geography rely on maps for presenting their analyses, the actual making of maps is abstract enough to be regarded separately. Cartography has grown from a collection of drafting techniques into an actual science.

Cartographers must learn cognitive psychology and ergonomics to understand which symbols convey information about the Earth most effectively, and behavioural psychology to induce the readers of their maps to act on the information. They must learn geodesy and fairly advanced mathematics to understand how the shape of the Earth affects the distortion of map symbols projected onto a flat surface for viewing. It can be said, without much controversy, that cartography is the seed from which the larger field of geography grew. Most geographers will cite a childhood fascination with maps as an early sign they would end up in the field.

Geographic information systems

Geographic information systems (GIS) deal with the storage of information about the Earth for automatic retrieval by a computer, in an accurate manner appropriate to the information's purpose. In addition to all of the other subdisciplines of geography, GIS specialists must understand computer science and database systems. GIS has revolutionized the field of cartography: nearly all mapmaking is now done with the assistance of some form of GIS software. GIS also refers to the science of using GIS software and GIS techniques to represent, analyse, and predict the spatial relationships. In this context, GIS stands for Geographic Information Science.

Remote sensing

Remote sensing is the science of obtaining information about Earth features from measurements made at a distance. Remotely sensed data comes in many forms, such as satellite imagery, aerial photography, and data obtained from hand-held sensors. Geographers increasingly use remotely sensed data to obtain information about the Earth's land surface, ocean, and atmosphere. because it: a) supplies objective information at a variety of spatial scales (local to global), b) provides a synoptic view of the area of interest, c) allows access to distant and inaccessible sites, d) provides spectral information outside the visible portion of the electromagnetic spectrum, and e) facilitates studies of how features/areas change over time. Remotely sensed data may be analysed either independently of, or in conjunction with other digital data layers (e.g., in a Geographic Information System).

Quantitative methods

Geostatistics deal with quantitative data analysis, specifically the application of statistical methodology to the exploration of geographic phenomena. Geostatistics is used extensively in a variety of fields, including hydrology, geology, petroleum exploration, weather analysis, urban planning, logistics, and epidemiology. The mathematical basis for geostatistics derives from cluster analysis, linear discriminant analysis and non-parametric statistical tests, and a variety of other subjects. Applications of geostatistics rely heavily on geographic information systems, particularly for the interpolation (estimate) of unmeasured points. Geographers are making notable contributions to the method of quantitative techniques.

Qualitative methods

Geographic qualitative methods, or ethnographical research techniques, are used by human geographers. In cultural geography there is a tradition of employing qualitative research techniques, also used in anthropology and sociology. Participant observation and in-depth interviews provide human geographers with qualitative data.

History

The oldest known world maps date back to ancient Babylon from the 9th century BC. The best known Babylonian world map, however, is the *Imago Mundi* of 600 BC. The map as reconstructed by Eckhard Unger shows Babylon on the Euphrates, surrounded by a circular landmass showing Assyria, Urartuand several cities, in turn surrounded by a "bitter river" (Oceanus), with seven islands arranged around it so as to form a seven-pointed star. The accompanying text mentions seven outer regions beyond the encircling ocean. The descriptions of five of them have survived. In contrast

to the *Imago Mundi*, an earlier Babylonian world map dating back to the 9th century BC depicted Babylon as being further north from the center of the world, though it is not certain what that center was supposed to represent.

The ideas of Anaximander (c. 610 BC-c. 545 BC): considered by later Greek writers to be the true founder of geography, come to us through fragments quoted by his successors. Anaximander is credited with the invention of the gnomon, the simple, yet efficient Greek instrument that allowed the early measurement of latitude. Thales is also credited with the prediction of eclipses. The foundations of geography can be traced to the ancient cultures, such as the ancient, medieval, and early modern Chinese. The Greeks, who were the first to explore geography as both art and science, achieved this through Cartography, Philosophy, and Literature, or through Mathematics. There is some debate about who was the first person to assert that the Earth is spherical in shape, with the credit going either to Parmenides or Pythagoras. Anaxagoras was able to demonstrate that the profile of the Earth was circular by explaining eclipses. However, he still believed that the Earth was a flat disk, as did many of his contemporaries. One of the first estimates of the radius of the Earth was made by Eratosthenes.

The first rigorous system of latitude and longitude lines is credited to Hipparchus. He employed a sexagesimal system that was derived from Babylonian mathematics. The meridians were sub-divided into 360°, with each degree further subdivided 60′ (minutes). To measure the longitude at different location on Earth, he suggested using eclipses to determine the relative difference in time. The extensive mapping by the Romans as they explored new lands would later provide a high level of information for Ptolemy to construct detailed atlases. He extended the work of Hipparchus, using a grid system on his maps and adopting a length of 56.5 miles for a degree.

From the 3rd century onwards, Chinese methods of geographical study and writing of geographical literature became much more complex than what was found in Europe at the time (until the 13th century). Chinese geographers such as Liu An, Pei Xiu, Jia Dan, Shen Kuo, Fan Chengda, Zhou Daguan, and Xu Xiake wrote important treatises, yet by the 17th century advanced ideas and methods of Western-style geography were adopted in China.

During the Middle Ages, the fall of the Roman empire led to a shift in the evolution of geography from Europe to the Islamic world. Muslim geographers such as Muhammad al-Idrisi produced detailed world maps (such as Tabula Rogeriana), while other geographers such as Yaqut al-Hamawi, Abu Rayhan Biruni, Ibn Battuta, and Ibn Khaldun provided detailed accounts of their journeys and the geography of the regions they visited. Turkish geographer, Mahmud al-Kashgari drew a world map on a linguistic basis, and later so did Piri Reis (Piri Reis map). Further, Islamic scholars translated and interpreted the earlier works of the Romans and the Greeks and established the House of Wisdom in Baghdad for this purpose. Abū Zayd al-Balkhī, originally from Balkh, founded the "Balkhī school" of terrestrial mapping in Baghdad. Suhrāb, a late tenth century Muslim geographer accompanied a book of geographical coordinates, with instructions for making a rectangular world map with equirectangular projection or cylindrical equidistant projection.

Abu Rayhan Biruni (976-1048) first described a polar equi-azimuthal equidistant projection of the celestial sphere. He was regarded as the most skilled when it came to mapping cities and measuring the distances between them, which he did for many cities in the Middle East and the Indian subcontinent. He often combined astronomical readings and mathematical equations, in order to develop methods of pin-pointing locations by recording degrees of latitude and longitude. He also developed similar techniques when it came to measuring the heights of mountains, depths of the valleys, and expanse of the horizon. He also discussed human geography and the planetary habitability of the Earth. He also calculated the latitude of Kath, Khwarezm, using the maximum altitude of the Sun, and solved a complex geodesic equation in order to accurately compute the Earth's circumference, which were close to modern values of the Earth's circumference. His estimate of 6,339.9 km for the Earth radius was only 16.8 km less than the modern value of 6,356.7 km. In contrast to his predecessors, who measured the Earth's circumference by sighting the Sun simultaneously from two different locations, al-Biruni developed a new method of using trigonometric calculations, based on the angle between a plain and mountain top, which yielded

more accurate measurements of the Earth's circumference, and made it possible for it to be measured by a single person from a single location.

The European Age of Discovery during the 16th and the 17th centuries, where many new lands were discovered and accounts by European explorers such as Christopher Columbus, Marco Polo, and James Cook revived a desire for both accurate geographic detail, and more solid theoretical foundations in Europe. The problem facing both explorers and geographers was finding the latitude and longitude of a geographic location. The problem of latitude was solved long ago but that of longitude remained; agreeing on what zero meridian should be was only part of the problem. It was left to John Harrison to solve it by inventing the chronometer H-4 in 1760, and later in 1884 for the International Meridian Conference to adopt by convention the Greenwich meridian as zero meridian.

The 18th and the 19th centuries were the times when geography became recognized as a discrete academic discipline, and became part of a typical university curriculum in Europe (especially Paris and Berlin). The development of many geographic societies also occurred during the 19th century, with the foundations of the Société de Géographie in 1821, the Royal Geographical Society in 1830, Russian Geographical Society in 1845, American Geographical Society in 1851, and the National Geographic Society in 1888. The influence of Immanuel Kant, Alexander von Humboldt, Carl Ritter, and Paul Vidal de la Blache can be seen as a major turning point in geography from a philosophy to an academic subject.

Over the past two centuries, the advancements in technology with computers have led to the development of geometrics, and new practices such as participant observation and geostatistics being incorporated into geography's portfolio of tools. In the West during the 20th century, the discipline of geography went through four major phases: environmental determinism, regional geography, the quantitative revolution, and critical geography. The strong interdisciplinary links between geography and the sciences of geology and botany, as well as economics, sociology and demographics have also grown greatly, especially as a result of Earth System Science that seeks to understand the world in a holistic view.

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Expected Questions FOR COMING EXAMS.

1. Instrument used for the measurement of wind speed is called:
(A) Altimeter (B) Barometer
(C) Anemometer✓ (D) None of these

2. Vernal equinox occurs on:
(A) December 21 (B) September 23
(C) June 21 **(D) None of these✓**

3. Atmospheric pressure at sea level is:
(A) 750 mm. **(B) 760 mm.✓**
(C) 770 mm. (D) None of these

4. When there is an active upward ascent of lighter warm air over the cold dense air, the front is called:
(A) Cold front **(B) Warm front✓**
(C) Occuluded front (D) None of these

5. On 21st of June, the Sun shines vertically on the:
(A) Tropic of Capricorn **(B) Tropic of Cancer✓**
(C) Equator (D) Arctic Circle

6. The hot molten material erupted from a volcano is called:
(A) Lava✓ (B) Magma
(C) Pyro-clast (D) None of these

7. The point in the Earth from where seismic waves spread out in all directions is:
(A) Seismic center (B) Epicenter
(C) Earthquake Focus✓ (D) None of these

8. The continental crust ranges from:
(A) 7 to 20 km in thickness (B) 20 to 70 km in thickness
(C) 40 to 150 km in thickness **(D) None of these✓**

9. Marble is a :
(A) Sedimentary rock (B) Igneous rock

(C) **Metamorphic rock✓** (D) None of these

10. **Yardang is produced by:**
(A) River (B) Glacier
(C) **Wind✓** (D) Volcanic activity

11. **Continental glacier produces the following feature on the Earth surface:**
(A) V-shaped valley (B) U-shaped valley
(C) Hanging valley (D) **None of these✓**

12. **The deepest point in the ocean bottom is in:**
(A) Indian ocean (B) Atlantic ocean
(C) **Pacific ocean✓** (D) Arctic ocean

13. **The flat ocean bottom lying near the continents is called:**
(A) Peneplain (B) Archipelagic apron
(C) Lacustrine plain (D) **None of these✓**

14. **Benguela current flows near the western coast of:**
(A) Australia (B) South America
(C) **Plain✓** (D) None of these

15. **Waves are caused by:**
(A) Gravitational force of moon (B) **Gravitational force on Earth✓**
(C) Sunrays (D) None of these

16. **Conical projection is best suited for:**
(A) Polar Regions (B) Equatorial Regions
(C) **Temperate latitude✓** (D) None of these

17. **Zero degree meridian is:**
(A) 15° east of Prime Meridian (B) 10° east of Prime Meridian
(C) 5° west of Prime Meridian (D) **None of these✓**

18. **A map on RF 1:2400 will be:**
(A) A large-scale map (B) Small-scale map
(C) **Medium-scale map✓** (D) None of these

19. **Lines showing place of equal rainfall are called:**
(A) Isohalines (B) Isobars
(C) Isopleths (D) **None of these✓**

20. **Sea water contains on the average about:**
(A) **3.5% Salt✓** (B) 2.7% Salt
(C) 7.1% Salt (D) None of these

21. **Lines of equal distribution of pressure are called:**
(A) Isopleths (B) Isotherms
(C) **Isobars✓** (D) None of these

22. **According to Ferret's Law, winds are deflected:**
(A) **To their right in the northern hemisphere✓** (B) To their left in northern hemis-phere
(C) Not deflected at all (D) None of these

23. **Thermal equator is located:**
(A) At the equator (B) **North of equator✓**
(C) South equator (D) None of these

24. **Orographic rainfall is affected by:**
(A) **Relief features✓** (B) Distance from the sea
(C) Distance from the equator (D) None of these

25. **Line graphs are used for depicting:**
(A) **Temperature of place✓** (B) Rainfall of a place
(C) Growth of population (D) None of these

26. **Meanders are created by:**
(A) **River action✓** (B) Action of wind
(C) Action of glacier (D) None of these

27. **Equatorial climate has:**
(A) **No dry season✓** (B) Short dry season
(C) Long dry season (D) None of these

28. **Oxygen in the atmosphere is:**
(A) 78% (B) **71%✓**
(C) 59% (D) None of these

29. **Density of sea water ranges from:**
(A) **1.027 to 1.028✓** (B) 1.010 to 1.025
(C) 1.000 to 1.020 (D) None of these

30. **West-wind drift is a:**
(A) **Circumpolar drift✓** (B) Current of South Pacific Ocean
(C) Current of South Atlantic Ocean (D) None of these

31. **Limestone is a:**
(A) Meta-morphic rock (B) **Sedime-ntary rock✓**
(C) Igneous rock (D) None of these

32. **The material thrown out during an eruption is:**
(A) Solid (B) **Liquid✓**
(C) Gaseous (D) None of these

33. **The cold air mass is:**
(A) **Conditionally unstable✓** (B) Stable
(C) Unstable (D) None of these

34. **Weathering is caused by:**
(A) **Great range of temperature✓** (B) Great range of rainfall
(C) Action of wind (D) None of these

35. **Simple conical projections with one standard parallel are used for:**
(A) Maps for higher latitudes (B) Maps for the polar regions
(C) Maps for the lower latitudes (D) **None of these✓**

36. Tornadoes affect areas ranging from:
(A) A few yards to a quarter of a mile in diameter
(B) A few furlongs to about 5 miles in diameter
(C) A few mile to about 10 miles in diameter✓
(D) None of these

37. On a weather map the word 'L':
(A) Denotes a low pressure zone✓
(B) Denotes a low temperature zone
(C) Denotes a low rainfall zone
(D) None of these

38. Large-scale maps are used for:
(A) Small areas✓
(B) Large areas
(C) Areas of moderate extent
(D) None of these

39. In a wave water particles move only:
(A) Near the coast
(B) In deep water
(C) In shallow water
(D) None of these✓

40. The inner core of the Earth is:
(A) Solid✓
(B) Liquid
(C) Semi-solid
(D) None of these

41. Weather describes the condition of ..... at any one time.
(A) The Earth
(B) The land surface
(C) The atmosphere✓
(D) The Ionosphere
(e) Space
(f) None of these

42. Seasonally increases with:
(A) Latitude✓
(B) Distance from sea
(C) Altitude
(D) Aspect
(e) Longitude
(f) None of these

43. The temperature decreases with increasingly altitude by 1°C for every ..... rise.
(A) 100 ft
(B) 150 m
(C) 165 m✓
(D) 250 m
(e) 300 m
(f) None of these

44. Water vapour turns into clouds in the atmosphere when:
(A) It rains
(B) The temperature rises
(C) Dew point is reached✓
(D) Evaporation takes place
(e) Relative humidity
(f) None of these

45. Up-draught and down-draught in a cumulo-nimbus cloud lead to the formation of:
(A) Lightening
(B) Hail
(C) Thunder✓
(D) Snow
(e) Any other

46. The air in the middle of a typhoon is:
(A) Rising✓
(B) Descending
(C) Blowing in a clockwise spiral
(D) Gusty and variable
(e) None of these

47. Oceanic plates are made up of ..... rocks.
(A) Basaltic✓
(B) Granite
(C) Acidic
(D) Mantle

48. Which of the following statement is NOT true:
(A) The core is made chiefly of nickel and iron
(B) There is an outer (liquid) and inner (solid) core
(C) The mantle is made of liquid ultra boric rocks
(D) The crust, or lithosphere, is made of rigid crystal plates
(e) Earthquake waves pass through the core but not through the mantle✓

49. Young fold mountains are found where crystal plates:
(A) Diverge
(B) Collide✓
(C) Are newly formed
(D) Are thinnest
(e) None of these

50. The retreat of the waterfall up stream results in:
(A) Potholes
(B) Rapids
(C) Bluffs
(D) Floodplain
(e) Gorge✓
(f) None of these

51. Which type of erosion is not typical of a desert?
(A) Abrasion
(B) Plucking✓
(C) Attrition
(D) Deflation
(e) None of these

52. A glacier lengthens when:
(A) The climate gets warmer
(B) The climate gets drier
(C) The rate of accu-mulation of ice exceeds the rate of melting✓
(D) The gradient of the glacier valley steepens
(e) There is a state of equilibrium between snowfall and the rate of melting
(f) None of these

53. On earth surface, water cover is:
(A) 50%
(B) 60%
(C) 70%✓
(D) 80%
(e) None of these

54. Continental shelf is:
(A) A link between ocean and land✓
(B) A broad level plain forming greater part of the ocean
(C) The deepest part of the ocean
(D) A steep slope stretching to the sea plain
(e) None of these

55. The strength of wave action depends on all

these except:
(A) **Currents in the set✓** (B) Wind strength
(C) Length of fetch (D) Depth of coastal water
(e) Height of waves (f) None of these

56. **The sea-water on the average contains:**
(A) **3.5% salt✓** (B) 5% salt
(C) 10% salt (D) 2.5% salt
(e) 4.5% salt (f) None of these

57. **Neap tides occur .....**
(A) At the full and new quarter moon days (B) **When the Sun, Moon and Earth are in one straight line✓**
(C) (D)

58. **Best suited projection for Pakistan is .....**
(A) Conical (B) Zenithal
(C) Mercator (D) Cylin-drical equal area
(e) **Conventional✓** (f) None of these

59. **A portable measure for pressure is .....**
(A) A Stevenson screen (B) An anemometer
(C) **An anerold baro-meter✓** (D) A maximum and minimum therm-ometer set
(e) A mercury column

60. **Small-scale maps are used for:**
(A) Small areas (B) Areas of moderate extent
(C) **Large areas✓** (D) None of these

61. **Calcareous rocks are ..... rocks.**
(A) **Sedimentary✓** (B) Igneous
(C) Metamorphic (D) None of these

62. **Most of the rainfall received in Pakistan by .....**
(A) Westerlies (B) Mountain and valley winds
(C) **Monsoon Winds✓** (D) None of these

63. **Organic deposits are mostly found over .....**
(A) Continent shelf (B) Continent Slope
(C) **Deep Sea plain✓** (D) None of these

64. **Irrigation is a ..... feature.**
(A) Cultural (B) Natural
(C) **Topographic✓** (D) None of these

65. **Standard parallel is a part of ..... projection.**
(A) Cylindrical (B) **Conical✓**
(C) Zenithal (D) None of these

66. **Projections are called:**
(A) Mathematical (B) Conical
(C) **Zenithal✓** (D) None of these

67. **Conical projections are suitable for .....**
(A) Tropical (B) **Temperate✓**
(C) Polar areas (D) None of these

68. **..... is the best method of drawing distribution maps.**
(A) **Dot method✓** (B) Shade method
(C) Diagrammatic method (D) None of these

69. **A low pressure areas is called:**
(A) **Cyclone✓** (B) Anti-cyclone
(C) Wedge (D) None of these

70. **Zenithal projections are mostly used for ..... areas.**
(A) Equatorial (B) Tropical
(C) **Polar✓** (D) None of these

71. **The feature not due to glaciation is a:**
(A) **Wadi✓** (B) Cirque
(C) Fiord (D) None of these

72. **Loess found in Northern China is:**
(A) Mountain Screes (B) Volcanic ash
(C) **River debris✓** (D) None of these

73. **An example of an igneous rock is:**
(A) Clay (B) Sand
(C) **Granite✓** (D) Slate

74. **The moraine which is formed where two small glaciers coverage is termed:**
(A) Lateral (B) Ground
(C) Terminal (D) **Medial✓**

75. **Stacks are typical features of:**
(A) Coastal glaciations in temperate latitudes (B) **Marine erosion by waves✓**
(C) Coastal deposition (D) Materials at river delta

76. **The usual way of showing population in a map by using:**
(A) Lines (B) Squares
(C) **Dots✓** (D) None of these

77. **If the R.E. of a map is 1:25000, this is a:**
(A) **One inch map✓** (B) Two inch map
(C) Two and a half inch map (D) Five inch map

78. **North-west passage is suitably shown in:**
(A) **Zenithal Projection✓** (B) Conical Projection
(C) Cylindrical Projection (D) None of these

79. **West Wind Drift is present in all oceans except:**
(A) **Arctic✓** (B) Indian
(C) Pacific (D) Atlantic

80. **The predominant vegetation of Arid Western U.S.A is:**
(A) Coniferous (B) Deciduous

(C) Grasses (D) Xero-phytes✓

81. Hot wind which blows from Sahara to the Guinea Coast is the:
(A) Sirocco (B) Mistral
(C) Harmattan✓ (D) Ephn

82. Warm current that keeps the Norweglan ports ice-free throughout the year is the:
(A) Canary current (B) Arctic current
(C) Guinea current (D) North Atlantic current✓

83. Elongated lakes have normally resulted from:
(A) Glacial erosion (B) Volcanic eruption
(C) Faulting✓ (D) Corals

84. The inlets in the coast of South Western New Zealand are called:
(A) Rias (B) Fjords
(C) Esturies (D) Spits✓

85. One of the following is also called international scale:
(A) Linear (B) Diagonal
(C) Comparative (D) R.E.✓

86. Rejuvenation of river is associated with formation of:
(A) Oxbow lakes (B) Basins✓
(C) Monadnocks (D) Terraces

87. Radial Trellised and Denritic are forms and patterns of:
(A) Mountain systems (B) Drainages
(C) Climates (D) None of these✓

88. Ring of fire is attributed to:
(A) Antarctic (B) Arctic
(C) Atlantic✓ (D) None of these

89. Earthquake of Kobe, Japan in January 1995 had a magnitude:
(A) 5.2 (B) 6.2
(C) 7.2 (D) 6.6
(e) 6.9✓

90. Charles Richter of the California Institute of Technology developed the Richter scale in:
(A) 1735 (B) 1835
(C) 1855 (D) 1935✓

91. Marble and Hornfelses are produced as result of:
(A) Contact metamorphism (B) Regional metamorphism
(C) Dynamic metamorphism (D) None of these✓

92. The Karakatuo volcano is situated in:
(A) South West Africa (B) Central America
(C) South East Asia✓ (D) None of these

93. Atlantic Ocean occupies ..... percent of aquatic surface of the world ocean.
(A) 46% (B) 52%
(C) 38% (D) None of these✓

94. Notable river with estuary is:
(A) Volga (B) Indus
(C) Amazon✓ (D) None of these

95. Conditions most favourable to solifluction are found in:
(A) Deserts (B) Equatorial region
(C) Permafrost region✓ (D) None of these

96. Fossils make it possible:
(A) To subdivide deposits by age✓ (B) To identify drainage system
(C) To locate snowline (D) None of these

97. Trades are caused by:
(A) Distribution of land and sea (B) Shape of Earth
(C) Pressure differential between equatorial and sub-tropic belts✓ (D) None of these

98. Tombolo spit connects:
(A) Ref with Island (B) Island with Headland✓
(C) Lagoon with Cliff (D) None of these

99. Karst region is originally a landscape located at:
(A) Belgium (B) Greece
(C) Former Yugoslavia✓ (D) None of these

100. At present time, volcanoes are chiefly found along:
(A) Circum-Pacific belt✓ (B) Appal-achian region
(C) Karakoram - Kunlun Chain (D) None of these

Basic Mathematics:

Symbols and Abbreviations

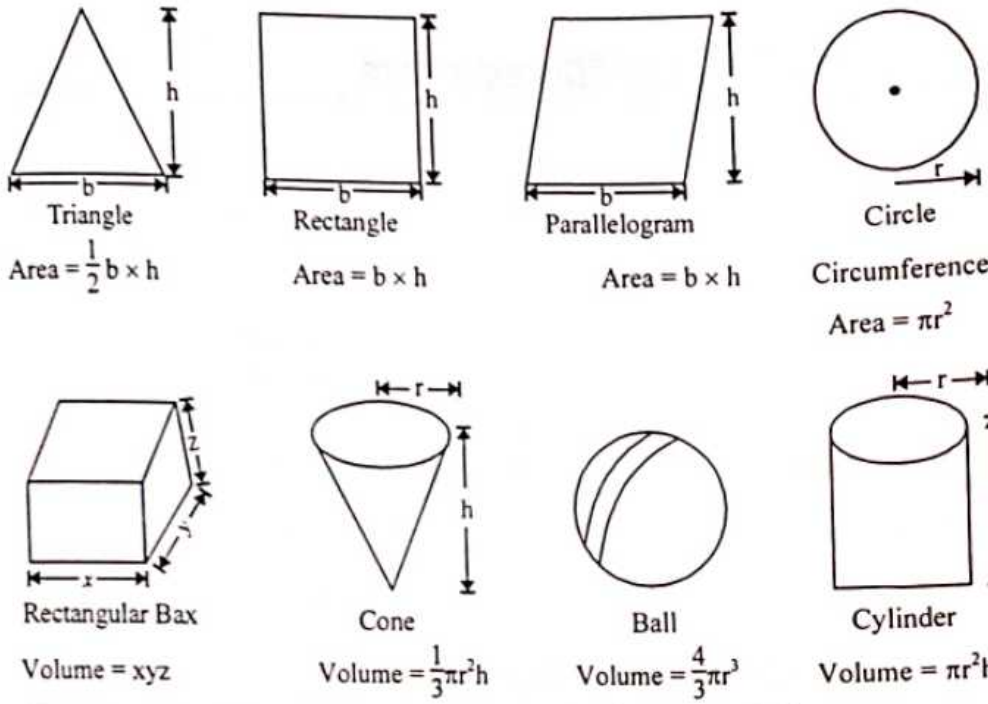
=	is (equal to)	~	is similar to
<	is less than	π	Pi
>	is greater than	⊥	is perpendicular to
≠	is not equal to	||	is parallel to
≥	Greater than or equal to	°	degree
≤	less than or equal to	|n|	absolute value
≮	is not less than	$\overline{AB}$	line segment
≯	is not greater than	∠A	angle
≰	neither less than nor equal to	ΔABC	triangle ABC
≱	neither greater than nor equal to	⇒	this implies that
∵	because	∴	therefore

Common Unit Conversions

LINEAR MEASURE		WEIGHT	
English System	Metric System	English System	Metric System
1 inch	= 2.54	1 lb	= 454 g
1 foot	= 30.48 centimeters	2.2 lb	= 1 kg
1 yard	= 0.9144 meter	1 grain	= 0.064799 gram
0.3937 inch	= 1 centimeter	15.432 grains	= 1 gram
1.0936 yards	= 1 meter	1 short ton	= 907.18 kg
0.62137 mile	= 1 kilometer	1 long ton	= 1016 kg

SQUARE MEASURE		LIQUID MEASURE	
English System	Metric System	English System	Metric System
1 square inch	= 6.4516 square cm	1 fluid ounce	= 0.94635 liter
1 square foot	= 0.092903 sq. meter	1 gallon	= 3.7854 liters
1 square yard	= 0.83613 sq. meter	0.26417 gallon	= 1 liter
1.960 square	= 1 square meter yard	1.0567 quartz	= 1 liter
0.38608 square	= 1 square kilometer mile	33.814 fluid	= 1 liter ounces

Geometric Figures



Important Formulas at A Glance

L.C.M AND H.C.F

Prime Number	:	A number greater than whose only factors are 1 and the number itself.
L.C.M	:	The LCM of two or more given number is the least number which is exactly divisible by each of them.
H.C.F	:	The highest number which will divide into each of the given numbers.
H.C.F of vulgar fractions	:	The HCF of two or more fractions is the highest fraction which is exactly divisible by each of the fractions

$$\text{H.C.F} = \frac{\text{HCF of numerators}}{\text{LCM of denominator}}$$

PERCENTAGE

Percentage: A fraction whose denominator is 100 is called a percentage.

Percent Change: The full formula for percent change is:

$$\text{Percent Change} = \frac{(\text{New Amount}) - (\text{Original Amount})}{(\text{Original Amount})} \times 100$$

Note 1: When the new amount is less than the original amount then the result will be percent decease.

Note 2: When the new amount is greater than the original amount than the result will be percent increase.

Note 3: If A is x% of C and B is y% of C, then A is $\frac{x}{y} \times 100\%$ of B.

Note 4: If the value is increase successively by x% and y% then the final increase is given by $\left[x + y + \frac{xy}{100}\right]\%$

PROFIT AND LOSS

1. Profit = Selling Price (SP) – Cost Price (CP)
2. Loss = Cost Price (CP) – Selling Price (SP)
3. Gain or Loss percent $= \frac{\text{Loss or Gain}}{\text{CP}} \times 100$
4. If a man purchases a certain number of articles at p a rupee and the same number at q a rupee. He mixes them together and sells them at r a rupee. This his profit or loss in percent

$$= \left[\frac{2pq}{r(p+q)} - 1\right] \times 100$$

according to the sign +ve or –ve

5. If a man marks his goods at p% above his cost price and allows purchasers a discount of q% for cash h then

$$\text{Profit or loss in percent} = \left[p - q - \frac{pq}{100}\right]$$

RATIO AND PROPORTION

Ratio: The number of times one quantity contains another quantity of the same kind is called the ratio of the two quantities.

Note 1: The first term of a ratio is called the antecedent and the second the consequent.

Compound Ratio: Ratios are compounded by multiplying together the antecedents for a new antecedent, and the consequents for a new consequent.

Note 1: If four quantities be in proportion, the product of the extremes is equal to the product of the means.

Note 2: If the sum of two numbers is A and their difference is d, then the ratio of the number is given by

$$A + d : A - d$$

Rule: A number which when subtracted from the terms of the ratio a : b makes it equal to the ratio p : q is $\frac{bp - aq}{p - q}$

Rule: A number which when added to the term of the ratio a : b makes it equal to the ratio p : q is $\frac{aq - bp}{p - q}$

AREA AND VOLUME

Area of Triangle: If all the sides of a triangle are increased by x%, then the area increased by $\frac{x(x + 200)}{100}$%.

Area of Rectangle: If sides of a rectangle are increased by $x\%$ then as for triangle its area is increased by $\frac{x(x+200)}{100}\%$.

Note 1: If the sides of triangle, square, rhombus, circle, rectangle is increased by $x\%$, its area is increased by $\frac{x(x+200)}{100}\%$.

Note 2: In measuring the sides of rectangle one side is taken a% in excess and the other b% in deficit. The error percent in area calculated from the measurement is $a - b - \frac{ab}{100}$ in excess or deficit according to the +ve or –ve sign.

****

Expected Questions Sure Shot+

1. Simplify:
$(165)^2 - (164)^2$
(A) 204 (B) 1
(C) 2 (D) 116
(E) 329✓

2. **A student gets 75, 82 and 86 marks in an examination. How many marks he should get so that average becomes 85?**
(A) 90 (B) 87
(C) 97✓ (D) 99

3. **Which number can replace both the questions marks?**
(A) 5 **(B) 10✓**
(C) 25 (D) 100

4. **A doll is sold for Rs. 220.00. What was the cost of doll if rate of profit was 10% of the cost?**
(A) Rs. 198.00✓ (B) Rs. 200.00
(C) Rs. 210.00 (D) Rs. 240.00

5. **Find the arithmetic mean between 4 and 6.**
(A) 1 (B) 2
(C) 5✓ (D) 3

6. **Find the missing number.**
3, 5, 9 and 17.....
(A) 32 **(B) 33✓**
(C) 34 (D) None

7. **Think a number, double it, add 7 and then multiply it by 4 and then divide it by 6, if the answer is 10, what is the number?**
(A) 2 (B) 3
(C) 4✓ (D) 6

8. **If 7 men in 100 are criminals, how many men in 500 are not criminals?**
(A) 435 **(B) 465✓**
(C) 455 (D) 35

9. **In a box of 48 apples, 8 out of each dozen are good. How many in the box are bad?**
(A) 8 **(B) 16✓**
(C) 12 (D) 19

10. **A father is three times as old as his son. In 10 years, he will twice as old as his son. How old is the father at present?**
(A) 30 years✓ (B) 25 years
(C) 20 years (D) None

11. **A man starts climbing a hill. Every minute he ascends 20 meters but slips down 5 meters. How long will he take to ascend a point 80 meters high?**
(A) 5 minute✓ (B) 5.20 sec.
(C) 4.80 sec. (D) None

12. **How many hours will it take a jet plane to travel 400 km at a speed of 600 km per hour?**
(A) 2 hours **(B) 2/3 hours✓**
(C) 3/2 hours (D) 1/3 hours

13. **$x + x + x = ?$**
(A) 3x✓ (B) x^3
(C) $3x^3$ (D) $x^2 + x$

14. **If $2^x = 32$ then $x = ?$**
(A) 5✓ (B) 6
(C) 4 (D) 16

15. $\sqrt{256}$:
(A) 17 (B) 14
(C) 16✓ (D) 128

16. **$x + 6 = 7$, then $x = ?$**
(A) 3 **(B) 1✓**
(C) $\frac{7}{6}$ (D) 13 x

17. 1 metre is equal to:
(A) 10^2 mm (B) 10^3 mm✓
(C) 10^4 mm (D) 10^5 mm

18. $2^3 \times 5^0$ =:
(A) 30 (B) 40
(C) 8✓ (D) 6

19. 144 ÷ 12:
(A) 13 (B) 12✓
(C) 14 (D) 22

20. Find the missing letter:
3 5 7 ..... 13 17
(A) 8 (B) 9
(C) 11✓ (D) 12

21. Provide the missing number:
8 4 32 7 5 .....
(A) 33 (B) 11
(C) 17 (D) 35✓

22. Who developed algebra?
(A) Muhammad ibn Musa Khawarizmi✓
(B) Ibn Sina
(C) Euclid
(D) Jabir ibn Hayyan

23. The fraction 101 in decimal form is:
(A) 101.00027✓ (B) 101.0027
(C) 101.027

24. When 36 is written is simplest fractional form, the sum of numerator is:
(A) 10✓ (B) 34
(C) 20 (D) None

25. What is the difference between the biggest and the smallest fraction is:
(A) $\frac{1}{6}$✓ (B) $\frac{1}{12}$
(C) $\frac{1}{20}$

26. Which of the following fractions is the smallest?
(A) $\frac{13}{16}$ (B) $\frac{15}{19}$✓
(C) $\frac{17}{21}$

27. 12. 1212 ÷ 17.0005 – 9.1102 =?
(A) 20.15 (B) 20.0105
(C) 20.0015 (D) -8.3972092✓

28. 892.7- 573.07 – 95.007 =?
(A) 224.623✓ (B) 224.777
(C) 233.523

29. 0.002 × 0.5 =?
(A) 0.0001 (B) 0.001✓
(C) 0.01

30. 16.02 × 0.001=?
(A) 0.001602 (B) 0.01602✓
(C) 0.1602

31. $\left[.00625 \text{ of } \frac{23}{5}\right]$ when expressed as a fraction, equals:
(A) $\frac{23}{80}$ (B) $\frac{23}{800}$✓
(C) $\frac{23}{8000}$

32. 0.213 ÷ 0.00213 =?
(A) 1 (B) 10
(C) 100✓

33. 4.036 divided by 0.04 gives:
(A) 1.009 (B) 10.09
(C) 100.0 (D) 100.9✓

34. It 10 men can complete a work in 20 days, how long will it take 8 men to do the job if they work at the same rate?
(A) 14 days (B) 18 days
(C) 25 days✓

35. In a class of 550 students, 42% wish to go to college. How many students wish to attend the college?
(A) 210 (B) 220
(C) 231✓

36. 0.03 × 10=?
(A) 30 (B) 3
(C) 0.3✓

37. When you divide 0.7 by 10, you will get:
(A) 7 (B) 0.07✓
(C) 70 (D) 0.007

38. If all the members of a team are juniors or seniors and if the ratio of juniors to seniors on the team is 3:5, what percent of team members are seniors?
(A) 37.5% (B) 40%
(C) 60% (D) 62.5%✓

39. Scot can read 50 pages per hour. At this rate, how many pages can he read in 50 minutes?
(A) 25 (B) 41✓
(C) 48 (D) 60

40. If 80% of the applications to a program were rejected, what is the ratio of the number accepted to the number rejected?
(A) $\frac{1}{5}$✓ (B) $\frac{1}{4}$
(C) $\frac{2}{5}$ (D) $\frac{4}{5}$

41. The measures of the three angles in a triangle are in the ratio of 1 : 1 : 2. Which of the following must be true?
I The triangle is isosceles
II The triangle is a right triangle
III The triangle is equilateral
(A) None (B) I only

(C) II only (D) I and II only✓

42. What is the ratio of the circumference of a circle to its radius?
(A) 1 (B) $\frac{\Pi}{5}$
(C) Π (D) 2Π✓

43. A man standing at a distance of 1 metre from a mirror wishes to take the photograph of his image in the mirror. At what distance should he place his camera from the mirror?
(A) ½ a metre (B) 1 metre✓
(C) 2 metres (D) 4 metres

44. Alia bought a jewellery set for Rs 84,000/- and sold for 85,500/- Find the percentage of profit.
(A) 1.79%✓ (B) 1.80%
(C) 1.81% (D) 1.82%

45. A symbol having a fixed numerical value is called:
(A) Variable (B) Literals
(C) Constant✓ (D) Binomial

46. Haris bought 10 ice creams. He gave Rs. 1000 to the shopkeeper. The shopkeeper returned him Rs 250. For how much did he buy one ice cream?
(A) 50 (B) 75✓
(C) 100 (D) 150

47. The price of a pen is Rs 42 and of the note book is Rs 18. Calculate how many pens and notebooks you can buy for Rs 480 in equal quantity?
(A) 8,8✓ (B) 7,7
(C) 6.6 (D) 9,9

48. After 32 years from now, a boy will be five times as old as he was 8 years back. How old the boy is now?
(A) 20 Years (B) 19 Years
(C) 18 Years (D) 17 Years

49. Distribute an amount of 200 between Rehman & Usman such that Rehman gets Rs 50 more than twice as much as Usman gets. How much Rehman will get?
(A) 50 (B) 150
(C) 175✓ (D) 185

50. A linear equation consists of polynomials of degree_____
(A) One✓ (B) Two
(C) Three (D) Four

51. 99 × 4 = _____
(A) 392 (B) 396✓
(C) 394 (D) 390

52. 40 × 5.9 = _____
(A) 239 (B) 237
(C) 278 (D) 236✓

53. 1140 ÷ 40 = _____
(A) 28.5✓ (B) 21.5
(C) 27.5 (D) 25.5

54. 300 ÷ 1.5 = _____
(A) 400 (B) 200✓
(C) 300 (D) 100

55. Which number can replace both the question marks? 2/? = ?/50 .
(A) 100 (B) 10✓
(C) 25 (D) 5

56. Complete the series: 6,9,13,16,20,23 _____
(A) 27,31 (B) 26,31
(C) 27,30✓ (D) 26,30

57. If you write down all the numbers from 1 - 100, how many times would you write 3?
(A) 21 (B) 19✓
(C) 20 (D) 18

58. Ali ran around a 1/4 kilometer jogging track 17 times. How many kilometers did he run?
(A) 4 ¾ % km (B) 4 ½ km
(C) 4 ¼ % km✓ (D) 4 km

59. Complete the series:
64, 48, 40, 36, 34, _____
(A) 33✓ (B) 31
(C) 32 (D) 30

60. A man buys a toy for Rs. 70 after getting a discount of 20%. What was the marked price of the toy?
(A) Rs. 90 (B) Rs. 56
(C) Rs. 87.50✓ (D) Rs. 84

61. A history class has 12 boys and 18 girls. Boys are what fraction of the class?
(A) 2/5 (B) 2/3✓
(C) ¾ (D) 3/5

62. 25 students took a test and 4 of them failed. What per cent of them passed the test?
(A) 84%✓ (B) 80%
(C) 82% (D) 75%

63. 3/1000 written as a fraction is?
(A) 0.003✓ (B) 0.3
(C) 0.03 (D) 3

64. 18 is 75% of _____.
(A) 32 (B) 25
(C) 34 (D) 24✓

65. In a class of 550 students, 42% wish to go to college. How many wish to attend college?
(A) 252 (B) 210
(C) 231✓ (D) 200

66. When you divide 0.7 by 10, you get:
(A) 0.007 (B) 0.07✓
(C) 70 (D) 7

67. A toy is sold for Rs. 220, what was the cost if the rate of profit was 10% of the cost?
(A) Rs. 210 (B) Rs. 198

(C) Rs. 200✓ (D) Rs. 196

68. If ten men can do a piece of work in twenty days, how long will it take 8 men to do the job if they work at the same rate?
(A) 28 days (B) 22 days
(C) 25 days✓ (D) 21 days

69. A bag contains 9 KG of sugar which is separated into packages containing 450 grams each. How many such packages can be made?
(A) 24 (B) 18
(C) 20✓ (D) 16

70. $2\frac{2}{3} \times \frac{5}{14} = ?$
(A) $\frac{40}{24}$ (B) $\frac{20}{22}$✓ (C) $\frac{50}{42}$ (D) $\frac{21}{20}$

71. One billion is equal to:
(A) 100 Thousands✓ (B) 100 Crores
(C) 100 Millions (D) 100 Lacs

72. When you divide 0.7 by 10, you will get:
(A) 0.007 (B) 0.07✓
(C) 70 (D) 7

73. 0.03 × 10 = ?
(A) 0.003 (B) 3
(C) 0.3✓ (D) 30

74. If 10 men can complete a work in 20 days, how long will it take 8 men to do the job if they work at the same rate?
(A) 25 days✓ (B) 18 days
(C) 20 days (D) 16 days

75. Multiply 2438.244 × by 10.
(A) 24382.44✓ (B) 24328.44
(C) 24384.42 (D) 24384.44

76. A doll is sold for Rs. 220.00. What was the cost of doll if rate of profit was 10% of the cost?
(A) Rs. 240.00 (B) Rs. 200.00✓
(C) Rs. 210.00 (D) Rs. 198.00

77. 358.0074 × 100 = ?
(A) 35800.47 (B) 35800.74✓
(C) 38500.47 (D) 35800.00

78. Akbar bought a sweater for Rs.200 and sold it Rs.250. How much profit did Akbar get?
(A) Rs.50✓ (B) Rs.20
(C) Rs.80 (D) Rs.40

79. The number, whose 20% is 100, is:
(A) 700 (B) 500✓
(C) 600 (D) 400

80. Salaam bought a pair of shoes for Rs.300 and sold it at Rs.370. How much profit did Salaam get?
(A) Rs.20 (B) Rs.70✓
(C) Rs.75 (D) Rs.80

81. If 80 men dug 4 holes in 12 months, how many men would be required to dig 6 holes in 4 months?
(A) 40 men (B) 410 men
(C) 360 men✓ (D) 140 men

82. If 15 men can do a piece of work in 8 days, how many men will finish it in 10 days?
(A) 8 (B) 12✓
(C) 16 (D) 14

83. If 3 men and 6 boys can do a work in 20 days, then 6 men and 8 boys shall take:
(A) 20 days (B) 8 days
(C) 9 days (D) 6 days✓

84. The number, whose 25% is 150, is:
(A) 900 (B) 700
(C) 800 (D) 600✓

85. If 20 men can do a piece of work in 8 days, how many men will finish it in 10 days?
(A) 18 men (B) 16 men✓
(C) 8 men (D) 4 men

86. Akbar sold his old gun for Rs.900, which he bought for Rs.2500. What is his % loss?
(A) 15% (B) 82%
(C) 94% (D) 64%✓

87. This road is only 50 km long. We covered a distance of 20 km. What percentage of distance have we covered?
(A) 53% (B) 69%
(C) 48% (D) 40%✓

88. Nasir bought a practical copy for Rs.60 and sold it at Rs.40. How much loss did he get?
(A) Rs.20✓ (B) Rs.60
(C) Rs.40 (D) Rs.600

89. The number, whose 17% is 51, is:
(A) 210 (B) 100
(C) 300✓ (D) 200

90. Insert the missing number:
341 (250) 466 282 ( ) 398
(A) 240 (B) 232✓
(C) 226 (D) 228

91. 20 men can construct a building in 40 days. How long will it take 10 men to do this work?
(A) 80 days✓ (B) 60 days
(C) 70 days (D) 50 days

92. Muhammad Aslam bought a TV for Rs.8000 and sold it at Rs.7000. How much loss did he get?
(A) Rs.4000 (B) Rs.2000
(C) Rs.3000 (D) Rs.1000✓

English

FILL IN THE BLANKS WITH SUITABLE PREPOSITION

1. **Man is still a _____ in the labour market.**
   (A) glut (B) possibility
   (C) commodity✓ (D) provision
2. **Only a team work in the country can _____ a change in the existing circumstances.**
   (A) Hang about
   (B) Bring about✓
   (C) Back out of
   (D) Carried away by
3. **I think is used to be a good school but it has been_____ for twenty years or so.**
   (A) Look to one's laurels (to be contented on past achievements)
   (B) Play fast and loose
   (C) Rest on one's laurels✓
   (D) A fool's paradise
4. **He is looking for someone to offer her glamorous well paid and undemanding job, but I think he is_____**
   (A) A happy medium
   (B) Cry for the moon (to want or ask something which is impossible to get)✓
   (C) Happy go lucky
   (D) Hard boiled
5. **he says he will get a well-paid job but I think it is just_____**
   (A) A happy medium
   (B) A lame duck
   (C) Pie in the sky (something good promised in future but one is not likely to get)✓
   (D) Cheek by jowl
6. **The factory workers' decision to strike was_____ for factory owners.**
   (A) A smash hit
   (B) A smack in the eye (an insult or rebuff)✓
   (C) Cut down to size
   (D) Pie in the sky
7. **In their search for artifacts, archaeologists are often _____ not because a suspected site is remote and isolated but because it is:**
   (A) Misled, verified
   (B) Undeterred, unearthed
   (C) Venerated, sacred
   (D) Frustrated, urbanized✓
8. **Advertising alone no matter how _____ cannot convince people to _____ an item that answers no real and vital need.**
   (A) Stringent, ignore
   (B) Outrageous, disregard
   (C) Innocuous, modify
   (D) Extensive, purchase✓
9. **Working under the pressure of time, Raza did not notice his _____ mistake.**
   (A) Leisurely, stupid
   (B) Rapidly, carelessly✓
   (C) Frantically, inevitable
   (D) Continually, redundant (excessive)
10. **Even _____ pleasure may leave _____ memories.**
    (A) Ephemeral, lasting✓
    (B) Emphatic, stalwart
    (C) Transitory, fleeting
    (D) Enigmatic, (puzzling mysterious)
11. **Anyone familiar with the facts could _____ his arguments, which seemed logical but were actually:**
    (A) Refute, specious✓
    (B) Support, protracted
    (C) Repeat, recumbent (lying down)
    (D) Review, cogent
12. **By next July, I _____ in this office for ten years.**
    (A) will work (B) worked
    (C) shall be worked
    (D) shall have been working✓
13. **She_____ of marrying Saleem when she discovered he was already married.**
    (A) had thought
    (B) was thinking✓
    (C) was being thought
    (D) thought
14. **I don't like milk, so I ____ tea for breakfast.**
    (A) generally take✓
    (B) am generally taking
    (C) was generally taking
    (D) had generally taken
15. **Where _____ next Sunday? Perhaps I may be visiting you.**
    (A) do you spend✓
    (B) did you spend
    (C) will you have spent
    (D) you spend
16. **If I _____ you, I would not lose temper.**
    (A) was **(B) were✓**
    (C) bad been (D) would be

17. I _____ Yasser since Monday.
(A) Have not seeing✓
(B) Did not see
(C) Was not seeing

18. We _____ for a picnic last week.
(A) Went✓ (B) Have gone
(C) Had gone (D) Will go

19. When he last wrote to me, he _____ in Lahore.[1]
(A) Had lived✓ (B) Lived
(C) Was living
(D) Has been living

20. I wondered why I _____ of it before.
(A) Did not think
(B) Have not thought
(C) Had not thought✓
(D) Would not think

21. She _____ a bath when the telephone bell rang.
(A) Took (B) Had taken✓
(C) Had been taking
(D) Was taking

22. I _____ if I were you.
(A) Shall apologise
(B) Apologise
(C) Should apologise✓
(D) Was apologising

23. The contractor insisted that he _____ the work before the end of March.
(A) Will complete
(B) Would complete✓
(C) Was completing
(D) Will be completing

24. We _____ to go to a movie next week, but we find we can't go as we have already spent all the money we had.
(A) Plan (B) Will plan
(C) Are planning
(D) Were planning✓

25. It _____ if the temperature had fallen any more.
(A) Would snow
(B) Would have been snowed
(C) Would have snowed✓
(D) Would have been snowing

26. I can never forget what I _____.
(A) Just read
(B) Have just read✓
(C) Will read (D) Will just read

[1] When two actions done in the past sentence one action consists of past indifinite and 2nd action comprising past perfect tense.

27. He invited_____ to the feast to celebrate the success of his son.
(A) All and sundry✓
(B) Above board
(C) All in all
(D) Alpha and omega

28. The____ of his speech was that Islam is a religion of peace.
(A) Alpha and omega✓
(B) Apple pie order
(C) Are and part
(D) Burning question

29. She is a good house wife and keeps the house in_____.
(A) Apple pie order✓
(B) An augean sable
(C) Left handed complement
(D) Lacklustre

30. The principal's remarks _____. The students flew into fury and decided to go on strike.
(A) Have one's name on
(B) Get the better of him
(C) Bring the person to knee
(D) Add fuel to fire✓

FILL IN THE CORRECT PHRASES

1. By next July, I ____ in this office for ten years.
(A) Will work (B) Worked
(C) Shall be worked
(D) Shall have been working✓

2. She ____ of marrying Ali when she discovered Ahmed was already married.
(A) Had thought
(B) Was thinking✓
(C) Was being thought
(D) Thougth

3. I don't like milk, so I ____ tea for breakfast.
(A) Generally drink✓
(B) Am generally drinking
(C) Was generally drinking
(D) Had generally drunk

4. Where ____ next Sunday? Perhaps I may be visiting you.
(A) Do you spend✓
(B) Did you spend
(C) Will you have spent
(D) You spend

5. If I ___ you, I would not lose temper.

(A) Was (B) Were✓
(C) Had been (D) Would be

6. She would not have borrowed the diamond necklace if she ___ wiser.
(A) Was (B) Were
(C) Had been✓
(D) Could have been

7. We asked the guests what places they ___ the next day.
(A) Would visit✓ (B) Were visiting
(C) Will visit (D) Had visited

8. If you went away now, we ___ you.
(A) Missed (B) Will miss
(C) Would miss✓
(D) Would have missed

9. I don't think I ___ him yet.
(A) Have been meeting
(B) Met (C) Have met✓

10. I shall certainly work all next week except when it ____.
(A) Is raining✓ (B) Would rain
(C) Will be raining (D) Will rain

11. Although the Rajput army was outnumbered, the brave general refused to ____.
(A) Give way (B) Give over
(C) Give in✓ (D) Give out

12. Having earned a lot of money in business, Mr Saeed ____ his poor cousins.
(A) Looks down upon✓
(B) Hits upon
(C) Shows off (D) Looks upon

13. The price of gold as well as silver ____ risen.
(A) Are (B) Have
(C) Has✓ (D) Is

14. The building was so old and dilapidated that it was not _____.
(A) Habitable✓ (B) Habitat
(C) Habitability (D) Habituating

15. Your son had promised to call you to USA, ____.
(A) Didn't he (B) Did he
(C) Hadn't he✓ (D) Had he

16. A large majority of students ____ absent from the college yesterday.
(A) Were (B) Was✓
(C) Has been (D) Had been

17. He is very keen ____ going abroad, for higher studies.
(A) For✓ (B) At
(C) Over (D) On

18. You are not justified ____ laying the blame _____ my door.
(A) In, over (B) In, at✓
(C) At, at (D) Over, at

19. What you have done ____ no excuse.
(A) Admits✓ (B) Admits at
(C) Admits about (D) Admits of

20. Timid by nature, the doctor, who was alone in his house was frightened____.
(A) Out of wits (B) Out at his wits
(C) At his wits end✓ (D) Out of his wits

Fill with appropriate preposition

21. He came and sat ____ his wife and son.
(A) Beside (B) By
(C) Besides (D) Between✓

22. Please open the book ____ page 10.
(A) On (B) At✓
(C) From (D) To

23. Are you conversant ____ accounts?
(A) With✓ (B) To
(C) From (D) By

24. If you persist ____ your views, you will turn everybody against you.
(A) In✓ (B) On
(C) With (D) Into

25. Everybody is complaining ____ corruption in public life.
(A) About (B) On
(C) Of✓ (D) Against

26. I am sorry I have to go back _____ my promise.
(A) From (B) By
(C) To (D) On✓

27. Send the book ____ my address.
(A) On (B) To✓
(C) At (D) From

28. He is very popular ____ his employees.
(A) In (B) Between
(C) Among (D) With✓

29. This girl is lost ____ all sense of shame.
(A) To✓ (B) Of
(C) Among (D) With

30. He was warned ____ the danger quite in time.
(A) Against (B) About
(C) Of✓ (D) By

TICK THE ANTONYMS

1. Barren:
(A) Irrigated (B) Cultivated
(C) Fertile✓ (D) Agricultural

2. Transparent:

(A) Translucent (B) Bright
(C) Clear **(D) Opaque✓**

3. **Friendly:**
(A) Strange (B) Indifferent
(C) Hostile✓ (D) Human

4. **Progressive**
(A) Retrograde✓ (B) Repressive
(C) Subversive (D) Impending

5. **Ominous:**
(A) Final (B) Terminating
(C) Auspicious✓ (D) Blessed

6. **One who eats human flesh:**
(A) Cannibal✓ (B) Furious
(C) Carnivorous (D) Beast
(E) Man-eater

7. **A place where birds are kept:**
(A) Attic (B) Nursery
(C) Aviary✓ (D) Zoo
(E) None

8. **Animals that feed on grass:**
(A) Carnivorous **(B) Herbivorous✓**
(C) Insectivorous (D) Graminivorous
(E) Aquarian

9. **A thing which easily catches fire:**
(A) Efflorescent (B) Callous
(C) Impatient **(D) Inflammable✓**
(E) Fluorescent

10. **Speaking too much of oneself:**
(A) Equivocal (B) Hypocrite
(C) Egotism✓ (D) Selfish
(E) Egoism

11. **GRIM**
(A) Dismal **(B) Gay✓**
(C) Poor (D) Forbidding

12. **REMOTE**
(A) Dirty **(B) Accessible✓**
(C) Far (D) Apex

13. **ENCROACH**
(A) Disrespect (B) Creep
(C) Backward **(D) Withdraw✓**

14. **ESCALATE**
(A) Intensify **(B) Decrease✓**
(C) Increase (D) Fixed

15. **ETERNAL**
(A) Temporary✓ (B) Moral
(C) Religious (D) Unending

16. **PANDEMONIUM**
(A) Calm✓ (B) Frustration
(C) Efficiency (D) Impishness
(E) Irrelevant

17. **PERTINENT (relevant)**
(A) Understood (B) Living
(C) Discontented (D) Puzzling
(E) Irrelevant✓

18. **PRODIGAL**
(A) Large **(B) Thrifty✓**
(C) Consistent (D) Compatible
(E) Remote

19. **PRODIGIOUS**
(A) Infinitesimal✓ (B) Indignant
(C) Indifferent (D) Insufficient
(E) Indisposed

20. **PROFANE**
(A) Sanctify✓ (B) Desecrate
(C) Define (D) Manifest
(E) Urge

21. **HYPOCRITICAL:**
(A) Sincere✓ (B) Shameful
(C) Amiable (D) Modest

22. **HUSBANDRY:**
(A) Sportsmanship, reasonableness
(B) Wastefulness✓
(C) Friction
(D) Cowardice

23. **IRREPARABLE (not correctable):**
(A) Proverbial (B) Legible
(C) Correctable✓ (D) Concise

24. **JANUNDICED:**
(A) Inflame (B) Quickened
(C) Unbiased✓ (D) Aged

25. **JEOPARDY:**
(A) Patience (B) Courage
(C) Safety✓ (D) Willingness
(E) Liberty

26. **TRAGEDY:**
(A) Humorous **(B) Comedy✓**
(C) Romance (D) Calamity

27. **RECEDE:**
(A) Rush **(B) Advance✓**
(C) Approach (D) Forward

28. **One can *acquire* fame only by being truthful, honest and faithful.**
(A) Lose✓ (B) Deprive
(C) Forsake (D) Surrender

29. **Mother Teresa devoted her life to the service of the *poor* and the destitute.**
(A) Greedy (B) Noble
(C) Rich✓ (D) Extraordinary

30. **Always *avoid* late-night jobs.**
(A) Pursue✓ (B) Compel
(C) Inspire (D) Take

31. **He is a very *timid* person.**
(A) Dashing (B) Outgoing
(C) Bold✓ (D) Chivalrous

32. **ADULATION (admiration):**
(A) Youth (B) Purity

(C) Criticize✓ (D) Defense

33. **AMBIGUOUS (not clear):**
(A) Responsible (B) Salvageable
(C) Corresponding **(D) Clear✓**
(E) Auxiliary

34. **CONCILIATE:**
(A) Defend (B) Activate
(C) Integrate **(D) Quarrel✓**
(E) React

35. **DIN (continued loud noise):**
(A) Lightness (B) Safety
(C) Silence✓ (D) Hunger
(E) Promptness

36. **DESECRATE (profane):**
(A) Desist (B) Integrate
(C) Confuse (D) Intensify
(E) Consecrate✓

37. **MANIFEST:**
(A) Limited **(B) Obscure✓**
(C) Faulty (D) Varied

38. **FLAMBOYANT:**
(A) Old fashioned **(B) Restrained✓**
(C) Impulsive (D) Cognizant

39. **FIASCO:**
(A) Cameo (B) Mansion
(C) Pollution **(D) Success✓**

40. **ELUSIVE:**
(A) Deadly (B) Eloping
(C) Evasive✓ (D) Simple

41. **PARABLE:**
(A) Equality **(B) Allegory✓**
(C) Frenzy (D) Folly

42. **SOBRIETY:**
(A) Inebriety✓ (B) Aptitude
(C) Scholasticism (D) Monotony

43. **TENACIOUS:**
(A) Fast running (B) International
(C) Scholasticism **(D) Monotony✓**

44. **UNTENABLE:**
(A) Supportive (B) Tender
(C) Sheepish **(D) Tremulous✓**

45. **ANTITHESIS:**
(A) Velocity (B) Maxim
(C) Similarity✓ (D) Acceleration

46. **AFFABLE:**
(A) Rude✓ (B) Ruddy
(C) Needy (D) Useless

47. **BIZARRE:**
(A) Roomy (B) Veiled
(C) Subdued **(D) Normal✓**

48. **CACOPHONY:**
(A) Discord (B) Dance
(C) Applause **(D) Sweet✓**

49. **CAPRICIOUS:**
(A) Satisfied✓ (B) Insured
(C) Photo (D) Steadfast

50. **DISPARITY:**
(A) Resonance (B) Elocution
(C) Balance✓ (D) Difference

51. **DOGMATIC:**
(A) Benign✓ (B) Canine
(C) Impatient (D) Arbitrary

52. **Amalgamate:**
(A) Equipped (B) Generate
(C) Depress **(D) Separate✓**

53. **Amplify:**
(A) Infer (B) Differ
(C) Distant **(D) Decrease✓**

54. **Apposite:**
(A) Inappropriate (B) Right
(C) Direct✓ (D) Indirect

55. **Anonymous:**
(A) Signed **(B) Defined✓**
(C) Written (D) Balanced

56. **Amicable:**
(A) Unfriendly✓ (B) Ugly
(C) Weak (D) Compromising

57. **Harmony:**
(A) Discrepancy (B) Accordance
(C) Discord✓ (D) Inflight

58. **Summit:**
(A) Climb **(B) Base✓**
(C) Ride (D) Swim

59. **Apex:**
(A) Top **(B) Bottom✓**
(C) Near (D) Far away

60. **Affirmative:**
(A) Approved **(B) Negative✓**
(C) Unfavourable (D) Conformed

61. **Amateur:**
(A) Mature (B) Part-time player
(C) Professional✓ (D) Cultured

62. **PREJUDICE:**
(A) Aversion✓ (B) Gestation
(C) Preliminary (D) Admiration

63. **GOAD:**
(A) Spur✓ (B) Restrain
(C) Pursue (D) Supersede

64. **FAD:**
(A) Eccentricity✓ (B) Custom
(C) Constituent (D) Visage

65. **REFERENCE:**
(A) Disdain (B) Remuneration
(C) Opposite **(D) Retrospection✓**

66. **ZEAL:**
(A) Initiative✓ (B) Coarseness

(C) Pedagogy (D) Indolence

67. **MOURNFUL:**
(A) Informal (B) Sympathetic
(C) Private (D) Appropriate
(E) Joyous✓

68. **GRANDIOSE (showy):**
(A) Docile (B) Unlikely to occur
(C) Simple and unimposing✓
(D) Light in weight

69. **LACKLUSTER:**
(A) Superficial
(B) Courteous, showing good manner
(C) Vibrant✓
(D) Complex
(E) Abundant

70. **CENSURE:**
(A) Augment (B) Eradicate
(C) Enthrall **(D) Commend✓**
(E) Reform

71. **DESICCATE (dehydrate):**
(A) Lengthen (B) Hallow
(C) Exonerate **(D) Saturate✓**
(E) Anesthetize

72. **PARSIMONIOUS (miser):**
(A) Appropriate **(B) Generous✓**
(C) Complete (D) Radiant
(E) Ongoing

73. **Serendipitous:**
(A) Calm **(B) Planned✓**
(C) Flat (D) Evil

74. **Fetid:**
(A) In an embryonic state
(B) Easily enraged
(C) Acclaimed by peers
(D) Having a pleasant odour✓

75. **Illusory:**
(A) Nimble **(B) Realistic✓**
(C) Powerful (D) Underrated

TICK THE SYNONYMS

1. **Severely abusive writing in journals:**
(A) Imaginary (B) Speculative
(C) Scurrilous✓ (D) Sarcastic

2. **Call upon God or any other power (like law) etc. for help or protection.**
(A) Invocation✓ (B) Involution
(C) Inundation (D) Revocation

3. **Fear of being enclosed in a small closed space:**
(A) Agoraphobia **(B) Claustrophobia✓**
(C) Xenophobia (D) Paranoia

4. **One who has become dependent on something or drugs is a/an:**
(A) Adamant (B) Edict
(C) Addict✓ (D) Derelict

5. **ABEYANCE:**
(A) Obedience
(B) Suspended action✓
(C) Excitement (D) Discussion

6. **ABSTINENCE (to avoid):**
(A) Vulgar display
(B) Deportment (behaviour)
(C) Reluctance
(D) Restrained eating or drinking✓

7. **CONFORMITY:**
(A) Agreement (act of agreeing)✓
(B) Ambition
(C) Confinement (D) Pride

8. **DEFILE:**
(A) Manicure (B) Pollute
(C) Improve or make dirty✓
(D) Assemble

9. **DISPASSIONATE**
(A) Sensual (B) Immoral
(C) Inhibited **(D) Impartial✓**
(E) Scientific

10. **EFFACE (to erase)**
(A) Countenance (B) Encourage
(C) Recogniz (D) Blackball
(E) Rub out✓

11. **INDOLENCE**
(A) Sloth✓ (B) Latitude
(C) Poverty (D) Aptitude

12. **MAWKISH**
(A) Sentimental (B) True
(C) Certain✓ (D) Devious
(E) Carefree

13. **MORIBUND**
(A) Appropriate (B) Leather bound
(C) Dying✓ (D) Answering
(E) Undertaking

14. **INGENUOUS (Artless):**
(A) Clever
(B) Stimulating (rousing)
(C) Naive✓ (D) Worried

15. **MEDIOCRE:**
(A) Average✓ (B) Bitter
(C) Medieval (middle age)
(D) Industrial

16. **PRECARIOUS:**
(A) Priceless (B) Permanence
(D) Hazardous✓

17. **PONDEROUS:**
(A) Mioist (B) Rambling
(C) Bulky✓ (D) Erect

18. **DEMONSTRATE:**
(A) Display **(B) Protest✓**
(C) Resign (D) Reiterate

19. **OVERT:**
(A) Deep (B) Shallow
(C) Secret✓ (D) Unwritten

20. **KINDLE:**
(A) Ignite✓ (B) Encourage
(C) Ignore (D) Extinguish

21. **ASSERT:**
(A) Acquiesce **(B) Agree✓**
(C) Abjure (D) Abducate

22. **Tariq often walks to school:**
(A) Rerely (B) Never
(C) Always **(D) Sometimes✓**

23. **DISSOLUTE:**
(A) Immoral✓ (B) Repulsive
(C) Honest (D) Distant

24. **NIGGARD:**
(A) Miser✓ (B) Loyal
(C) Divine (D) Shrewd

25. **DILIGENT:**
(A) Intelligent (B) Energetic
(C) Modest **(D) Industrious✓**

26. **OBVERSE:**
(A) Opposite✓ (B) Reverse
(C) Bitter (D) Adverse

27. **FALSE:**
(A) Defective **(B) Untrue✓**
(C) Incorrect (D) Inaccurate

28. **Drinking is a <u>vice</u> which ultimately runs a person.**
(A) Habit (B) Crime
(C) Sin **(D) Evil✓**

29. **The <u>lurid</u> details of the murder in broad daylight sent chilling sensation down the spine of everybody.**
(A) Realistic **(B) Vivid✓**
(C) Bleak (D) Ghastly

30. **Few teachers have been spared the problem of an <u>obstreperous</u> pupil in the class.**
(A) Awkward (B) Lazy
(C) Unruly✓ (D) Sullen

31. **The host looked quite <u>jaded</u> by the time the party was over.**
(A) Miserable (B) Cheerful
(C) Inspiring **(D) Exhausted✓**

32. **Rahim does unpaid work for the <u>charity</u> school.**
(A) Honourable **(B) Honorary✓**
(C) Honest (D) Honorific

33. **CHURLISH, rude:**
(A) Marine (pertaining to the sea)
(B) Economical
(C) Impolite (violent)✓
(D) Compact, reality fitted
(E) Young

34. **CLANDESTINE:**
(A) Abortive **(B) Secret ✓**
(C) Tangible (clear and definite)
(D) Doomed (death)
(E) Approved (permission)

35. **EMANCIPATE:**
(A) Set free✓ (B) Take back
(C) Make worse
(D) Embolden (encourage)
(E) Run away

36. **ADVERSITY:**
(A) Opponent **(B) Hardship✓**
(C) Opening (D) Agency

37. **ADHERE:**
(A) Give up **(B) Stick✓**
(C) Criticise (D) Appear

38. **AMELIORATE:**
(A) Understand (B) Eliminate
(C) Camouflage **(D) Improve✓**

39. **ANNIHILATION:**
(A) Total destruction✓
(B) Digestion
(C) Insult (D) Of any

40. **ASSIMILATE:**
(A) Adopt (B) Absorb
(C) Reject (D) Digest

41. **Arrogance:**
(A) Modest **(B) Haughtiness✓**
(C) Happiness (D) Servile

42. **Annihilate:**
(A) Efface✓ (B) Cultivate
(C) Build (D) Create

43. **Cumbersome:**
(A) Awkward✓ (B) Decline
(C) Handsome (D) Beautiful

44. **Exemplify:**
(A) Over **(B) Illustrate ✓**
(C) Answer (D) Summary

45. **Imperious:**
(A) Proud✓ (B) Temper
(C) Tamper (D) Distant

46. **Luxuriant:**
(A) Beautiful✓ (B) Ugly
(C) Abundant (D) Lovely

47. **Memorable:**
(A) Memorial impose
(B) Worth remembering✓
(C) Mending (D) Striking

48. **Impose:**
(A) Enforce✓ (B) Avoid
(C) Come (D) Bold

49. **Alter:**
(A) Change✓ (B) Separate
(C) Fixed (D) Arrival

50. **IMPECCABLE:**
(A) Unmentionable (B) Quotable
(C) Binding **(D) Faultless✓**
(E) Hampering (obstruct)

51. **PARADOX (statement that looks false but is actually correct):**
(A) Exaggeration (overstated)
(B) Contradiction (deny) ✓
(C) Hyperbole
(D) Invective (abusive oratory)
(E) Poetic device

52. **A BOLT FROM THE BLUE:**
(A) Bad luck (B) God sent gift
(C) A feared event
(D) Sudden unwelcome event✓

53. **APE (copy/ imitate):**
(A) To taunt (B) Cheapen
(C) Mimic✓ (D) Steal

54. **HARMONIOUS:**
(A) Jarring **(B) Coherent✓**
(C) Happy (D) Playful

55. **PRODIGAL:**
(A) Wasteful✓
(B) Arrogant, Proud
(C) Extend (D) Multiply

****

CHOOSE THE LETTERED PAIR OF WORDS WHOSE RELATIONSHIP IS MOST LIKE THE RELATIONSHIP EXPRESSED IN THE ORIGINAL LINKED PAIR.

1. **WHISPER: SPEAK**
(A) Brush: Touch✓ (B) Skip: Walk
(C) Listen: Hear (D) Request: Ask

2. **ELUSIVE (evasive): CAPTURE**
(A) Persuasive, Convince
(B) Headstrong: Control✓
(C) Sensible: Decide
(D) Gullible, Trick
(E) Elastic: Stretch

3. **STARE: GLANCE**
(A) Participate: Observe
(B) Scorn: Admire
(C) Hunt: Stalk
(D) Gulp (swallow), sip✓

4. **INFALLIBLE: ERROR**
(A) Irreversible: Cure
(B) Invulnerable: Emotion
(C) Impeccable: Flaw✓
(D) Intolerable: Defect

10. **PROOF: ALCOHOL**
(A) Cream: Milk
(B) Canteen: Water
(C) Tanker: Oil
(D) Octane: Gasoline✓
(E) Pulp: Juice

11. **DAY: SUN**
(A) Sunlight: Daylight
(B) Ray: Sun
(C) Night: Moon✓
(D) Heat: Cold
(E) Moon: Star

12. **HAIR: BALD**
(A) Wig: Curly (B) Egg: Cooked
(C) Rain: Arid✓ (D) Skin: Scarred
(E) Medicine: Healthy

13. **DINGHY: BOAT**
(A) Novel: Book✓
(B) Caone: Paddle
(C) Oar: Water (D) Deck: Stem
(E) Land: Sea

14. **APPLE: TREE**
(A) Silver: Ore
(B) Bronze: Copper
(C) Plank: Wood (D) Glass: Sand
(E) Pearl: Oyster✓

15. **CARNIVORE: MEAT**
(A) Carnivore: Vegetable
(B) Herbivore: Plants✓
(C) Vegetarian: Vitamins
(D) Botanist: Herbs
(E) Pollinator: Plants

16. **HORSE: CORRAL:**
(A) Oyster: reef
(B) Dog: muzzle (animal's mouth)
(C) Sheep: flock
(D) Pig: sty✓
(E) Deer: stag

17. **DESCRY: DISTANT:**
(A) Mourn: lost
(B) Whisper: muted
(C) Discern: subtle✓
(D) Destroy: flagrant
(E) Entrap: hostile

18. **SIEVE: SIFT:**
(A) Pendent: Neck
(B) Crowbar: Pry✓
(C) Cement: Trowel
(D) Scales: Justice

Urdu:

.1 پنڈت رتن ناتھ سرشار اور مولانا عبدالحلیم شرر جیسے صاحب قلم کس ہندوستان کے علاقہ سے تعلق رکھتے تھے؟
(A) لاہور (B) دہلی
(C) لکھنؤ✓ (D) اودھ

.2 پنڈت رتن ناتھ سرشار کو کیا کہا جاتا ہے؟
(A) شیکسپیئر (B) ورڈز ورتھ
(C) چارلس ڈکنز✓ (D) ڈاکٹر واٹسن

.3 پریم چند کا کون سا ناول سماج کے ظلم کا تمثیلی ثبوت ہے؟
(A) میدان عمل **(B) بازار حسن✓**
(C) گودان (D) امراؤ جان ادا

.4 مضمون 'ممتا' کس کی تصنیف ہے؟
(A) عطاالحق قاسمی **(B) احمد ندیم قاسمی✓**
(C) مرزا ادیب (D) پریم چند

.5 غالب کی تاریخ ولادت اور تاریخ وفات بتائیں؟
(A) 1869-1797✓ (B) 1868-1803
(C) 1878-1800 (D) 1978-1900

.6 تم میرے پاس ہوتے ہو گویا
جب کوئی دوسرا نہیں ہوتا
یہ شعر کس کا ہے؟
(A) مومن✓ (B) غالب
(C) میر تقی میر (D) میر درد

.7 'لاہور کا جغرافیہ' اور 'ہاسٹل میں رہنا ہے' کس کے مزاحیہ مضامین ہیں؟
(A) امجد اسلام امجد
(B) ابن انشا
(C) پطرس بخاری✓
(D) چراغ حسن حسرت

.8 اقتل حسین اصل میں مرگ یزید ہے
اسلام زندہ ہوتا ہے ہر کربلا کے بعد
اس مشہور شعر کے شاعر کا کیا نام ہے؟
(A) محمد علی جوہر✓
(B) مومن خان مومن
(C) ابراہیم ذوق
(D) ان میں سے کوئی نہیں

.9 لفظ 'شر' کا متضاد کیا ہے؟
(A) بھلائی (B) صواب
(C) ثواب **(D) خیر✓**

.10 گیت نگاری میں سب اہم نام کس کا ہے
(A) ولی دکنی **(B) ساحر لدھیانوی✓**
(C) فیض احمد فیض (D) احمد فراز

.11 غزل کے کس شعر میں سے شاعر اپنے تخلص استعمال کرتا ہے؟
(A) درمیان والا شعر (B) مطلع
(C) مطلع ثانی **(D) مقطع✓**

.12 مرزا غالب نے وفات کہاں پائی؟
(A) پائی پت✓ (B) آگرہ
(C) دہلی (D) لکھنؤ

.13 مشہور افسانہ 'ٹوبہ ٹیک سنگھ' کس کی تصنیف ہے؟
(A) اشفاق احمد (B) کرشن چندر
(C) سعادت حسن منٹو✓ (D) خالدہ حسین

.14 ''مسجد قرطبہ'' کس کی مشہور نظم ہے؟
(A) علامہ اقبال✓ (B) ن۔م۔ راشد
(C) جوش ملیح آبادی
(D) مولانا الطاف حسین حالی

.15 ہتھیلی پر .....جماتا۔
(A) تیل (B) دہی
(C) سرسوں✓ (D) برف

.16 مان نہ مان میں تیرا .....
(A) محسن (B) مہربان
(C) غم خوار **(D) مہمان✓**

.17 جنڈیالہ شیر خان میں کون سی مشہور ہستی دفن ہے؟
(A) محمد بخش **(B) وارث شاہ✓**
(C) قتیل شفائی (D) ہیر سیال

.18 پاکستان کا قومی پھول .....ہے۔
(A) سورج مکھی (B) گل داؤدی
(C) چنبیلی✓ (D) گلاب

.19 قرطبہ اور غرناطہ شہر کس یورپی ملک میں واقع ہیں؟
(A) فرانس (B) آئرلینڈ
(C) اسپین✓ (D) ہالینڈ

.20 مشتاق احمد یوسفی کون ہیں؟
(A) مزاح نگار✓ (B) بزنس مین
(C) صحافی (D) سیاستدان

.21 نیکی کر ..... میں ڈال۔
(A) کنویں (B) جیب
(C) دریا✓ (D) کشکول

.22 ہمارا قومی ترانہ کس شاعر نے تخلیق کیا؟
(A) فیض احمد فیض (B) ساحر لدھیانوی
(C) حفیظ جالندھری✓ (D) جوش ملیح آبادی

.23 لوک فنکار پٹھانے خان کا آبائی شہر ہے۔
(A) بہاولپور **(B) کوٹ ادو✓**
(C) بھکر (D) ملتان

.24 مشہور افسانہ 'گڈریا' کس کی تصنیف ہے؟
(A) پروین عاطف **(B) اشفاق احمد✓**
(C) غلام عباس (D) کرشن چندر

.25 'علی پور کا ایلی' ناول کس نے لکھا؟
(A) عبداللہ حسین
(B) سمیع آہوجا
(C) ممتاز مفتی✓
(D) مستنصر حسین تارڑ

.26 'خوشبو' کس شاعر کا دیوان ہے؟
(A) پروین شاکر✓ (B) جون ایلیا
(C) جوش ملیح آبادی (D) احمد ندیم قاسمی

.27 احمد فراز کا آبائی شہر کون سا تھا؟
(A) پشاور (B) نوشہرہ
(C) میانوالی **(D) کوہاٹ✓**

.28 ..... ضرورت کی ماں ہے۔
(A) قحط (B) ایجاد
(C) فراوانی ✓ (D) قلت

.29 درجہ ذیل میں سے کس شاعری کی نسبت شہر اقبال [illegible]رث سے ہے؟
(A) **حفیظ جالندھری✓** (B) احسان دانش
(C) فیض احمد فیض (D) منیر نیازی

.30 [illegible] تہجی کے اعتبار سے کون سا لفظ لغت میں پہلے

(C) اسم ظرف (D) اسم مکبر

45. درج ذیل میں کون سا لفظ ہجے کے لحاظ سے درست ہے۔
(A) پرواع (B) پرواہ
(C) پرواح (D) پروا✓

46. درج ذیل میں کونسا ہجے کے لحاظ سے درست ہے؟
(A) استفداح (B) استفادہ✓
(C) استفادھ (D) استفادا

47. کون سا فقرہ درست ہے؟
(A) سکول کا نتیجہ سو فیصد رہا✓
(B) شورسن کر میری نیند کھل گئی
(C) شریف بچے گالیاں نہیں دیتے
(D) آپ کی خیریت نیک مطلوب چاہتا ہوں

48. نشیب کا متضاد ہے۔
(A) چڑھائی (B) اونچائی
(C) فراز✓ (D) بلندی

49. درج ذیل میں ضرب المثل تلاش کیجئے۔
(A) عید کا چاند
(B) اپنے منہ میاں مٹھو بننا
(C) بوڑھی گھوڑی لال لگام✓
(D) پانی میں آگ لگانا

50. مشہور تصنیف "یاد گار غالب" کے مصنف کون تھے؟
(A) سرسید احمد خان (B) مرزا غالب
(C) علامہ اقبال
(D) الطاف حسین حالی✓

51. "نقش فریادی" کس کا شعری مجموعہ ہے؟
(A) فیض احمد فیض
(B) احمد ندیم قاسمی✓
(C) ناصر کاظمی
(D) منیر نیازی

52. "بابائے اردو" کسے کہا جاتا ہے؟
(A) سر سید احمد خان
(B) ڈپٹی نذیر احمد
(C) مولانا ظفر علی خان
(D) مولوی عبدالحق✓

53. "لومڑی کو تکے کا سہارا" قواعد کی رو سے کیا ہے؟
(A) قول (B) ضرب المثل
(C) کہاوت (D) محاورہ✓

54. مشہور کتاب "بجنگ آمد" کے مصنف کون ہیں؟
(A) سید ضمیر جعفری
(B) شفیق الرحمان
(C) کرنل محمد خان✓
(D) مشتاق احمد یوسفی

55. مشہور ڈرامہ "انار کلی" کے مصنف کون ہیں؟
(A) امتیاز علی تاج✓ (B) بانو قدسیہ
(C) اشفاق احمد (D) احمد ندیم قاسمی

56. "بادلوں کی بارات" کس کی سوانح عمری ہے؟
(A) ممتاز مفتی (B) قدرت اللہ شہاب
(C) جوش ملیح آبادی✓ (D) ابن انشا

57. مندرجہ ذیل کتب میں کون سی الطاف حسین حالی کی تصنیف نہیں ہے؟
(A) اردو نے معلی✓
(B) مقدمہ شعر و شاعری
(C) مدو جزر اسلام (D) حیات سعدی

آئے گا؟
(A) سنگدل✓ (B) لاپرواہ
(C) ضمانت (D) ظالم

31. درج ذیل میں ضرب المثل کون سی ہے؟
(A) گھوڑے بیچ کر سونا
(B) الٹا چور کوتوال کو ڈانٹے✓
(C) ہوائی قلعے تعمیر کرنا
(D) ہتھیلی پر سرسوں جمانا

32. اردو ادب کی مشہور شخصیت قرۃ العین حیدر کی وجہ شہرت کیا ہے؟
(A) سفر نگاری (B) ناول نگاری✓
(C) مزاح نگاری (D) شاعری

33. مشہور افسانہ 'توبہ ٹیک سنگھ' کس کی تصنیف ہے؟
(A) اشفاق احمد (B) پریم چند
(C) سعادت حسن منٹو✓ (D) امتیاز علی تاج

34. "سیرۃ النعمان" کے مصنف ہیں۔
(A) شبلی نعمانی✓ (B) رشید احمد صدیقی
(C) شیخ محمد اکبر (D) عبداللہ حسنی

35. مشہور ڈرامہ "قرطبہ کا قاضی" کس کی تصنیف ہے؟
(A) سید امتیاز علی تاج✓ (B) احمد ندیم قاسمی
(C) پطرس بخاری (D) سعادت حسن منٹو

36. 'خوشبو' کس کی شاعری کا مجموعہ ہے؟
(A) کشور ناہید (B) ناصر کاظمی
(C) پروین شاکر✓ (D) فیض احمد فیض

37. مندرجہ ذیل میں ضرب المثل کون سی ہے؟
(A) اپنے منہ میاں مٹھو بننا
(B) بوڑھی گھوڑی لال لگام✓
(C) عید کا چاند ہونا
(D) پانی میں آگ لگانا

38. مشہور ناول 'اداس نسلیں' کس کی تصنیف ہے؟
(A) بانو قدسیہ (B) اشفاق احمد
(C) عبداللہ حسین✓ (D) قرۃ العین حیدر

39. مسدس کے ہر بند میں کتنے مصرعے ہوتے ہیں؟
(A) سات (B) پانچ
(C) چھ✓ (D) چار

40. درج ذیل شعرا میں سے 'عوامی شاعر' کسے کہا جاتا ہے؟
(A) نظیر اکبر آبادی✓ (B) الطاف حسین حالی
(C) فیض احمد فیض (D) علامہ اقبال

41. جملہ کسے کہتے ہیں؟
(A) بامعنی الفاظ کا مجموعہ✓
(B) حرفوں کا مجموعہ
(C) وہ فقرہ جس میں فاعل نہ ہو
(D) دو یا دو سے زیادہ الفاظ کا مجموعہ

42. مشہور نظم 'طلوع اسلام' کے شاعر کون ہیں؟
(A) احسان دانش (B) علامہ اقبال
(C) حفیظ جالندھری✓ (D) الطاف حسین حالی

43. درج ذیل شعر کس کا ہے؟
سب کہاں کچھ لالہ و گل میں نمایاں ہوگئیں
خاک میں کیا صورتیں ہونگی کہ پنہاں ہوگئیں
(A) حسرت موہانی (B) میر تقی میر
(C) علامہ اقبال (D) اسد اللہ غالب✓

44. درج ذیل الفاظ قواعد کی مدد سے کیا ہیں؟
پنکھڑی، نوکری، پہاڑی
(A) اسم مفعول (B) اسم تصغیر✓

58. ''آواز دوست'' کے مصنف کون ہیں؟
(A) عطا الحق قاسمی (B) ممتاز مفتی
(C) اشفاق احمد (D) مختار مسعود✓

59. مشہور ڈرامہ ''قرطبہ کا قاضی'' کس کی تصنیف ہے؟
(A) امجد اسلام امجد
(B) سید امتیاز علی تاج✓
(C) پطرس بخاری
(D) احمد ندیم قاسمی

60. درج ذیل شعر کس کا ہے؟
بس کہ دشوار ہے ہر کام کا آساں ہونا
آدمی کو بھی میسر نہیں انساں ہونا
(A) فیض احمد فیض (B) الطاف حسین حالی
(C) اسد اللہ غالب✓ (D) علامہ محمد اقبال

61. مولانا جلال الدین رومی کا مزار قونیہ میں ہے۔ قونیہ کس ملک کا شہر ہے؟
(A) شام (B) ترکی✓
(C) عراق (D) ایران

62. مشہور کہانی ''اوور کوٹ'' کے مصنف کون ہیں؟
(A) حسینہ معین (B) غلام عباس✓
(C) سید امتیاز علی تاج (D) سعادت حسن منٹو

63. ''اردو کی آخری کتاب'' کس کی تصنیف ہے؟
(A) مشتاق احمد یوسفی (B) ضمیر جعفری
(C) کرنل محمد خان (D) ابن انشا✓

64. درج ذیل شعر کس کا ہے؟
جو رکے تو کوہِ گراں تھے ہم جو چلے تو جاں سے گزر گئے
رہ یار ہم نے قدم قدم تجھے یادگار بنا دیا
(A) احمد ندیم قاسمی (B) حفیظ جالندھری
(C) حبیب جالب (D) فیض احمد فیض✓

65. مندرجہ ذیل میں سے کون سے شاعر اپنی مرثیہ نگاری کے لئے مشہور ہیں؟
(A) داغ دہلوی (B) میر انیس✓
(C) میر تقی میر (D) نظیر اکبر آبادی

66. ''علی پور کا ایلی'' کس کی خود نوشت سوانح عمری ہے؟
(A) سرسید احمد خان (B) ممتاز مفتی✓
(C) اشفاق احمد (D) قدرت اللہ شہاب

67. ''طاق نسیاں پر رکھنا'' کا مطلب ہے:
(A) حفاظت سے رکھنا (B) قطع تعلق کرنا
(C) بھول جانا✓ (D) سجاوٹ کرنا

68. حروف تہجی کے لحاظ سے کون سا لفظ لغت میں پہلے آئے گا؟
(A) سنگدل✓ (B) ضمانت
(C) لاپروا (D) ظالم

69. ''رائی کا پہاڑ بنانا'' کا مطلب ہے:
(A) مشکل کام کرنا (B) تنقید کرنا
(C) مبالغے سے کام لینا✓ (D) جدوجہد کرنا

70. علامہ اقبال کی کون سی کتاب میں ان کا اردو اور فارسی کلام اکٹھا چھپا ہے؟
(A) ارمغان حجاز✓ (B) بانگ درا
(C) بال جبریل (D) ضرب کلیم

71. جو لفظ کسی وصف کی وجہ سے مشہور ہو جائے اسے کیا کہتے ہیں؟
(A) خطاب (B) کنیت
(C) عرف✓ (D) لقب

72. ''مسدس حالی'' کا اصل نام ہے:
(A) مدوجزر اسلام✓ (B) دیوان حالی
(C) کلیات حالی (D) شاہنامہ اسلام

73. پاکستان کے کس صوبے کو ''باب اسلام'' کہا جاتا ہے؟
(A) بلوچستان (B) پنجاب
(C) سرحد (D) سندھ✓

74. ''جنت ماں کے قدموں تلے ہے''
(A) ضرب المثل
(B) ارشاد نبوی ﷺ ہے ✓
(C) قول ہے
(D) قرآنی آیت کا ترجمہ ہے

75. مندرجہ ذیل میں سے کس لفظ کے ہجے درست نہیں ہیں؟
(A) محوزہ✓ (B) فرہنگ
(C) مرقع (D) مہوش

76. عقائد میں توحید کے بعد کس کا درجہ آتا ہے؟
(A) زکوٰۃ (B) حج
(C) رسالت✓ (D) نماز

77. جھیل سیف الملوک کس جگہ واقع ہے؟
(A) وادی کاغان✓ (B) وادی کوئٹہ
(C) وادی ہنزہ (D) وادی سوات

78. مندرجہ ذیل شعر کس کا ہے:
قتل حسین اصل میں مرگ یزید ہے
اسلام زندہ ہوتا ہے ہر کربلا کے بعد
(A) غالب (B) محمد علی جوہر✓
(C) حالی (D) علامہ اقبال

79. رباعی کا سب سے بڑا اور مقبول شاعر کون ہے؟
(A) غالب (B) عمر خیام✓
(C) حافظ (D) فردوسی

80. مرثیہ کس نوعیت کی شاعری کو کہتے ہیں؟
(A) تحسینی (B) المیہ✓
(C) رزمیہ (D) مزاحیہ

81. کس پنجابی شاعر کا کلام سکھوں کی مذہبی کتاب کا حصہ ہے؟
(A) بابا فرید (B) بلھے شاہ
(C) سلطان باہو (D) وارث شاہ✓

82. روزنامہ 'جنگ' کے بانی کا نام کیا ہے؟
(A) ان میں سے کوئی نہیں
(B) میر خلیل الرحمٰن✓ (C) میر شکیل الرحمٰن
(D) میر جاوید الرحمٰن95. نسیم حجازی کی وجہ شہرت کیا ہے؟
(A) افسانہ نگاری (B) شاعری
(C) تاریخی ناول✓ (D) جاسوسی ناول

83. 'اک چادر میلی سی' کس کا مشہور ناول ہے؟
(A) کشور نابید (B) منشی پریم چند
(C) کرشن چندر (D) راجندر سنگھ بیدی✓

84. علامہ اقبال نے ایم اے کی ڈگری کس مضمون میں حاصل کی؟
(A) اسلامیات (B) انگریزی
(C) نفسیات (D) فلسفہ✓

85. ''امراؤ جان ادا'' کس کی تحریر ہے؟
(A) پریم چند (B) ہادی رسوا✓
(C) رفیق احمد (D) سرسید

Everyday Science:

1. Epistemology is the study of:
(A) Knowledge✓ (B) Insects
(C) Parasites (D) Religions

2. The Earth takes about _____ to complete one rotation around its axis.
(A) 48 hours (B) One month
(C) 24 hours✓ (D) 365 days

3. When a gas turns into a liquid, the process is called:
(A) Condensation✓ (B) Evaporation
(C) Deposition (D) Sublimation

4. Yeast used in making of bread is a:
(A) Fungus (B) Plant
(C) Bacteria✓ (D) Seed

5. The disease Diphtheria affects the _____ in the human body.
(A) Kidneys (B) Intestines
(C) Throat✓ (D) Joints

6. LED technology is energy efficient. What does LED stand for?
(A) Low Energy Data
(B) Low Energy Diode
(C) Light Emitting Diode✓
(D) None of these

7. What was the code name given to United States Navy SEALS operation leading to elimination of Osama bin Ladin in Abbottabad?
(A) Lion Heart
(B) Neptune Spear✓
(C) Geronimo (D) Shockwave

8. Pedagogy is a science of:
(A) Children disease (B) Language
(C) Civilization (D) Teaching✓

9. How many acres are there in one hectare?
(A) 2.47✓ (B) 3.47
(C) 4.47 (D) 5.47

10. Liquids that evaporate quickly are known as _____ liquids.
(A) Viscous (B) Transient
(C) Volatile✓ (D) Light

11. If a ship travels from fresh water to a sea or ocean, it will:
(A) Rise a little higher✓
(B) Sink completely
(C) Sink a little lower
(D) Remain unaffected

12. Which one of the following fruits / vegetables is a good source of potassium?
(A) Beetroot (B) Bananas✓
(C) Sweet potatoes (D) Spinach

13. What is the chemical name of bleaching powder?
(A) Calcium Hypochlorite✓
(B) Calcium Chlorate
(C) Calcium Chloride
(D) Chlorine

14. Which one of the following greenhouse gases has the greatest warming effect?
(A) Carbon dioxide✓
(B) Carbon monoxide
(C) Methane (D) Helium

15. What is the function of the heart pacemaker?
(A) It decreases the heartbeat
(B) It regulates the heartbeat✓
(C) It accelerates blood supply to the heart
(D) All of these

16. What is the Richter Scale used to measure?
(A) Flood (B) Volcano
(C) Earthquake✓ (D) Tsunami

17. Which body organ produces urine?
(A) Pancreas (B) Uterus
(C) Kidney✓
(D) Large intestine

18. What are Newtons used to measure?
(A) Gravity✓ (B) Volcano
(C) Earthquake (D) Tsunami

19. What is the most abundant element in the universe?
(A) Hydrogen (B) Oxygen
(C) Sodium✓ (D) Copper

20. How many chambers are there in the human heart?
(A) 2 (B) 4✓
(C) 3 (D) 6

21. Which vitamin is provided by sunlight to the body?
(A) Vitamin A (B) Vitamin B
(C) Vitamin C (D) Vitamin D✓

22. The enzyme-linked immunosorbent assay (ELISA) is used to detect:
(A) Antibodies✓ (B) Pathogens
(C) Tissues (D) Chemicals

23. What is chlamydomonas?
(A) An algae✓ (B) A fungus
(C) An animal (D) A fossil

24. What is the most common salt in seawater?
(A) Calcium Carbonate
(B) Potassium Chloride
(C) Sodium Chloride✓
(D) Magnesium Sulphate

25. The organ in the body which accumulates iodine is:
(A) Pituitary gland
(B) Thyroid gland✓
(C) Thymus (D) Parathyroid

26. Who invented chronometer?
(A) John Harrison✓ (B) Marconi
(C) Dalton (D) Samuel Francis

27. Seawater is water from a sea or:
(A) Bay (B) River
(C) Ocean✓ (D) Stream

28. Which of the following gases is used for refrigeration?
(A) Chlorine (B) Ammonia✓
(C) Phosphine (D) Carbon Dioxide

29. Cytology is the:

(A) Study of living cells✓
(B) Study of harmones
(C) Study of seeds
(D) Study of surface tension

30. Which among the following is a positively charged particle emitted by a radioactive element?
(A) Beta rays (B) Alpha rays✓
(C) Gamma rays (D) Cathode rays

31. If there is no sun, the color of the sky would be:
(A) Orange (B) Blue
(C) Yellow
(D) None of these✓

32. Which of the following is not a chemical reaction?
(A) Burning of a paper
(B) Conversion of water into steam✓
(C) Digestion of food
(D) Burning of coal

33. A chronometer measures:
(A) Sound waves (B) Time✓
(C) Color contrast (D) Water waves

34. The lightest particle of the matter is:
(A) Electron✓ (B) Neutron
(C) Proton (D) Deuteron

35. Meteorology is:
(A) Science of atmosphere✓
(B) Study of weights & measures
(C) Study of growth
(D) Study of stars

36. The credit of developing the polio vaccine goes to:
(A) Jonas Salk✓ (B) Albert Sabin
(C) Salmon Waksman
(D) None of these

37. Who invented the ballpoint pen?
(A) Waterman (B) Oscar
(C) Wilson (D) Laszlo Biro✓

38. Blaise Pascal is associated with:
(A) Calculation Machine
(B) Computer
(C) Cinema (D) Laszlo Biro

39. A metal which is liquid at room temperature is:
(A) Gold (B) Aluminium
(C) Mercury✓ (D) Platinum

40. Study of earthquakes is known as:
(A) Ecology (B) Seismology✓
(C) Numismatics (D) None of these

41. Ecology deals with:
(A) Birds
(B) Cell formation
(C) Relations between organisms and their environment✓
(D) Tissues

42. Oncology is the study of:
(A) Plants (B) Cancer✓
(C) Mammals (D) Soil

43. Optic fibres are mainly used for which of the following?
(A) Weaving
(B) Eye Surgery
(C) Communication✓
(D) Food Industry

44. The first test-tube baby of the world was born in:
(A) France (B) Philippines
(C) Britain✓ (D) USA

45. What makes a lemon sour?
(A) Tartaric acid (B) Citric acid✓
(C) Acetic acid
(D) Hydrochloric acid

46. Who discovered the solar system?
(A) Copernicus✓ (B) Newton
(C) Galileo (D) Kepler

47. Fathom is the unit of measurement for:
(A) Sound (B) Depth✓
(C) Energy (D) Time

48. Which is the hardest among following?
(A) Radium (B) Diamond✓
(C) Graphite (D) Gold

49. Which of the following is associated with Einstein?
(A) Radioactivity
(B) Theory of Relativity✓
(C) Rocket Propulsion
(D) Quantum Theory

50. Who among the following received Nobel Prize twice?
(A) Frederic Joliot (B) Marie Curie✓
(C) Irene Curie (D) John Wheeler

51. The smallest gland in the body is:
(A) Adrenal (B) Pancreas
(C) Pineal gland✓ (D) Pituitary

52. The first astronaut who landed on the Moon?
(A) Yuri Gagarin
(B) Neil Armstrong✓
(C) Neil Bohr (D) None of these

53. Silk in produced by:
(A) Larva of silkworm✓
(B) Eggs of silkworm
(C) Pupa of silkworm
(D) None of these

54. Scurvy is a disease of:
(A) Eyes (B) Skin✓
(C) Hair (D) Liver

55. What is the Richter Scale used to measure?
(A) Tsunami (B) Food
(C) Volcano (D) Earthquake✓

56. Melting point of acetanilide is:
(A) 51°C (B) 61°C✓
(C) 71°C (D) 81°C

57. Melting point of acetanilide is:
(A) 110°C (B) 112°C✓
(C) 114°C (D) 116°C

58. Acetaldol is used in the vulcanization of:
(A) Wood (B) Rubber✓
(C) Plastic (D) Water

59. Accumulator is a device for storing:
(A) Electricity✓ (B) Charge
(C) Current (D)

60. Glues and cements are:
(A) Adiabatics (B) Adhesives✓
(C) Adatoms (D) Acyls

61. A unit of loudness, used in measuring the intensity of sound is:
(A) Phon✓ (B) Phonon
(C) Phosphor (D) None

62. A colourless, inflammable poisonous gas with an unpleasant smell is:
(A) Phosphate (B) Phosphine✓
(C) Phosphite (D) None

63. The study of the action of chemical substances upon animals is:
(A) Pharmacology✓ (B) Pharmacy
(C) Phenacetion (D) None

64. Melting point of phenol, a white crystalline solid is:
(A) 21°C (B) 31°C
(C) 41°C✓ (D) 51°C

65. The dress made out of which of the following materials is safest to wear while cooking?
(A) Terylene✓ (B) Silk
(C) Nylon (D) Cotton

66. Cyclopropane is a colourless inflammable gas, used as a/an:
(A) Crystal (B) Solvent
(C) Anaesthetic✓ (D) Solate

67. Philology is:
(A) Scientific study of literary texts✓
(B) Study of bones
(C) Study of muscles
(D) Study of architecture

68. The 1st satellite was launched by:
(A) UK (B) France
(C) USSR✓ (D) Japan

69. Who was the surgeon who pioneered antiseptic surgery in 1865?
(A) John Sleeman (B) Edward Jenner
(C) Joseph Lister✓ (D) A. Sabine

70. Day and night changes are due to:
(A) Earth's rotation around its axis✓
(B) Earth's revolution
(C) Earth's rotation accompanied with its revolution
(D) None of these

71. The energy generation in stars is due to:
(A) Fusion of heavy nuclei
(B) Fission of heavy nuclei
(C) Fusion of light nuclei✓
(D) None of these

72. The filament of an electric bulb is made of:
(A) Tungsten✓ (B) Carbon
(C) Iron (D) None of these

73. Fiber optics technology is being used in:
(A) Oil and gas pipelines control and monitoring system
(B) Telecommunication✓
(C) Electrical power control and distribution monitoring system
(D) All of the above

74. Which vitamin protects skin of the human body?
(A) D (B) A✓
(C) B_1 Complex (D) C

75. Solar System consists of:
(A) Eleven planets
(B) Eight planets✓
(C) Nine planets
(D) Ten planets

76. The earth's rotation on its axis is from:
(A) West to East✓ (B) South to North
(C) North to South (D) East to West

77. "Dosimeter" is a device used to measure: -
(A) High temperatures
(B) Nuclear radiation for safety purposes✓
(C) The speed of wind or any other gas
(D) Heat radiation

78. What do you understand by the disease "Insomnia"?
(A) Depression
(B) Inability to sleep✓
(C) Colour blindness
(D) None of the above

79. A doctor specialist in skin diseases is called:
(A) Dermatologist✓
(B) Cardiologist
(C) Endocrinologist
(D) None of the above

80. "Ornithology" is the study of:
(A) Sea plants (B) Birds✓
(C) Insects (D) Sea animals

81. What do you understand by "Choreography"?
(A) The steps and movement in dances✓
(B) The study of universe
(C) The study of secret writing
(D) Techniques used in space travelling

82. Which of the following gases is mainly causing global warming?
(A) Hydrogen (B) Nitrogen
(C) Methane (D) Carbon dioxide✓

83. Which of the following gases is most predominant in the Sun?
(A) Ozone (B) Helium
(C) Hydrogen✓ (D) Nitrogen

84. Vitamins were discovered by:
(A) Funk✓ (B) Moseley
(C) Chadwick (D) Frank Whittle

85. Biogas is the common name of:
(A) Oxygen gas (B) Natural gas✓
(C) Hydrogen gas (D) Nitrogen gas

86. Who is the founder of 'Big Bang Theory?
(A) George Lemaitre✓
(B) Tycho Brahe
(C) Edwin Hubble
(D) Issac Asimov

87. What is the diametre of Earth?
(A) 14756 Kilometre

(B) 10556 Kilometre
(C) 12756 Kilometre✓
(D) None of these

88. **The time required by moonlight to reach the Earth is:**
(A) 3 seconds (B) One second
(C) 1.3 second✓ (D) 2 seconds

89. **Poise is the unit of:**
(A) Quantity (B) Velocity
(C) Density **(D) Viscosity✓**

90. **Who is the founder of Chemistry?**
(A) Al-Bairuni
(B) Muhammad Bin Zikrya Al-Razi
(C) Jabir Bin Hayyan✓
(D) Ibn-ul-Haitham

91. **The acid prepared by Jabir Bin Hayyan is:**
(A) Citric Acid (B) Phosphoric Acid
(C) Carbonic Acid **(D) Sulphuric Acid✓**

92. **Method for the preparation of varnish was discovered by:**
(A) Ibn-ul-Haitham **(B) Jabir Bin Hayyan✓**
(C) Muhammad Bin Zikrya Al-Razi
(D) Al-Bairuni

93. **Enzymes are made of:**
(A) Proteins✓ (B) Oil
(C) Carbon (D) Silica

94. **One ounce is equal to how many grams?**
(A) 28.85 (B) 28.65
(C) 27.95 **(D) 28.35✓**

95. **Wind blowing in a spiral form around a region of low atmospheric pressure is a:**
(A) Tornado (B) Hurricane
(C) Cyclone✓ (D) Anticyclone

96. **When the days and nights are equal, the rays of the sun directly fall on the:**
(A) North Pole **(B) Equator✓**
(C) Tropic of Cancer (D) South Pole

97. **On June 21, the sun is vertically overhead the:**
(A) Tropic of Cancer✓ (B) Tropic of Capricorn
(C) Equator
(D) Position of the sun is not definite

98. **Which of the following metals is not only magnetic but also radioactive?**
(A) Thorium✓ (B) Aluminium
(C) Iron (D) Platinum

99. **"Thryoid Gland" is located in _____ of human body.**
(A) Stomach (B) Thorax
(C) Leg **(D) Neck✓**

100. **In human body, Gall Bladder is part of _____ System.**
(A) Nervous (B) Reproductory
(C) Digestive✓ (D) Respiratory

101. **Which of the following blood vessels carry blood from the human body to the heart?**
(A) Veins✓ (B) Arteries
(C) Capillaries (D) None of these

102. **Glaucoma is caused by increase in pressure within:**
(A) Eyeball✓ (B) Heart
(C) Lungs (D) Kidneys

103. **Lemon is a good source of vitamin:**
(A) D **(B) C✓**
(C) A (D) E

104. **What is "Acoustics"?**
(A) Science of Electromagnetic Waves System
(B) Science of Waves
(C) Science of Sound✓
(D) Science of Light

105. **For galvanizing of iron, which of the following metals is used?**
(A) Zinc✓ (B) Aluminium
(C) Copper (D) Lead

106. **Sound cannot travel through:**
(A) Gases **(B) Vacuum✓**
(C) Liquids (D) Solids

107. **X-Rays were discovered by:**
(A) Madame Curie **(B) Roentgen✓**
(C) Thomson (D) Rutherford

108. **Breeding and management of bees is known as:**
(A) Apiculture✓ (B) Sericulture
(C) Horticulture (D) None of these

109. **Hepatitis causes inflammation of:**
(A) Stomach (B) Lungs
(C) Liver✓ (D) Kidneys

110. **Isotopes are atoms of the same element with different number of:**
(A) Positrons **(B) Protons✓**
(C) Electrons (D) Neutrons

111. **Which one of the following is a vector quantity?**
(A) Velocity✓ (B) Speed
(C) Temperature (D) Mass

112. **Dolly was the name of the:**
(A) First dog in space
(B) First cloned sheep✓
(C) First test-tube baby
(D) Oldest human fossil

113. **Greenhouse Effect is mainly caused by excess of _____ in the atmosphere.**
(A) Hydrogen sulfide **(B) Carbon dioxide✓**
(C) Carbon monoxide (D) Nitrogen

114. **Which hormone is responsible for production of milk in human body?**
(A) Testosterone (B) Oxytocin
(C) Prolactin✓ (D) Thyroxine

115. **A drop of water is roughly spherical because of:**
(A) Viscosity of water
(B) Surface tension✓
(C) Low air pressure
(D) Air resistance

116. **Our skin produces _____ when exposed to sunlight.**
(A) Vitamin B (B) Vitamin C
(C) Vitamin K **(D) Vitamin D✓**

117. The chemical name for common salt is _____.
(A) Nitrogen
(B) Sodium Chloride✓
(C) Potassium Glucomate
(D) Sulphuric Acid

118. _____ is the most common colour in nature.
(A) Orange (B) Green✓
(C) Black (D) Blue

119. Cholesterol level is analyzed in _____ sample.
(A) Stool (B) Urine
(C) Sputum (D) Blood✓

120. Ozone layer protects life on earth from _____.
(A) Ultraviolet rays✓ (B) Meteorites
(C) Humidity (D) Greenhouse gases

121. Chemical formula for water is _____.
(A) H_2O_2 (B) CH
(C) Na(D) H_2O✓

122. Tsunami is _____
(A) Snowstorm (B) Windstorm
(C) Cyclone (D) Massive wave in sea caused by an earthquake✓

123. Ecosystem refers to _____.
(A) Air Humidity (B) Sea Salt
(C) Earth Heat (D) Earth Environment✓

124. Gynaecology is a branch of _____.
(A) Chemistry (B) Geology
(C) Physics (D) Medicine✓

125. Optic Fibre System is a:
(A) Defense Mechanism
(B) Telecommunication System✓
(C) Air Raid System
(D) None of these

126. Diabetes is caused due to the deficiency of:
(A) Insulin✓ (B) Vitamin B
(C) Iron (D) Calcium

127. It is difficult to cook on mountains because of:
(A) Lack of oxygen
(B) Low atmospheric pressure✓
(C) Low temperature
(D) High atmospheric pressure

128. Which poisonous gas is produced when coal is burnt without enough air supply?
(A) Hydrogen (B) Carbon monoxide✓
(C) Nitrogen (D) Ammonia

129. 1 square foot is equal to:
(A) 144 square inches✓
(B) 48 square inches
(C) 72 square inches
(D) 24 square inches

130. A device that converts chemical energy into electrical energy is called:
(A) Television (B) Generator
(C) UPS (D) Battery✓

131. Which of the following has the highest electrical conductivity?
(A) Wood (B) Iron
(C) Steel (D) Silver✓

132. Hematology is the study of:
(A) Insects (B) Space
(C) Blood✓ (D) Sound

133. Which of the following is not a primary colour?
(A) Orange✓ (B) Green
(C) Blue (D) Red

134. Sunlight is a source of:
(A) Vitamin D✓ (B) Vitamin B
(C) Vitamin C (D) Vitamin A

135. Which component of diet prevents constipation?
(A) Vitamins (B) Minerals
(C) Proteins (D) Fiber✓

136. Which of the following protects the body against disease and infection?
(A) Red blood cells (B) Platelets
(C) White blood cells✓ (D) Hemoglobin

137. Which gas is used in advertising lights?
(A) Carbon dioxide (B) Neon✓
(C) Helium (D) Argon

138. Biology is the study of:
(A) All living things✓ (B) Animals
(C) Micro-organisms (D) Plants

139. The process of photosynthesis in plants takes place in:
(A) Root (B) Leaf✓
(C) Flower (D) Stem

140. Which of the following substances is used in match sticks?
(A) Acid (B) Sulpher
(C) Phosphorous✓ (D) Zinc

141. Which food contains the highest concentration of protein & iron?
(A) Meat✓ (B) Vegetables
(C) Bread (D) Fruits

142. Which of the following is a renewable source of energy?
(A) Water✓ (B) Gas
(C) Electricity (D) Coal

143. The Theory of Relativity was developed by:
(A) Marconi (B) Edison
(C) Einstein✓ (D) Newton

144. Who invented the Steam Locomotive?
(A) Alexander (B) Stephenson✓
(C) JRD Tata (D) Edison

145. Hepatitis and jaundice are the diseases of:
(A) Kidney (B) Brain
(C) Liver✓ (D) Heart

Covid-19

1. According to a new UN report, which continent could see 300,000 COVID-19 deaths this year?
(A) Asia (B) North America
(C) Africa✓ (D) Europe

2. Pakistani-American doctor and a state senator for Connecticut who helped develop a ventilator device that makes it possible to treat seven COVID-19 patients at once is:
(A) Dr Imtiaz Hussain
(B) Dr Saud Anwar✓
(C) Dr Ejaz Khan
(D) Dr Shahid Anwar

3. Which country banned the use of saliva, sweat to shine Cricket ball under COVID-19 guidelines?

(A) Australia✓ (B) India
(C) England (D) Pakistan

4. The virtual Summit of the Non Aligned Movement (NAM) on COVID-19 pandemic has been organised at the initiative of which country?
(A) Kazakhstan (B) Azerbaijan✓
(C) Uzbekistan (D) None of above

5. The official name of the virus causing the COVID-19 given by WHO is_____.
(A) SARS-CoV 1 (B) MERS -CoV 1
(C) SARS-CoV 2✓ (D) MERS-CoV 2

6. From which country the first case of a Tiger tested positive of COVID-19 has been reported?
(A) UK (B) USA✓
(C) UAE (D) India

7. Recently, which country's princess Maria Teresa became the first to die from COVID-19?
(A) Germany (B) Spain✓
(C) Italy (D) UK

8. Which country recommended all the world countries to use Tan Re Qing to treat COVID-19?
(A) CHINA✓ (B) CUBA
(C) RUSSIA (D) USA

9. Which country's Finance Minster committed suicide because of "deeply worried" over how to cope with the economic fallout from the COVID-19?
(A) Spain (B) Italy
(C) Denmark (D) Germany✓

10. What group(s) of people has/have a higher risk of developing severe disease and death due to Coronavirus (Covid-19)?
I. Women and Children
II. 60 years old or above
III. people already underlying medical conditions ;
(A) I only (B) II only
(C) I and II (D) II and III✓

11. Video conference of SAARC leaders on COVID-19 held on which date?
(A) 14 March 2020 (B) 15 March 2020✓
(C) 16 March 2020 (D) None of these

12. Which global organisation has launched the "COVID Action Platform" to convene the business community to support for COVID-19?
(A) World Bank
(B) World Economic Forum✓
(C) International Monitory Fund
(D) United Nations

13. In March 2020, the World Health Organization (WHO) decleared Covid-19 as a_____.
(A) Pandemic✓ (B) Endemic
(C) Epidemic (D) Zoonotic

14. Which country is the first to develop an antibody test to identify the novel coronavirus (COVID-19)?
(A) China (B) USA
(C) Singapore✓ (D) Japan

15. World Health Organization named deadly virus from China as _____.
(A) COVID-19✓ (B) NOVID-19
(C) NCV-19 (D) None of these

16. _____stayed away from the regional trade officials video conference on Covid-19 hosted by India.
(A) Pakistan✓ (B) Nepal
(C) Bangladesh (D) Maldives

17. Through which social media app, Govt launched Coronavirus (COVID-19) infor-mation service ?
(A) Twitter (B) Facebook
(C) WhatsApp✓ (D) None of these

18. Which border was ordered to open by Prime Minister Imran Khan on 20th March, 2020, despite the global pandemic of COVID-19?
(A) Chaman border✓
(B) Wagah border
(C) China border
(D) All of above

19. Pakistan recorded its first Coronavirus COVID-19 death on_____.
(A) 16 March 2020 (B) 17 March 2020
(C) 18 March 2020✓ (D) 19 March 2020

20. Corona Virus (covid-19) came to Pakistan from which neighboring country?
(A) Iran✓ (B) China
(C) Afghanistan (D) India

21. Which two countries collaborate to develop rapid testing for COVID-19 under 30 seconds?
(A) USA-UK (B) USA-Pakistan
(C) India-Israel✓ (D) China-Pakistan

22. Which country police train dogs to sniff out Covid-19?
(A) Brazil (B) Chile✓
(C) Algeria (D) None of Above

23. Which nation has become the world's first to successfully complete human trials of its COVID vaccine?
(A) US (B) China
(C) Germany (D) Russia✓

24. Which country overtakes Russia to become third worst-hit nation by COVID-19?
(A) Peru (B) India✓
(C) Chile (D) UK

25. The theme of the World Day Against Child Labour (WDACL) 2020 was _____ ?
(A) "The End of Child Labour: Within Reach"
(B) "protect children more than ever from COVID-19"✓
(C) "Generation Safe & Healthy"
(D) "Children shouldn't work in fields, but on dreams!"

26. Which global organisation launched a new initiative called COVID-19 Technology Access Pool (C-TAP)?
(A) World Health Organisation✓
(B) World Trade Organisation
(C) UNICEF (D) World Bank

27. Which venue was originally scheduled for the 46th G-7 summit 2020, that has been postponed due to Covid-19 pandemic?
(A) France (B) United States✓
(C) Germany (D) Italy

General Knowledge:

Basics of Information Technology

1. **The name for the screen clarity is:**
   (A) **Resolution✓** (B) Discrete
   (C) Pixel (D) LCD
2. **Collection of raw facts and figures is called:**
   (A) Information (B) Processing
   (C) Data✓ (D) Output
3. **Data processing is also called:**
   (A) Data computing✓
   (B) Information technology
   (C) Information system
   (D) Calculating
4. **An electronic device that accepts, processes data and produces information is called:**
   (A) Input device
   (B) Computer✓
   (C) Output device
   (D) Operating system
5. **_____ is category software(s).**
   (A) Application software
   (B) System software
   (C) Both (a) and (b)✓
   (D) None of these
6. **_____ is an example of packaged software.**
   (A) MS Word (B) Front Page
   (C) MS-Access **(D) All✓**
7. **_____ is not an application software.**
   (A) Internet **(B) Device driver✓**
   (C) Games
   (D) Multimedia software
8. **An Inkjet printer is an example of a(n):**
   (A) LASER printer
   (B) Impact printer
   (C) COM printer
   (D) Non-Impact Printer✓
9. **CPU stands for:**
   (A) Centre Product Unit
   (B) Central Programming Unit
   (C) Control Program Unit
   (D) Central Processing Unit✓
10. **_____ is secondary storage device.**
    (A) CD-ROM✓ (B) ROM
    (C) Cache (D) RAM
11. **_____ is secondary storage device.**
    (A) Hard disk drive
    (B) CD-ROM drive
    (C) Tape drive
    (D) All✓
12. **The device driver is an example of:**
    (A) Application Software
    (B) System Software✓
    (C) Freeware
    (D) Shareware
13. **_____ is input device.**
    (A) Keyboard
    (B) Touchpad
    (C) Microphone
    (D) All✓
14. **_____ is not an example of input device.**
    (A) Speaker✓
    (B) Scanner
    (C) Mouse
    (D) Digital camera
15. **_____ key is used to change lowercase letters mode to uppercase and vice versa.**
    (A) Alt (B) Enter
    (C) Ctrl **(D) Caps Lock✓**
16. **Computer is a combination of:**
    (A) Software
    (B) Hardware
    (C) Both (a) and (b)✓
    (D) None
17. **_____ is not a hardware component.**
    (A) Input device
    (B) Secondary storage
    (C) Processor
    (D) Operating system✓
18. **Another name of main memory is:**
    (A) Secondary memory
    (B) Primary storage✓
    (C) Permanent memory
    (D) None
19. **A set of instructions in a computer is:**
    (A) Software (B) Program
    (C) Hardware **(D) Both (a) and (b)✓**
20. **A program or set of programs that is specially designed to control the computer system is called:**
    (A) System Software✓
    (B) Application Software
    (C) Freeware
    (D) Shareware
21. **_____ key is used to cancel the current operation.**
    (A) Alt (B) Caps Lock
    (C) Esc✓ (D) Num Lock
22. **Arrow keys are also known as:**
    (A) Function keys
    (B) Cursor Control keys✓
    (C) Toggle keys
    (D) Special keys
23. **_____ input device is not a pointing device.**
    (A) Scanner✓ (B) Pointing stick
    (C) Digitizing tablet (D) Touchpad
24. **_____ pointing devices has a vertical handle like a gearshift lever.**
    (A) Light pen (B) Pointing stick
    (C) Trackball **(D) Joystick✓**
25. **_____ pointing device uses the sensors to detect the touch of a finger.**
    (A) Touchscreen✓ (B) Light pen
    (C) Pointing stick (D) Joystick
26. **Imaging uses what device to input data.**
    (A) Tablet (B) Icon
    (C) Barcode reader **(D) Scanner✓**

27. The barcode is called:
(A) Universal Product Code✓
(B) EBCDIC code
(C) ASCII code
(D) Unicode

28. _____ is a photoelectric scanner that translates the barcode symbols into digital code.
(A) MICR Reader✓ (B) Barcode
(C) OCR (D) OMR

29. _____ devices is used check and process the test marks of students:
(A) OMR✓
(B) Barcode Reader
(C) An example of smart card
(D) MICR

30. _____ is an audio input device.
(A) Digital camera (B) Microphone✓
(C) Video camera (D) Speaker

31. _____ is an output device.
(A) Monitor (B) Speaker
(C) Printer (D) All✓

32. Printers and monitors are examples of:
(A) Input unit (B) Storage unit
(C) Output unit✓ (D) Processing unit

33. _____ is not to related softcopy output.
(A) CRT (B) Plotter, printer✓
(C) Monitor (D) Screen

34. _____ works like a photocopying machine.
(A) Inkjet printer (B) Bubble printer
(C) Laser printer (D) Band printer

35. An inkjet printer is an example of a(n):
(A) Laser printer
(B) Impact printer
(C) COM printer
(D) Non-impact printer✓

36. _____ is not an output device.
(A) Monitor
(B) Plotter
(C) Speaker
(D) Scanner✓

37. How many types of graphic cards are used?
(A) 2 (B) 3✓
(C) 4 (D) 5

38. The monitor having VGA cards has resolution:
(A) 1024 × 768 pixels
(B) 800 × 600 pixels
(C) 640 × 570 pixels
(D) 320 × 200 pixels✓

39. _____ is/are the characteristic(s) of display screen.
(A) Resolution (B) Size
(C) Color (D) All✓

40. _____ is an impact printer.
(A) Dot matrix printer
(B) Daisy wheel printer
(C) Line printer
(D) All✓

41. _____ print head of dot matrix printer provides best quality printout.
(A) 24 pins✓ (B) 18 pins
(C) 9 pins (D) 20 pins

42. The printer which can print one character at a time is:
(A) Dot matrix printer
(B) Daisy wheel printer
(C) Laser printer
(D) Both a & b✓

43. DPI stands for:
(A) Data Per Inch
(B) Digit Per Inch
(C) Dots Per Inch✓
(D) None

44. _____ output device is used to print continuous output such as to track an earthquake reading.
(A) Flatbed plotter
(B) Dot matrix printer
(C) Drum plotter✓
(D) Line printer

45. Bit stands for:
(A) Binary digit✓ (B) Binary integer
(C) Basic digit (D) None

Microsoft Office

1. Program which helps to create written document and lets you go back and make corrections as necessary:
(A) Home row keys
(B) Toolbar
(C) Folder
(D) Word processor✓

2. Graphics for word processor:
(A) Peripheral
(B) Clip art✓
(C) Highlight
(D) Execute

3. What type of software is used for creating letters, papers and other documents?
(A) Database
(B) Word Processor✓
(C) Spreadsheet
(D) Operating Program

4. What does the Ctrl + I shortcut key accomplish in MS-Word?
(A) It converts selected text into the next larger size of same font
(B) It adds a line break to the r
(C) It makes the selected text bold
(D) It applies Italic formatting selected text✓

5. What is the file extension of document?
(A) Dot (B) Doc✓
(C) Dom (D) Txt

6. In H_2O, the figure 2 is ap, Which effect has been applied'.
(A) Superscript (B) L
(C) Subscript✓ (D)

7. Why are headers and footers used in document?
(A) To enhance the overall appearance of the document
(B) To mark the starting and ending of a page
(C) To make large document more readable
(D) To allow page headers and footers to appear on document when it is printed✓

8. Which of the following shortcut key is used to check spelling?
(A) F1 (B) F2
(C) F7✓ (D) F9

9. What does Ctrl + B shortcut accomplish in MS-Word?
(A) It converts selected text into the next larger size of the same font
(B) It adds a line break to the document
(C) It makes the selected text bold✓
(D) It applies Italic formatting in the selected text

10. Synonyms are words with an opposite meaning, such as "cheerful" and "sad."
(A) True
(B) False✓

11. To make editing easier, you can use the Find and Replace feature to find text in a document and replace it with other text as directed.
(A) True✓
(B) False

12. A First Line Indent Indents all lines after the first line of the paragraph.
(A) True
(B) False✓

13. The default line spacing for a Word 2007 document is set to multiple with a 15% increase (1.15) over single spacing.
(A) True✓
(B) False

14. Word can quickly sort text, numbers, graphics, or data in lists or tables in alphabetical, numeric, or date order based on the first character in each paragraph.
(A) True
(B) False✓

15. The Office Clipboard can store up to _____ items that have been cut or copied.
(A) 10 (B) 12
(C) 24✓ (D) 50

16. A _____ marks the point at which one page ends and another begins.
(A) Page break✓
(B) Column break
(C) Cell break
(D) Line break

17. Field codes appear between _____ called braces.
(A) [] (B) ()
(C) <> (D) {}✓

18. The vertical space between lines of text is referred to as what?
(A) Indenting
(B) Line spacing✓
(C) Paragraph padding
(D) Internal margins

19. An outline numbered list can have up to this many levels.
(A) 5
(B) 8
(C) 9✓
(D) 15

20. To get help using Word, click the help icon on the ribbon or press the F1 key.
(A) True✓
(B) False

21. To open an existing document, access the open command by clicking the _____, which displays the _____.
(A) Office Button; File Menu✓
(B) Quick Access Toolbar; Open button
(C) Insert Tab; Open Group

22. The first time you save a document you must name the file.
(A) True✓
(B) False

23. When you type new text, _____ mode replaces existing text.
(A) Insert (B) AutoType
(C) Overtype✓ (D) Replacement

24. You can use Undo to reverse more than one change.
(A) True✓ (B) False

25. After selecting text, use the _____ and _____ commands to move the text to a different location.
(A) Copy; Paste (B) Cut; Paste✓
(C) Cut; Repeat
(D) Copy; Paste Special

26. You can add a tab stop just clicking a location on the Word ruler.
(A) True✓
(B) False

27. To reduce the amount of space on the right side of document, you can _____ the _____.
(A) Increase, Left Margin
(B) Decrease; Right Margin✓
(C) Decrease, Left Indent
(D) Increase, Right Indent

28. You can format a document to contain the maximum of 3 newsletter columns.
(A) True
(B) False✓

29. To apply a multilevel Outline Number style to document, the paragraphs must be:
(A) Indented✓
(B) Formatted
(C) Numbered
(D) Bulleted

30. The Clip-Art Gallery consist of pictures that come with Word, as well as picture available on Microsoft Office Online.
(A) True✓
(B) False

31. To access a Dictionary, Thesaurus ...

translation options all at once open the task pane.
(A) Research
(B) Clipboard
(C) Spelling and Grammar✓
(D) Document Information

32. **A quick way to change all the instances of the word beautiful with the word picturesque is to use the _____ feature.**
(A) Thesaurus
(B) Find and Replace
(C) Document Information✓
(D) Properties

33. **What does the green wavy line under the word or phrase in the document mean?**
(A) The word or phrase might be misspelled
(B) The word or phrase has been copied to the clipboard
(C) The word or phrase might contain a grammatical error✓

34. **To create a hyperlink to another document, you need to select the item to represent the link and then:**
(A) Format the item using the Hyperlink style
(B) Enter the destination using the Insert Hyperlink dialog box✓
(C) Type the destination using the Hyperlink tag

35. **When using a document using Print Preview, you can zoom into the document, edit the document, and make layout changes.**
(A) True✓
(B) False

36. **To control how a document is printed, open the Print dialog box using the command on the Office menu's Print submenu.**
(A) Quick Print **(B) Print✓**
(C) Page Setup

37. **To use your keyboard instead of the mouse to select tools on the ribbon, you display the Key Tips by pressing the _____ key.**
(A) Alt✓ (B) Ctrl
(C) Shift + Enter (D) Alt + Enter

38. **To display a document so it looks like pages in a book, switch to _____ view.**
(A) Draft
(B) Web Layout
(C) Print Layout✓
(D) Full Screen Reading

39. **How do you close a Word document without closing the Word Window?**
(A) Click the Close button on the title bar
(B) Click the Minimize button on the title bar
(C) Click the Close command on the Office Menu✓
(D) Click the Exit Word on the File Menu

40. **A feature of MS Word that saves the document automatically after certain interval is available on:**
(A) Save tab on Office Button, Word Options dialog box✓
(B) Save As dialog box
(C) Both of above
(D) None of above

41. **Where can you find the horizontal split bar on MS Word screen?**
(A) On the left of horizontal scroll bar
(B) On the right of horizontal scroll bar✓
(C) On the top of vertical scroll bar
(D) On the bottom of vertical scroll bar

42. **Which of the following is not available on the Ruler of MS Word screen?**
(A) Tab stop box
(B) Left Indent
(C) Right Indent
(D) Center Indent
(E) All of them are available on ruler✓

43. **Pressing F8 key for three times selects:**
(A) A word
(B) A sentence
(C) A paragraph✓
(D) Entire document

44. **What happens if you press Ctrl + Shift + F8?**
(A) It activates extended selection
(B) It activates the rectangular selection✓
(C) It selects the paragraph on which the insertion line is
(D) None of above

45. **How can you disable extended selection mode?**
(A) Press F8 again to disable
(B) Press Del to disable
(C) Press Esc to disable✓
(D) Press Enter to disable

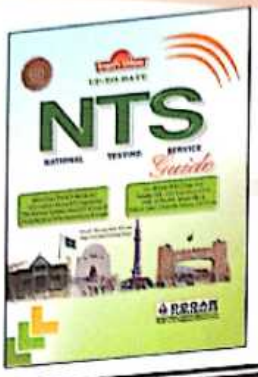
46. **What is the maximum number of lines you can set for a drop cap?**
(A) 3 **(B) 10✓**
(C) 15 (D) 20

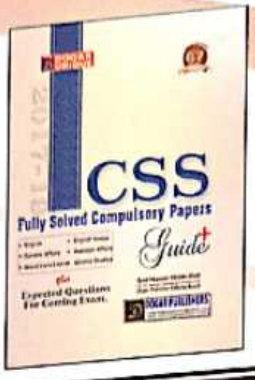
47. **What is the default number of lines to drop for drop cap?**
(A) 3✓ (B) 10
(C) 15 (D) 20

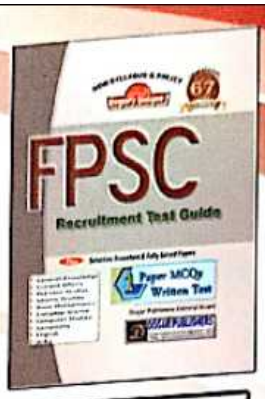
48. **What is the shortcut key you can press to create a copyright symbol?**
(A) Alt+Ctrl+C✓ (B) Alt+C
(C) Ctrl+C (D) Ctrl+Shift+C

49. **How many columns can you insert in a word document in maximum?**
(A) 35 **(B) 45✓**
(C) 55 (D) 65

50. **What is the smallest and largest font size available in Font Size tool on formatting toolbar?**
(A) 8 and 72✓ (B) 8 and 64
(C) 12 and 72 (D) None of above







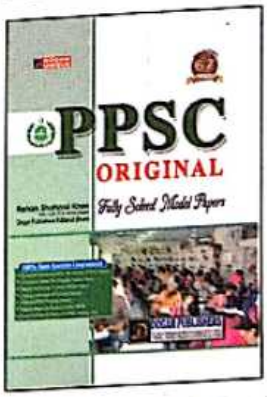
CSS SMART NOTES

Written By **CSP Officers & Ph.D. Scholars**

According To The CSS New Syllabus / Policy & Latest Trend Of Exam

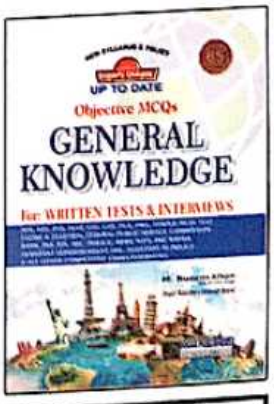
COMPULSORY SUBJECTS

- English Essay
- General Science & Ability
- Pakistan Affairs
- English(Precis & Composition)
- Current Affairs
- Islamic Studies



OPTIONAL SUBJECTS

- Accountancy & Auditing
- Anthropology
- Arabic عربی
- Business Administration
- Constitutional Law
- Economics
- Environmental Science
- Gender Studies
- Governance & Public Policies
- History Of USA
- International Relations
- Journalism & Mass Communication
- Mercantile Law
- Pashto پشتو
- Philosophy
- Psychology
- Punjabi پنجابی
- Statistics
- Agriculture & Forestry
- British History
- Computer Science
- Criminology
- English Literature
- European History
- Geography
- History Of Pakistan & India
- International Law
- Islamic History & Culture
- Law
- Muslim Law & Jurisprudence
- Persian فارسی
- Political Science
- Public Administration
- Sociology
- Urdu Literature اُردو اَدب



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