2000+ MCQS With Solution

Of Physics, Chemistry ,Biology,Maths & English

1. Which of these locomotor organs would likely be the shortest ?
(a) A flagellum (b) A cilium (c) An extended pseudopod (d) A pellicle

Hint: Cilia are the shortest locomotors organs.

2. In order to see various aspects of specimen a three dimensional image of the object can be produced using:
(a) Compound microscope (b) Dark-field microscope
(c) Transmission electron microscope (d) Scanning electron microscope

Hint: The most advanced microscope are transmission electron microscope (TEM) and scanning electron microscope (SEM). The magnification power up to 1,000,000 (1 million) times. On the other hand the scanning electron microscope can produce three dimensional image of an object used as specimen.

3. In saturated fatty acids more hydrogen are not accommodated because of:
(a) Presence of single bonds between carbon atoms
(b) Presence of Double bonds between carbon atoms
(c) Presence of triple bonds between carbon atoms
(d) Absence of bond between carbon atoms

4. 2-$FADH_2$ can yield energy:
(a) 4 ATP (b) 8 ATP
(c) 6 ATP (d) 10 ATP

5. The three non infective genes in HIV are:
(a)gag, pol, rev (b) gag, pol, vpu
(c) gag, pol, vpr (d) gag, pol, env

6. Which one is not a opportunistic disease related to HIV infection.

a) Destruction of body immune system

b) Recurrent pneumonia

c) Pulmonary tuberculosis

d) Toxoplasmosis

Hint: Destruction of body immune system is not an opportunistic disease related to HIV infection.

7. If in a situation some bacteria infected by a certain. Phages had somenow developed the ability to make a particular amino acid that was not in their genes before. What would be the possible explanation to this new ability ?

a) Introduction

b) Transformation

c) Transduction

d) Conjugation

Hint: During transduction some bacteria infected by a certain phages has some how developed the ability to make a particular amino acid that was not in their gene before.

8. The first organisms that oxygenated the atmosphere:
(a) Cyanobacteria

(b) Photorophic organisms

(c) Anaerobic organisms

(d) All of the above

Hint: Cynobacteria (blue glae) are the phototrophic and anaerobic organisms when oxygenated the atmosphere. Cyanobacteria were involved in the photosynthesis in the early time of earth. Due to their photosynthetic activity. The level of oxygen raised from 1% to 21%.

9. What event is thought to have contributed to the evolution of eukaryotes ?
(a) Global warming

(b) Glaciation

(c) Volcanic activity

(d) Oxygenation of the atmosphere

Hint: Life on earth for aerobic organisms was impossible in the earths early lie. Because the oxygen concentration in the atmosphere was very low, i.e. about 1% after the evaluation of photosynthetic pigments in cyanobacteria their photosynthetic activity increase and the concentration of oxygen in atmosphere raised to 21%. This event is called oxygenation of atmosphere and have contributed into the evolution of eukaryotes (aerobic organisms).

10. Rhizobium belongs to:
(a) Beta-protobacteria
(b) Gama-protobacteria
(c) Alpha-protobacteria
(d) Delta-protobacteria

Hint: Rhizobium belongs to the sub group alpha proteobacteria. This group includes bacteria which from symbiotic association with their hosts. Rhizobium from symbiotic association with the roots of leguminous plans for the fixation of atmosphere nitrogen (N_2).

11. Poisonous red-tides in coastal area are caused by the blooms of:
(a) Euglenoids (b) Rhodophyta
(c) Diatoms (d) Dinoflagellates

Hint: In costal areas piosnous and destructive red tides are caused by great population explosions or blooms of dinoflagellates. Such tides change the colour of water to red.

12. Most conspicuous sea weeds are:
(a) Red algae (b) Blue algae
(c) Green algae (d) Brown algae

Hint: Brown algae are most conspicuous seaweeds. They are multicellular and their life cycle is marked by alternation of generation between diploid sporophyte and haploid gametophyte. Helps the largest brown algae is also a conspicuous seaweed.

13. One of the following statement is true regarding Basidiomycota:
(a) They are most important source of antibiotics

(b) They have known sexual stage

(c) Hyphae fuse to give rise to dikaryotic mycelium

(d) The vast majority of spores are formed asexually

14. The sprouting gametophyte of a moss consists of a filamentous, branched structure called:
(a) Mycelium (b) Hyphae

(c) Protonema (d) Bud

Hint: Protonema is a filamentous, branched structure that forms the earliest stage (Haplod phase) in the life chycle of mosses. When a mos first grows from a spore, it grows as a protonema which develops into a leafy gametophore.

15. Which seedless plant is a renewable source of energy ?
(a) Club mass (b) Horsetail

(c) Sphagnum mass (d) Fern

Hint: Sphagnum moss or peat moss is a renewable source of energy. When peat moss (sphagnum take up and hold large quantities of water. Sphagnum or peat moss is a renewable source of energy because remains of this moss becomes peat which is widely and extensively used as fuel (energy source).

16. Shagnum is also called as:
(a)Sphenopsida (b) Peat moss
(c) Club moss (d) Maiden hair ferns
17. Double fertilization occurs is:
(a)Pinus (b) Ferns
(c) Marchantia (d) Maize

Hint: Double fertilization is the charactersitics of angiosperms like “maize”.

In double fertilization two sperms zygote or oosphore and the other sperm fuses with endospore mother cell to form fusion nucleus.

18. Which of the following nutrient is incorrectly paired with its function in plant?

a) Iron – cytochromes and chlorophyll synthesis

b) Molybdenum – ell permeability

c) Cobalt – required by nitrogen fixers

d) Calcium – formation of cell wall

Hint: Molybdenm (M_0) is involved in nitrogen fixation and nitrate reduction.

19. Macronutrients are:
(a)K-Mg-N-P (b) Cu-Mg-Mn-S
(c) Mn-S-P-Cu (d) Mg-Mn-Ca-P
20. Which cells are responsible for the movement of sugar as per mass flow hypothesis?

a) Tracheids, vessel elements

b) Tracheids, companion cells

c) Vessel elements, companion cells

d) Companion cell, sieve-tubes

Hint: Companion cell and sierra tubes are the cells responsible for the movement of sugar as per the pressure flow or mass flow hypothesis.

21. After buying green bananas or unripe avocadoes, they can be kept in a brown bag to ripen. The hormone reieased by the fruit and trapped in the bag is probably:

a) Abscisic acid

b) Cytokinin

c) Ethylene

d) Gibberellic acid

Hint: Ethylene a gaseous hormone is involved in fruit ripening.

22. An acinus is composed of:
(a) 10-20 Acinars
(b) 20-40 Acinars
(c) 20-30 Acinars
(d) 30-40 Acinars
23. If a new born baby possesses, carboxy hemoglobin instead of oxhymoglbin, the condition may be;
(a) Embolism (b) Artherosclensis
(c) Cyanosis (d) Arteriosclerosis
24. Of 100 ml of Arterial blood, oxygen provided to the tissues is:
(a) 2 ml (b) 3 ml
(c) 4 ml (d) 5 ml
25. Otitis media is an inflammation of which part of the body?
(a) Brain (b) Middle ear

(c) Lungs (d) Urinary tract

Hint: Otitis media is an inflammation of the middle ear.

26. Sarcolemma is the membrane around ?

a) Bone

b) Joins

c) Muscle flber

d) Heart

Hint: Each muscle fiber is surrounded by a membrane called sarcolemma.

27. If medulla oblongata of a person brain is damaged which of the following processes will be disturbed?
(a) Thinking (b) Sleep

(c) Thirst (d) Swallowing

Hint: If medulla oblongata of a person brain in damaged special reflexes such as heart beat, respiratory movements salivary secretions, swallowing vomiting, coughing and sneezing processes will be disturbed.

28. Nervous system that prepares itself fight of flight:
(a) Para Sympathetic (b) Sympathetic
(c) Somatic (d) Peripheral

29. In which of the following disorder the structure and function of normal spinal cord is damaged?
(a) Arthritis (b) Sciatica

(c) Spondyiosis (d)

Hint: Menigitis in characterized by inflammation of the protective membranous covering of the brain and spinal cord the meanings.

30. The deficiency of calcitonin result in ?

a) Bone formation

b) Kidney stone

c) Hyperthyroidism

d) Hypothyroidism

31. Acetabularia mediterranea is:
(a) A fungus
(b) An algae
(c) A protozoan
(d) A prokaryote

32. Implantation of embryo takes place in which week of pregnancy?
(a) 1^{st} (b) 2^{nd} (c) 3^{rd} (d) 4^{th}

Hint: Implantation takes place in the second week of pregnancy.

33. In a mating between two individuals that are heterozygous for a recessive lethal allele. What genotypic ratio (homozygous domiant: heterozygours: homozygous recessive) would you expect to observe in the offspring?
(a) 1:2:1 (b) 3:1:1
(c) 1:2:0 (d) 0:2:1

34. If black and white true breeding mice are mated and the result is all gray offspring, what inheritance pattern would this be indicative of?
(a) Dominance (b) Codominance
(c) Multiple Alleles
(d) Incomplete Dominance

35. ABO blood groups are an example of:
(a) Multiple alleles and incomplete dominance
(b) Codominance and incomplete dominance
(c) Incomplete dominance only
(d) Multiple alleles and condominance

36. XX-XY types of sex determination pattern is present in which of the following organisms?
(a) When 1A moves through a voltage of 1V

(b) When a power of 1 W is used for 1 s

(c) When the current

37. The experiments by Hershey and Chase helped confirm that DNA was the hereditary material on the basis of the finding that:

a) Radioactive phage were found in the pellet

b) Radioactive phage were found in the supernatant

c) Radioactive sulfur was found inside the cell

d) Radioactive phosphorus was found in the cell

Hint: Radioactive phosphorus was found in the cell show that DNA act a a hereditary material.

38. DNA polymerase adds nucleotide .to the 3' end of the primer so the direction of replication will be ?
(a) $5'to3'$ (b) $3'to5'$

(c) $3'$ end of the primer to $3'$ end of template strand

(d) $3'$ end of template strand to the $3'$ end of the primer

Hint: DNA polymerase III cannot initiates replication process it can add a nucleotide on to a preexisting 3-OH group and therefore needs a primer to perform its polymerase activity. It always adds nucleotide at 3 end of primer so the direction of replicatiob becomes 5 to 3 end.

39. How many nucleotides are 12 mRNA codons?

a) 12

b) 24

c) 36

d) 48

Hunt: Single genetic code is consist of 3 nucletiodes so mRNA contains 12 codon have 36 nucleotides.

40. Which of the following is a non-sense codon?

a) UGA

b) UAU

c) CAU

d) GAU

Hint: UGA VAA and UAG are non sense codon or stop codon.

41. If a disorder is not present in a child family but the fetus itself is infected before birth,it is known as?

a) Somatic mutation

b) Hereditary mutation

c) Germ line mutation

d) De novo mutation

Hint: Mutation that occur only in an egg or sperm cell or those that occur just after fertilization called new mutation or de novo mutation.

42. What will happen if a nucleotide is deleted from a gene having 9 nucleotides in its transcriptional unit?

a) Change in phenotype

b) No change in phenotype

c) Synthesis of 3 amino acids

d) Synthesis of 4 amino acids

Hint: Change occur in phenotype when a nucleotide in deleted from a gene having 9 nucleotides in its inscriptional unit.

43. Identify the mismatch pair in the following.

a) A) Cyanobacteria- primary producer

b) Grasshopper-primary consumer

c) Fungi-decomoposer

d) Zooplankton-secondary consumer

Hint: Zooplankton are primary consumer.

44. Which of the following is a suitable vector to be incorporated with a large external DNA fragment?

a) Small size vector

b) Large size vector

c) Large size vector with no origin of replication

d) Small size vector with no origin of replication

Hint: When origin of replication is mission bacteria cannot increase the number of its plasmid copies.

45. If one of the following component is missing bacteria can not increase the number of its plasmid copies ?

a) Antibiotic resistant gene

b) Origin of replication

c) Cloning site

d) Ligases enzymes

Hint: When origin of replication is missing bacteria cannot increase the number of its plasmid copies.

46. Identify in which of the following the genetic information is catalyzed using reverse transciptase ?

a) Protein → DNA

b) RNA → DNA

c) DNA → RNA

d) RNA → Protein

Hint: RNA is converted to DNA by reverse transcriptase.

47. What will happen if a vector (plasmid) is cut with a different restriction enzyme which cuts the external DNA to be incorporated in the vector (plasmid) ?

a) Ligation

b) No ligation

c) Tight ligation

d) Cloning

Hint: No ligatin will happen if a vector (plasmid) is cut with a different retraction enzyme which cuts the external DNA to be incorporated in the vector (plasmid).

48. If the primer annealing temperature is increased to 94℃. What will happen?

a) Annealing

b) Extension

c) No annealing

d) Primer-dimer formation

Hint: If the primer annealing temperature is increased to 94^0C No anneling will occur because annealing process need 54^0C to 2 minute.

49. For the location/detection of a gene in a DNA library which of the following is used?

a) Primer

b) Probe

c) Restrictionn enzyme

d) Taq polymerase

Hint: Probe is used for the location and detection of a gene in a DNA library.

50. Under UV illumination , DNA bands are seen in agarose due to which of the following ?

a) Agarose

b) Charge of DNA

c) Fluorescent dye

d) Radioactive dye

Hint: Under UV illuminator DNA bands are seenin agarose geldue fluorescent dye.

51. For callus formation, auxin and cytokinin are required in which ratio?
(a) Balanced

(b) Only Cytokinin required

(c) Low Auxin: very high cytokinin

(d) Only auxin

Hint: A balance of both Auxin and cytokinin will often produce an unorganized mass of cells, the cellus.

52. For which purpose myeloma cells (cancerous B.lymphocytes) are used in the production of monoclonal antibodies?
(a) Increased rate of cell division

(b) Immunization with antigen

(c) To avoid contamination

(d) As nutrient in media

Hint: Monoclonal antibodies are typically made by fusing myeloma cells (cancerous B-lymbphocytes) with the spllen cells from a mouse that has been immunized with the desired antigen.

53. Which of the following vaccine has least side effects
(a) Attenuated vaccine

(b) Killed vaccine

(c) Subunit vaccine

(d) Toxoid vaccine

Hint: Killed vaccine has least side effect.

54. Approximately how much calories of free energy is stored in plant biomass for every mole of C_{0^2} fixed during photosynthesis ?
(a) 110 (b) 112

(c) 114 (d) 116

55. The largest number of molecules are present in the:
a. 22g of CO_2 b. 64g of O_2
c. 14g of N_2 c. 90g of H_2SO_4

Hint: 64g of O_2 contains max no of moles hence H will contain max molecules.

56. Choose the correct arrangement of the various regions of the electromagnetic spectrum in terms of wave lengths.

a) $I\tau > uv > visible > microwave > radio\ freuqency$

b) $MicrowaveI\tau > uv > visible >> radio\ freuqency$

c) Radio frequency > microwave > Ir > visible > uv

d) Visible > Ir > uv > microwave > radiowave

57. The bond energy of a H_2 molecule $H_2 \rightarrow 2H$is:
(a) 436 Kj/mol (b) 40.7 Kj/mol

(c) 272 Kj/mol (d) 436÷Avogaros no Kj/mol

58. Considering the molecule orbital theory (MOT) choose the correct relative energies order.
(a) $\sigma_{15} < \sigma_{15}^{x} < \sigma_{25} < \sigma_{25}^{x}\ \sigma_2 p_x < \pi_2 p_y = \pi_2 p_z$

(b) $\sigma_{15} < \sigma_{15}^{x} < \sigma_{25} < \sigma_{25}^{x} < \pi_2 p_y = \pi_2 p_z < \pi_2 p_{zx}$

(c) $\sigma_{15} < \sigma_{15}^{x} < \sigma_{25} < \sigma_{25}^{x} < \pi_2 p_x = \pi_2 p_z < \pi_2 p_y$

(d) $\sigma_{15} < \sigma_{15}^{x} < \sigma_{25} < \sigma_{25}^{x} < \pi_2 p_y < \pi_2 p_z < \pi_2 p_x$

59. A container is having mixture of gases, 20% ammonia, 30% hydrogen and 50% oxygen under 50a.t.m pressure choose the correct partial pressure respectively.
(a) 10 atm, 25 atm, 15 atm
(b) 10 atm, 15 atm, 25 atm
(c) 25atm, 10 atm, 15 atm
(d) 15 atm, 25 atm, 10 atm

60. At standard conditions 45 liters of oxygen gas weights about 6g, where as 45 liters of hydrogen weights only about 4g. Which gas defuse faster? Calculate how much faster.
(a) Hydrogen $4\gamma O_2$ (b) Hydrogen $2\gamma O_2$
(c) Oxygen, $8\gamma Hz$ (d) Oxygen, $3\gamma Hz$

61. Amorphous solids are made by fusing silicates with:

a) Boric acid

b) Aluminum oxide

c) Phosphorus pent oxide

d) All of the above

Hint: Science, society relationship

62. Choose the anisotropic behavior
(a) Coefficient of thermal expansion
(b) Lattice energy
(c) Viscosity
(d) Infrared Spectroscopy

63. The compound with most exothermic lattice energy is:

a) $CaCl_2$

b) K_2O

c) CaO

d) $BaCl_2$

64. Excess of Ag_2CrO_4 was dissolved in distilled water its solubility was found to be 1.3 x 10^{-4}mol dm^{-3} what is the solubility product:
(a) Ksp = $[1.3 \times 10^{-4}]^2\ [1.3 \times 10^{-4}]$ (b) Ksp = $[2.6 \times 10^{-4}]^2\ [1.3 \times 10^{-4}]$
(c) Ksp = $[1.3 \times 10^{-8}]\ [1.3 \times 10^{-4}]$ (d) Ksp = $[1.3 \times 10^{-8}]^2\ [1.3 \times 10^{-4}]^2$

65. Choose acids that are showing leveling effect.
i) *HCle* ii) *Hl* iii) *HCl* iv) *HF*

a) i & iv

b) i, iii & iv

c) iii & iv

d) i, ii, & iii

Hint: Leveling effect can be shown by only strong acid. Weak acid can never show leveling effect because they do not completely ionize in water.

66. Ka values of some compound are given below select the correct order of acidic strength:
(a) ROH > H_2O > C_6OH > RCOOH (b) C_6H_5OH > H_2O > ROH > RCOOH
(c) RCOOH > C_6H_5OH > H_2 > ROH (d) RCOOH > ROH > C_6H_5OH > H_2O

Hint: Ka ∝ strength of acid.

67. 10.0dm^3 gas cylinder containing mixture of various gases 50cm^3 of nitrogen gas is in the mixture what is the concentration of N_2 gas in part per billion (ppb):
(a) $\frac{50}{1000} \times 10^9$
(b) $\frac{50}{10000} \times 10^9$
(c) $\frac{50}{100000} \times 10^6$
(d) $\frac{50}{1000} \times 10^6$

68. Colloidal particles can be separated by using:
a) Ordinary filter paper
b) Coarse filter paper
c) Fine filter paper
d) Extremely fine filter paper

69. Choose the incorrect statement about corrosion.
(a) Corrosion cannot be eliminated completely.
(b) Employing modern techniques corrosion can be completely eliminates.
(c) Corrosion process can be slowed down by certain methods.
(d) The presence of acidic oxide in the environment can accelerate the process of corrosion.

70. What is the product when chlorine gas is passed over element silicon in powdered state on heated it produce colorless liquid having formula?
a) $SiCl_2$
b) $SiCl_4$
c) $SiCl_5$
d) SiCl

Hint: reaction with chlorine

71. The compound with purely acidic is:
a) $Mg(OH)_2$
b) $Al(OH)_3$
c) $Si(OH)_4$
d) None of the above

72. Chlorine gas dissolve in water to some extent to give:
(a) Yellow colored solution
(b) Greenish colored solution
(c) Bluish colored solution
(d) Colorless solution

73. Phosphorus (white) catches fire in air and burns with the formation of white smoke the product formed is:
(a) Phosphorus (iii) oxide
(b) Phosphorus (v) oxide
(c) Phosphorus (ii) oxide
(d) Both (a) & (b)

74. Compound resistant to thermal decomposition is:
(a) Li_2CO_3
(b) $NaNO_3$
(c) $Ba(NO_3)_2$
(d) Na_2Co_3

Hint: Na_2CO_3 is stable thermally due to greater ionic characters.

75. ----------

76. Coordination number six complexes having d^2Sp^3 hybridization exist in:
(a) Tetrahedral shape
(b) Square planar shape
(c) Trigonal bipyramidal shape
(d) Octahedral shape

77. In movies during fighting a blood red solution is using as an artificial blood. Which of the following complex ion is used for this solution ?
a) $[Fe(H_2o)_6]^{+2}$
b) $[C_u(NH_3)_4(H_2o)_2]^{+2}$
c) ????????
d) ????????

Hint: Testing for iron III ions with thiocynanate ions.

78. Arrange the following oxide of chromium in increasing acidic character:
(a) CrO>Cr_2O_3>CrO_3
(b) CrO_3>Cr_2O_3>CrO
(c) Cr_2O_3>CrO>CrO_3
(d) CrO_3>CrO>Cr_2O_3

Hint: But question is same what wrong because it is decreasing order of acidity.

79. Many hexaaqua complex ions can undergo reaction with water as given below: The reaction is classed as:
(a) Redox reaction
(b) Acid base reaction
(c) Decomposition reaction
(d) Substitution reaction

Hint: These re not redox because during reaction no change in oxidative state.

80. Consider the following reactions.
i. $C_2H_{4(g)} + H_{2(g)} \rightarrow C2H_{6(g)}$
ii. $N_{2(g)} + 3H2_{(g)} \rightarrow 2NH_{3(g)}$

Choose the catalysts employed for the reaction.
(a)Ni for both the reactions (i) and (ii)
(b) Fe_2O_3 for both the reactions (i) and (ii)
(c) Ni for reaction (i) and Fe_2O_3 for (ii)
(d) Fe_2O_3 for the reaction (i) and Ni for (ii)

81. When compound with undergo substriction reaction faster than benzene?

82. Propene react with hypochlorous acid to form
(a) (b)
(c) (d)

83. Alkene + O_3 → Ozonide Zn+H_2O Propanone + Propanal the IUPAC name of the alkene is:
(a) Hex-2-ene (b) Hex-3-ene
(c) 2-methyl pent-1-ene
(d) 2-methyl pent-2-ene

84. $KOH_{(}$calcohollc$_{)}$ + $CH_3C(CH_3)_2$ $CH_2Br_{(i)}$ → The reactants in the condition given will undergo:
(a) Nucleophilic substitution reaction
(b) Elimination reaction
(c) Nucleophilic addition
(d) None of the above

Hint: When double bond is formed there is always E.R.

85. The number of chiral centres in a molecule of 5-bromo 3-chloro hexan-2-01 is /are:

a) 1

b) 3

c) 2

d) 5

86. Benzene gives more stable product when undergo:
(a) Nucleophilic addition reaction

(b) Oxidation reaction

(c) Electrophilic substitution reaction

(d) Electrophilic addition reaction

Hint: Electrophilic substitution products are aromatic and stable.

87. Which group when attached to benzene will increase its reactivity :

a) $-\overset{NHR}{\underset{+}{}}$

b) $-NH_3$

c) $-C \equiv N$

d) $-COR$

88. The IUPAC name of the compound given below:
(a) M- nitrobenzene acid

(b) O- nitrobenzene methanoic acid

(c) O- nitrobenzoic acid

(d) None of the above

89. AlBr3 which is used in the alkylation of benzene possess the properties of:
(a) A catalyst (b) A Lewis Acid
(c) An electron deficient specie
(d) All of the above.

90. $OH^-_{(alocholic)} + CH_3(CH_2)_2Br \rightarrow Prodcut$ the nature of OH^- in the above reactgion is:
(a) Nucleophile (b) Lewis base

(c) Ligand (d) All of the above

91. $CH_3CH_2NH_2 + C_2H_5 \overset{O}{\underset{C}{=}} C_2H_5 \rightarrow$ Pro*duct*

a) Sheft's base

b) Diazonium sait

c) Amide

d) Imine + Amide

92. Choose the mercaptans of the following.

93. Four beakers containing ethanol, ethanol, propanane and phenol separately. Aqueous bromine was added to each beaker. A white ppt was produced in one beaker. This beaker contain:

a) Ethanol

b) Phenol

c) Ethanals

d) propanone

94. The compound which can from hydrogen bond with water is:
a. CH_3-O-CH_3 b. CH_3-CH_2-OH
c. CH_3-CH_2-NH_2 d. All of these

95. The oxidation of pent -2-one (2-pentanone) with nascent oxygen gives:
(a) Propanal (b) Propanoic acid

(c) Ethanoic acid (d) Pentanoic acid

96. What is the name of the carboxylic acid given below?
HOOC $(CH_2)_3$COOH

(a) Propane dioic acid

(b) Pentane dioic acid

(b) Pentane dicarboxylic acid

(d) Propane dicarbosylic acid

Hint: Carboxylic acids containing two carboxylic groups are called dioc acids (IVPAC).

97. When the sperm count is high, inhibit hormone release increases which:
(a) Inhibits anterior pituitary release of follicle stimulating hormone

(b) Increase anterior pituitary release of follicle stimulating hormone

(c) Inhibit release of luteinizing hormone

(d) Increase release of luteinizing hormone

Hint: When the sperm count is high inhibit release increase and it inhibits anterior pituitary release of FSH and hypothalamic release of GnRH. When sperm count falls inhibin secretion declines steeply because inhibin hormone is produced by the sertoli cells and serves to control the spermato gensis at normal rate.

98. Choose the true product of the following reaction?
$CH_3C = N + 2H_2O + HCl \rightarrow$
(a) $CH_3\ COOH + NH_3$
(b) $CH_3\ COOH + NH_4\ Gl$
(c) $CH_3\ COCl + NH_3$
(d) $CH_3\ CONH_2$

99. The compound which cannot be hydrolyzed by water is:
(a) $CH_3 – CH_2 – C$ - Br
(b) $CH_3 – C – O – C – CH_3$
(c) $CH3 – CH2 – C – NH_2$
(d) None of the above

Hint: All the acid derivative can be converted back into the corresponding acid by hydrolysis.

100. Coagulation of proteins may be caused by:
(a) Heat (b) Change in PH
(c) Heavy metal salts
(d) All of the above

101. What type of hybridization is/ are present in Hex-4 ene 1-yne:
a. Sp^2 b. Sp
c. Sp and Sp^2 d. $Sp.Sp^2.Sp^3$

102. The existence of H_2^2 is not possible because
(a) It would be disproportion
(b) It would be radio active
(c) it violate the Pauli Exclusion principle
(d) No H – H bond would form

103. Catalytic converter reduces the emission of
(a) Unburnt hydrocarbons
(b) CO (c) NO
(d) All of the above

104. Which of the following radiations cannot cause excitation in a molecule:
(a) Red Colour
(b) Green Colour
(c) Ultra Voilet
(d) None of the above

Hint: Only visible light (VIBGYOR) can cause excitation in a molecule.

105. Which ion is stable in aqueous solution?
a) Sc^{3+}
b) Li^{2+}
c) Ba^{3+}
d) Na^{-}

Hint: Sc^{+3} has noble gas electronic configuration which is most stable.

106. The compound which can from hydrogen bond with water is:
a) CH_3-O-CH_3
b) CH_3-CH_2-OH
c) CH_3-CH_2-NH_2
d) All of these

107. Which polyatomic anion is unstable in solution.
(a) BO^{-2} (b) $SnO^{2-}{}_3$
(c) $S2O^{4-}{}_3$ (d) $MNO^{2-}{}_4$

108. Choose the molecule that could not be represented by single electronic structure formula:
(a) CH_4 (b) H_2O
(c) SO2 (d) O_2

109. Select the electronic configuration which can form easily (-3)oxidation state:
(a) $1S^2 2S^2 SP^6 SP^2 3P^1$
(b) $1S^2 2S^2 SP^{63} S^2 3P^1$
(c) $1S^2 2S^2 2P^1$
(d) $1S^2 2S^2 2P^6 3d^2 4P^2$

110. 50.0 cm^3 of a KOH solution is titrated is the phenolphthalein end point with 7.50 cm^3 of 1.0 HCl, The concentration of KOH.
(a) 7.5M (b) 0.75M
(c) 0.15M (d) 1.5M

111. Which of the following is an acid?
(a) OH^- (b) PH_3
(c) $HCO_{\frac{2}{3}}$ (d) $SO_{\frac{-2}{2}}$

112. Select the wrong statement about absorption.
(a) The phenomenon of accumulation of a gas or liquid at the solid surface is called absorption.
(b) The process of absorption is selective in nature
(c) Absorptio in general increase with increase in temperature
(d) Absorption increase with decrease in temperature

Hint: Absorption increase with decrease in temperature.

113. Charge is distributed uniformly on the surfaced of large flat plate the electrical held 2cm from the plate is $30\frac{N}{c}$ what is the electrical field at 4cm from the plate.
(a) $120\frac{N}{c}$ (b) $30\frac{N}{c}$
(c) $15\frac{N}{c}$ (d) $7.5\frac{N}{c}$

114. Which polyatomic anion is insatiable?
(a) $B_4B_7^{2-}$ (b) $S_4O_6^{2-}$
(c) $Cr_4O_7^{4-}$ (d) $C_rO_4^{2-}$

115. Which experimental technique reduces the systematic error of the quantity being investigated?
(a) Adjusting an ammeter to remove its zero error before mesuering a current.

(b) Measuring several intermodal distances on a standing wave to find the mean intermodal distance.
(c) Measuring the diameter of a wire repeatedly and calculating the average.
(d) Timing a large number of oscillations to find a period.

116. A value of the acceleration of free fall on Earth is given as (10 ± 2) ms^{-2}. Which statement is correct.
(a) The vale is accurate but not precise
(b) The value if both precise and accurate
(c) The value is neither presicse nor accurate
(d) The value is precise but not accurate.

117. In a sample electrical circuit the current in a resistor is measured as (2.50 ± 0.05) mA. The resistor is marked as having a value of $4.7\Omega \pm 2\%$. If these values where used to calculate the power dissipated in the resistor, what would be the percentage uncertainty int eh value obtained?
(a) 2% (b) 4%
(c) 6% (d) 8%

118. If $|a| + |b| = |a| - |b|$ for two non zero vectors and than it hodl that
(a) – a and b are perpendicular
(b) – a and b are parallel
(c) a and b are coplanar
(d) a d b are non coplaner

119. The vector P make 120^0 with x-axis and the vector. Q make 30^0 with y-axis their resultant is:
(a) P + Q (b) P – Q
(c) $\sqrt{P^2} + Q^2$ (d) $\sqrt{P^2 - Q^2}$

120. The sum of 2 forces acting at a point is 16N. if the resultant force is 8N and its direction is perpendicular to minimum force, then the force is:
(a) 6N and 10N (b) 8N and 8N
(c) 4N and 12N (d) None of the above

121. If x components of a vector is $\sqrt{3}$ and y component is 1, then the angle made by the vector along x axis is:
(a) 60^0 (b) 30^0
(c) 45^0 (d) 90^0

122. A body of mas 2 kg collides with a wall with speed 100 ms^{-1} and rebounds with the same speed the force exerted on the wall is 2×10^4 the time of contact is:
(a) 1/50 sec (b) 1/25sec
(c) 1/60sec (d) None of these

123. A person, travelling on a motorway a total distance of 200km, travels the frist 90km at a average speed must be obtained for the rest of the journey if the person is to reach the destination in a total time of 2 hours 0 minutes?
(a) 110 km h^{-1} (b) 120 km h^{-1}
(c) 122 km h^{-1} (d) 126 km h^{-1}

124. A man walks for some time with velocity v due east. Then he walks for same time with velocity v due north. The average velocity for the man is:
(a) 2v (b) $\sqrt{2v}$
(c) v (d) $\frac{v}{\sqrt{2}}$

125. A boy walks for some time with velocity v due east. Then he walks for same time with velocity v due north. The average velocity for the man is:
(a) 2.5 (b) 2.4
(c) 5 (d) 2.3

126. An object of mass "m" travellin with speed "v" has a head-on collision with another object of mass "m" travellin with speed "v" in the opposite direction. The two objects stick togeter after the collision. What is the total loss of kinetic energy in the collision.
(a) 0 (b) $\frac{1}{2}mv^2$
(c) mv^2 (d) $2mv^2$

Hint: if the masses of two bodies are same and their velocities are also same and they are moving in opposite direction then this means head on ineleastic collision takes place and in inelastic collision K.E is not conserved so both will loose their K.E and total loss will be = ½ mv^2+1/2mv^2 = mv^2

127. The range of projectile is the same for two angles which are mutually.
(a) Perpendicular (b) Supplementary
(c) Complementary (d) 270^0

128. A projectile is projected with a kinetic energy K, range is R it will have minimum kinetic energy after covering a horizontal distance equal to.
(a) 2.25R (b) 0.5R
(c) 0.75 R (d) R

129. An engine pumps out 40 Kg of water in one second. The water comes out vertically upwards with a velocity of 3ms^{-1}, the power of engine in kilowatt is:
(a)1.2 kw (b) 12 kw
(c) 120 kw (d) 1200 kw

130. Two boys weighing in the ration 4:5 goes up stair taking time in the ratio 5:4. The ratio of their power is:
(a)1 (b) 16/25
(c) 25/16 (d) 4/5

131. The energy stored in the spring of watch is:
(a) Kinetic energy (b) Electric energy
(c) Elastic potential energy (d) Solar energy

132. A circular disc of mass M and radius R is rotating about its axis with uniform speed v its kinetic energy is:
(a) Mv^2 (b) ½ MV^2
(c) ¼ Mv^2 (d) 1/8 Mv^2

133. Moment of inertia of an object does not depend upon:
(a) Mass of object (b) Mass distribution
(c) Angular Velocity (d) Axis of rotation

134. A body of mass 10Kg is hanging from a spring balance inside a life. If the life falls with an acceleration 10ms^{-2}, then what will be the reading of spring balance:
(a) Zero (b) 2.5 Kg

(c) 5 Kg (d) 10 Kg

135. A metal sphere of radius r is dropped into a tank of water. As it sinks at speed v, it experiences a drag force F given by F = k r v, where k is a constant. What are the 5l base units of k?

a) Kg m^2 s^{-1}

b) Kg m^2 s^{-2}

c) Kg m^1 s^{-1}

d) Kg m s^{-2}

136. A parachutist is falling at constant (terminal) velocity, which statemnte is not correct?
(a) Gravitational potential energy is covered into kinetic energy of the air.
(b) Gravitational potential energy is covered into kinetic of the parachutist.
(c) Gravitational potential energy is converted into thermal energy of the air.
(d) Gravitioanl potential energy is converted into thermal energy of the parachutist.

137. Eight drops of water, each radius 2 min are falling through air at a terminal velocity of 8cm s^{-1}. If they coalesce to form a single drop, the terminal velocity of the combined drop will be:
(a) 8cms^{-1} (b) 16cms^{-1}
(c) 24cms^{-1} (d) 32cms^{-1}

138. In a stream lined flow, the velocity of the liquid in contact with the containing vessels is:
(a) Zero (b) Minimum but not zero
(c) Large (d) Infinite

139. Two bodies are dropped from different heights h_1 and h_2. The ratio of the items taken by them to reach the ground will be
(a) $h\frac{2}{2} : h\frac{2}{1}$ (b) $h_1 : h\frac{2}{1}$
(c) $\sqrt{h_1} : \sqrt{h_2}$ (d) None of them

140. The frequency of a seconds pendulum is:
(a) 1Hz (b) 2 Hz
(c) 5 Hz (d) None of above

141. The time period of a simple pendulum is 2 seconds. If its length is increased by 4 times , then its period becomes :

a) 16 s

b) 12 s

c) 8 s

d) 4 s

142. The kinetic energy and potential energy of a particle executing simple harmonic motion will be equal for the displacement (where x_2 is the amplitude)
(a) $^{xe}\sqrt{\frac{2}{3}}$ (b) $\frac{x_2}{2}$
(c) $\frac{x_2}{\sqrt{2}}$ (d) $x_2\sqrt{2}$

143. The acceleration of free fall on the Moon is one sixth of that on Earth. On earth, it takes time 't' for a stone to fall from rest a distance of 2m. what is the time taken for a stone to fall from rest a distance of 2m on the Moon?
(a) 6t (b) t/6
(c) $\sqrt[t]{6}$ (d) $\frac{t}{\sqrt{6}}$

144. A particle executes SHM along a straight line. Its amplitude is A. The potential energy of the particle is equal to the kmetic energy, when the displacement of the particle from the mean position is:
(a) Zero (b) $\pm$ A/2
(c) $\pm$ A/ $\sqrt{2}$ (d) 2A

145. In S.H.M., the fraction of kinetic energy to total energy when displacement is one-half of the amplitudes is:
(a) $\frac{1}{8}$ (b) ½
(c) ¼ (d) ¾

146. A wave of amplitude 20mm has intensity I, another wave of the same frequency but of amplitude 5mm has intensity I what is $\frac{1z}{1z}$?
(a) 2 (b) 4
(c) 16 (d) 256

147. In a stationary wave the distance between consecutive antinodes is 25 cm. if the wave velocity is 300 ms^{-1} then the frequency of the wave will be:
(a) 150 Hz (b) 300 Hz
(c) 600 Hz (d) 750 Hz

148. When a ray of light enters a glass slit from air:
(a) Its wavelength decreases

(b) Its wavelength increases

(c) Its frequency increases

(d) Its frequency decreases

149. The speed of sound in air at 300 $m^{\frac{-1}{5}}$. If the air pressure become 4 times then the speed of the sound will be:
(a) $150^{\frac{-1}{5}}$ (b) $300^{\frac{-1}{5}}$ (c) $600^{\frac{-1}{5}}$

150. Laplace corrected Newton's formula for the velocity of sound in gases, because the sound propagates:
(a) As longitudinal waves
(b) Adiabatically
(c) Isothermally
(d) Under isobaric conditions

151. A tuning fork a produces 4 beats/ second with another tunning from b of frequency 280Hz. Whe form a is loaded with a little wax the beat frequency change to 2. The frequency of fork a before loading is:
(a) 292 Hz (b) 284 Hz
(c) 290 Hz (d) 288 Hz

152. Standing waves are produced in 10m long stretched stretcher string. If the string viberates in 5 segments and wave velocity is 20 m $\frac{-1}{5}$. Its frequency is:
(a) 2 Hz (b) 4 Hz
(c) 5 Hz (d) 10 Hz

153. In young's double slit experiment with sodium light, the slits are 0.589 m apart. What is the angular width of the third maximum given = 589 nm
(a) $\sin^{-1}(3x10^{-6})$

(b) $\sin^{-1}(3x10^{-8})$

(c) $\sin^{-1}(0.33x10^{-6})$

(d) $\sin^{-1}(0.33x10^{-8})$

154. Monochromatic green light of wave length $5x10^{-7}$ illuminates a pair of slites 1mm apart the separation of bright lines on the interference pattern formed on a screen 2m away is:
(a) 0.25mm (b) 0.1mm
(c) 1.0mm (d) 0.01m

155. Light of waves 500×10^{-9}m falls normally on a plane diffraction grating having $8\times10^{+3}$ lines per cm. The minimum number of images seen is:
(a) 3 (b) 4 (c) 5 (d) 1

156. The refractive index is equal to the tangent of the angle of polarization. It is called:

a) Brewster's Law

b) Malu's Law

c) Bragg's Law

d) Grimaldi's Law

157. Which of the following cannot be polarized ?
(a) Radio waves

(b) Ultraviolet rays

(c) X-rays

(d) Ultrasonic waves

158. A Carnot engine working between 200 k and 400 k has work output of 600 J are cycle. How much heat energy is supplied to the engine from the source in each cycle.

a) 1400 J

b) 1200 J

c) 1700 J

d) 1300 J

159. When 10^{12} electrons are received from a neutral metal sphere. The charge on the sphere becomes:
(a) 0.16μc (b) -0.1μc
(c) 0.32μc (d) -0.32μc

160. Before a thunderstorm, the hairs on your head sometimes stand on end. A hair with mass 0.50 mg and charge 1.0 pC is supported by a force due to an electric field. Ignore any forces other than the weight of the hair and the electric force. What is the electric field strength ?

a) 4.9×10^{3} N C^{-1}

b) 4.9×10^{5} N C^{-1}

c) 4.9×10^{6} N C^{-1}

d) 4.9×10^{9} N C^{-1}

161. How much kinetic energy will be gained by an α-particle ion going from a point at 70 V to another point at 50 V?
(a) 40 e V (b) 40 KeV
(c) 40 MeV (d) Zero

162. The potentials of the two plates of a capacitor are +10V and -10V. The charge on one of the plates is 40C. The capacitance of the capacitor is:
(a) 2 F (b) 4 F
(c) 0.5 F (d) 0.25 F

163. A proton is about 1840 tims heavier than an electron. When it is accelerated by a potential difference of 1 KV, its kinetic energy will be:
(a) 1840keV (b) $\frac{1}{1840}keV$
(c) 1Kev (d) 920KeV

164. When will 1 C of charge pass a point in an electrical circuit?
(a) When 1A moves through a voltage of 1V

(b) When a power of 1 W is used for 1 s

(c) When the current is 5 mA for 200 s

(d) When the current is 10 A for 10 s

165. The resistance of a device is designed to change with temperature. What is device ?
(a) A light-dependent resistor

(b) A potential divider

(c) A semiconductor diode

(d) A thermistor

166. A cell of internal resistant 2.0 Ω and electromotive force (e.m.f.) 1.5 V is connected to a resistor of resistance 3.0 Ω resistor
(a) 5 V (b) 1.2 V

(c) 0.9 V (d) 0.6 V

167. Two lamps are connected in series to a 250 v power supply. One lamp is rated 240 v, 60 w and the other is rated 10 v, 2.5 w. Which statement most accurately describes what happens ?

a) Both lamps light at less than their normal brightness.

b) Both lamps light at their normal brightness.

c) That bis time needs a wise uses.

d) To using time in a wisely manner.

168. Two lamps are connected in series to a 250 V power supply. One lamp is rated 240v, 60w and the other us rated 10v, 2.5w. which statement most accurately describes what happens?
a. Both lamps light at their normal brightness87.5%
b. Only the 240 V lamp lights
c. $-1.6x10^{19}$C
d. The 10 v lamp blows

169. A radioactive substance has a half life of 60 minutes. During 3 hours the percentage of the material that decayed would be.
   a. 12.5%
   b. 8.5%I enjoy ____ tennis.
   a. to play
   c. play
   d. 25.1%
   HINT: During 3rd half life decoyed substance= 87.5% undecayed = 12.5%.
170. I enjoy _____ tennis.
   a. To play
   b. To playing
   c. playing
   d. to playing
171. The path ____ paved, so we were able to walk through the path.
   a. Had been
   b. Was
   c. Has been
   d. Being
172. Choose the correct sentence.
   a. Naila was so exhausted that on she lain down for a nap.
   b. Naila was so exhausted that on she laid down for a nap.
   c. Naila was so exhausted that on she was lying down for a nap.
   d. Naila was so exhausted that on she will lay down for a nap.
173. He asked me what my name was and what I did.
   a. He said to me, "what was my name and what did I do?
   b. He said to me, "what is your name and what did you do?
   c. He said to me, "what my name was and what did i do"
   d. He said to me, "what his name was and what did he do?
174. Choose the correct sentaence.
   a. How long are you wearing glasses?
   b. How long do you wear glasses?
   c. How long are you wear glasses?
   d. How long have you been wearing glasses?
175. Choose the antonym for the word "ABROGATE".
   a. Transgress
   b. Signify
   c. Alleviate
   d. Ratify
176. Choose the correct sentence.
   a. The Village folk were present.
   b. The Village folk was present.
   c. The Village folks were present.
   d. The Village folks was present.
177. While the city has earned record revenue this year____ will behind in exports.
   a. It still lag
   b. It still lags
   c. It lag still
   d. It lags still
178. Every person must learn_____.
   a. That how wisely his time can be used.
   b. To make wise his of his time.
   c. that his time needs a wise uses.
   d. to using his time in a wisely manner
179. he is busy, would you like to leave a message? Said the assistant.
   (a) The assistant told that he is busy and asked me to leave a message
   (b) The assistant told that he was busy and ask me to leave a message
   (c) The assistant told that he was busy and asked be to leave a message
   (c) The assistant told that he was busy and asked me to leave a message.
180. Choose the antonym of the word.
   (a) Tender (b) Sheepish
   (c) Supportable (d) Tremulous
181. Why did your supervisor take such a strong disciplinary action when you were innocent?
   (a) Why has such a strong disciplinary action taken by your supervisor when you were innocent ?

   (b) Why was such a strong disciplinary action being taken by your supervisor?

   (c) Why was such a strong disciplinary action taken by your supervisor when you were innocent?

   (d) Why such a strong disciplinary action was taken by your supervisor when you were innocent?

182. That a driver swerves in order to avoid and accident can be proven by examining the marks on the pavements.
   (a) Stops quickly
   (b) Turns sharply
   (c) Hits something else
   (d) Goes backward
183. Though aleem is poor, _____ he is honest.
   (a) But (b) Nevertheless
   (c) Yet (d) Still
184. Choose the synonym for the word "ABRIDGE".
   (a) To make a bridge (b) Shorten
   (c) Magnify (d) Divert
185. It is a general perception that doctors have a callous disregard for me feeling of others: (the underlined word nearly means)
   (a) Respectable (b) Careful

   (c) Unfeeling (d) Sensitive

186. Choose the synonym for the word "ATTENUATE".
   (a) Appear (b) Be absent

   (c) Weaken (d) Testify

187. The rules forbid passengers to cross the railway line.
   (a) Passengers were forbidden by the rules to coos the railway line

(b) Passengers are being forbidden by the rules to coos the railway line

(c) Passengers are forbidden by the rules to coos the railway line

(d) Passengers are forbid by the rules to coos the railway line

188. A thirsty buyer purchases fruits and vegetables in season. (The underlined word nearly means)

(a) Careful (b) Professional

(c) Disinterested (d) Healthy

189. The feminine of MILKMAN is.
(a) Milk girl (b) Milk maid

(c) Milk women (d) Milk lady

190. The maximum error in the measurement of mass and length of the side of a cube are 3% and 2% respectively. The maximum error in the measurement of its density will be:
(a) 3% (b) 5% (c) 6% (d) 9%

ANSWER: (d) page No: 12.13,14

191. Which of the following is both unit less and dimensionless:
(a) Angle (b) Solid angle

(c) Mechanical equivalent of heat

(d) Refractive index

ANSWER: (d) Page No: 16 (Sub Topic: 1.9.2)

192. For two vector $\vec{a}$ and $\vec{b}$ it holds that $\vec{a}\vec{b} = |\vec{a}||\vec{b}|\cos\theta$ then it holds $|\vec{a}| = \sqrt{a.a}$ for $\vec{a} = \vec{b}$ if and only if
(a) When $\vec{a}$ and $\vec{b}$ are parallel

(b) When $\vec{a}$ and $\vec{b}$ are perpendicular

(c) When $\vec{a}$ and $\vec{b}$ are in the opposite direction

(d) When $\vec{a}$ and $\vec{b}$ are parallel but opposite direction

HINT: Parallel vectors have equal.

ANSWER: (a) Page No: 25 (General Question)

193. Which pair contains one vector and one scalar quantity?
(a) Displacement acceleration

(b) Force kinetic energy

(c) Momentum velocity

(d) Power speed

ANSWER: (b) Page No: 25 (General Question)

194. A car travels a distance s on a straight road in 2 hours and then returns to the starting point in the next 3hour. Its average velocity is:
(a) $\frac{S}{5}$ (b) $\frac{2S}{5}$ (c) $\frac{S}{2}+\frac{S}{3}$ (d) zero

ANSWER: (D) Page No: 54

195. The numerical ratio of displacement to distance is:

(a) Always less than one

(b) Always equal to one

(c) Always more than one

(d) Equal to or less than one

HINT: $\frac{\vec{b}}{b} \leq 1$

ANSWER: (D) Page No: 54

196. The area under the acceleration time graph represent:
(a) Displacement (b) Velocity

(c) Change in velocity (d) Distance travelled
HINT: $\vec{a} = \frac{\Delta v}{\Delta t}\ \Delta v = \vec{a} \times \Delta t$
ANSWER: (c) Page No: 57

197. When we kick a stone, we get hurt it happens due to:
(a) Inertia (b) Velocity

(c) Reaction (d) Momentum

ANSWER: (c) Page No: 62 (Sub Topic: 3.6.3)

198. Angular momentum has the same unit as:
(a) Impulse x distance

(b) Linear momentum x time

(c) Work x frequency

(d) Power x time

ANSWER: (a) Page No: 64

199. Two bodies of mass m and 4 m are moving with equal kinetic energies. The ratio of their linear momentum will be:
(a) 1:4 (b) 4:1 (c) 1:2 (d) 2:1

ANSWER: (c) Page No: 63

200. A ball is projected upwards. Its acceleration at the highest point is:
(a) Zero (b) Directed upwards

(c) Directed downward

(d) Can't be predicted

ANSWER: (c) Page No: 69

201. A man of mass 60 kg climbs up a 20 m long staircase to the top of a building 10 m high. What is the work done by him: Take g = 10 ms^{-2}

(a) 12 KJ (b) 6 KJ (c) 3 KJ

(d) None the above

HINT: W.D = mgh
= 60 x10x10 J
= 6 KJ

ANSWER: (b) Page No: 90

202. For a body moving with constant speed in a horizontal circle, which of the following remains constant:

(a) Velocity (b) Centripetal force

(c) Acceleration (d) Kinetic energy

HINT: K.E because it is scalar

K.E = $^1/_2$m (V,V)

ANSWER: (d) Page No: 89

203. The kinetic energy of a body of mass 1 kg and momentum 2Ns is equal to:

(a) 1J (b) 10J (c) 5J (d) 2J

ANSWER: Page No: 89

204. The unit of gravitational potential is

(a) Joule (b) Joule / kilogram

(c) Joule kilogram (d) Kilogram

HINT: V= $\frac{\text{P.E}}{\text{Mass}} = \frac{\text{Joule}}{\text{Rg}}$

ANSWER: (b) Page No: 95

205. The angular velocity of a second hand in watch is :

(a) $\frac{\pi}{30}$ (b) 2π (c) π (d) $\frac{60}{\pi}$

ANSWER: (b) Page No: 115

206. A fly wheels rotates at a constant speed of 3000 rpm (rev/min). The angle described by the shaft in radian in one second is:

(a) 2π (b) 30π (c) 100π (d) 3000π

ANSWER: (c) Page No: 115

207. A centripetal force F acts on a body moving with angular speedω. If the angular speed is tripled then the magnitude of centripetal force becomes;

(a) 8F (b) 9F (c) 3F (d) 4F

HINT: Fc = -mw^{2}r

Fc ∝ w^2

Fc ∝ (3)^{2}w^2

Fc ∝ 9 w^2

Answer: (b) Page No: 121

208. If sphere is rolling the ratio of its rotational energy to total energy is given by:

(a) 7:10 (b) 2:5 (c) 10:7 (d) 2:7

ANSWER: (b) Page No: 124

209. A ring and a disc have same mass and same radius. If we denote the moment of inertia of disc by I_d and that of ring by I_r then:

(a) $I_r > I_d$ (b) $I_r < I_d$ (c) $I_r = I_d$

ANSWER: (B) Page No: 123,124

210. The angular momentum of a wheel change from 2L to 5Lin 3 seconds. The magnitude of the torque acting on it is:

(a) $\frac{L}{S}$ (b) $\frac{L}{3}$ (c) $\frac{L}{2}$ (d) L

HINT: T = $\frac{\Delta l}{\Delta t} = \frac{5L-2L}{3} = \frac{3L}{3}$
= L

ANSWER: (d) Page No: 125

211. If a gymnast sitting on a rotating stool with his arms outstretched suddenly lowers his hands:

(a) The angular velocity decreases

(b) His moment of velocity decreases

(c) The angular velocity stays constant

(d) The angular momentum increase

HINT: L=IW => I∝1/w

When lower his hands 1 decreases in order to keep.

ANSWER: (a) Page No: 125

212. The orbital velocity 'v' and the radius 'r' of the satellite are related by

(a) $v \alpha r$ (b) $v \alpha \frac{1}{r^2}$ (c) $v \alpha \frac{1}{r}$ (d) $v \alpha \frac{1}{\sqrt{r}}$

HINT: U∝ $^1/_{\sqrt{r}}$

ANSWER: (d) Page No: 133

213. A fireman wants to slide down a rope. The breaking strength for the rope is $\frac{3}{4}$ of the weight of the man with what minimum acceleration should the fireman slide down

(a) $^1/_2$g (b) $^1/_4$g (c) $^3/_4$g (d) Zero

ANSWER: (a) Page No: 135

214. A man of mass 90 kg is standing in an elevator whose cable broke suddenly , if the elevator falls freely , the force exerted by the floor on the man is :

(a) Zero (b) $90 \times 9.8N$ (c) $90N$ (d) $-90N$

ANSWER: (b) Page No:136

215. Two springs of spring constant k_1 and k_2 are stretched by the same force. They are stretched by x_1 x_2 respectively, if $K_1 > K_2$ then:

(a) $x_1 = x_2$ (b) $x_1 > x_2$ (c) $x_1 < x_2$

(d) Depends on the length of the spring

HINT: k ∝ $\frac{1}{x}$

$K_1 < K_2 \Rightarrow x, > x_2$

ANSWER: (b) Page No: 172

216. A spring is stretched by 5 cm. Its potential energy is E. If it is stretched by 10 cm, is potential energy will be:
(a) 2E (b) 4E (c) 8E (d) 16E

ANSWER: (b) Page No 178 (Sub Topic: 7.5.1)

217. A sound wave has a speed of 330 m/s and a frequency of 50 Hz. What is a possible distance between two points on the wave that have a phase difference of 60° ?
(a) 0.03m (b) 1.1m (c) 2.2m (d) 6.6m

ANSWER: (b) Page No: 202 (Sub Topic: 8.3.3)

218. A man standing next to a stationary train hears sound of frequency 400 Hz emitted from the train's horn. The train then moves directly away from the man and sounds its horn when it has a speed of 50 m s^{-1}. The speed of sound is 340 m s^{-1}. What is the difference in frequency of the sound heard by the man on the two occasions?
(a) 51Hz (b) 69Hz (c) 349Hz (d) 469Hz

ANSWER: (c) Page No:230 (Sub Topic: 8.15.2)

219. Which one of the following properties of light does not change with the nature of medium?
(a) Frequency of light
(b) Wavelength of light
(c) Speed of light
(d) All of those
HINT: Frequency does not depend on medium.

ANSWER: (a)

220. Monochromatic green light of wave length 5×10^{-7} illuminates a pair of slits 1mm apart the separation of bright lines on the interference pattern formed on a screen 2m away is
(a) 0.25m (b) 0.1mm (c) 1.0mm (d) 0.01m

ANSWER: (c) Page No: 253

221. Colour fringes observed in soap bubbles are the example of.
(a) Diffraction (b) Interference
(c) Reflection (d) Refraction
ANSWER: (d) Page No: 257

222. What is correct for all transverse waves?
(a) They all involve the oscillation of atoms

(b) They can all be polarized

(c) They can all travel through a vacuum

(d) Both (a) & (b) are correct

ANSWER: (b) Page No: 269

223. There are two charges each of $5\mu c$ the ratio of the force acting on them will be
(a) 1:25 (b) 1:5 (c) 1:1 (d) 5:1

ANSWER: (c) Page No: 5

224. In the M.K.S system of units ϵ_0 equal
(a) $\frac{1c^2}{N-m^2}$ (b) $9\times10^9\, Nm^2/C^2$

(c) $\frac{1}{4\pi\times9\times10^9}\left(\frac{c^2}{Nm^2}\right)$ (d) $\frac{1}{9\times10}\frac{c^2}{Nm^2}$

ANSWER: (c) Page No: 5

225. Charge is distributed uniformly on the surfaced of large flat plate the electrical held 2cm from the plate is $30\frac{N}{c}$ what is the electrical field at 4cm from the plate.
(a) $120\frac{N}{c}$ (b) $30\frac{N}{c}$
(c) $15\frac{N}{c}$ (d) $7.5\frac{N}{c}$
HINT: Electric filed of uniform change plate is independent distance.
ANSWER: (b) Page No: 27 (Sub opic: 11.5.1.3)

226. Two identical capacitor each with capacitance C, are connected in parallel and the combination is connected in series to a third identical caoacitor. The equivalent capacitance of this arrangement is
(a) $\frac{2c}{3}$ (b) c (c) 2c (d) 3c

ANSWER: (a) Page No: 42 (Sub Topic: 11.10.3)

227. A student kept her 60 watt acid 120 volt study lamp turned on from 2:00PM until 2:00AM. How many coulombs of chage went through it?
(a) 3600 (b) 7200
(c) 18000 (d) 21600
HINT: Here P = 60watt V=120
So I=$\frac{60}{120}$ = 0.5 A
Now t=12 hours = 12 x 3600 sec
ANSWER: (a) Page No: 64

228. There is a current of 3.2 amp in a conductor. The number of electrons that cross any section normal to the direction of flow per second is:
(a) 2×10^{19} (b) 0.2×10^{19}

(c) 20×10^{19} (d) 200×10^{19}

ANSWER: (a) Page No: 4

229. Which statement is not valid?
(a) Current is the speed of the charged particles that carry it.

(b) Electromotive force *(e.m.f)* is the energy converted to electrical energy from other forms per unit charge.

(c) The potential difference *(p.(d)* between two points is the work done per unit charge when moving charge from one point to another.

(d) The resistance between two points is the *(p.d.)* between the two points per unit current.

HINT: V= IR where R is constant and it depend on nature dimension and physical state.

ANSWER: (d) Page No: 68

230. The example of a non-ohmic resistance is
(a) Ge-resistance (b) Carbon resistance
(c) Copper wire (d) Diode

ANSWER: (d) Page No: 69

231. Two copper wires S and T of equal length are connected in parallel. A potential difference is applied across the ends of this parallel arrangement. Wire S has a diameter of 3.0 mm. Wire T has a diameter of 1.5 mm. What is the value of the ratio $\frac{current\ in\ T}{current\ in\ S}$?
(a) $1/4$ (b) $1/2$ (c) 2 (d) 4

ANSWER: (a) Page No: 67

232. The feminine of MILKMAN is:
(a) Milkgirl (b) Milkmaid
(c) Milkwoman (d) Milklady

ANSWER: (d) Page No: 69

233. Alkali metals lime "Rb" & "Cs" catch fire in air and produce superoxide such as:
(a) Rab_2O & Cs_2O (b) RbO_2& CsO_2
(c) RbO & CsO (d) RbO_2& Cs_2O

ANSWER: (b) Page No 21 (Sub Topic: 13.2.3.1)

234. Solenoid B has the twice radius and six time the number of turns per unit length as solenoid A. The ratio of the magnetic field in the interior of B to that in the interior of A is:
(a) 2 (b) 4 (c) 6 (d) 1

ANSWER: (c) Page No: 120

235. What behavior is the copper exhibiting?
(a) Brittle only (b) Elastic only
(c) Plastic only (d) Both (a) & (b)

HINT: Substances which undergo plastic deformation until they break are known as ductile substances, load copper and wrought iron are ductile.

ANSWER: (c) Page No: 249

236. The diode is used as:
(a) A modulator (b) An amplifier
(c) A rectifier (d) An oscillator
HINT: DIODE is used as rectifies,

ANSWER: (c) Page No: 279

237. A photon of frequency f has a momentum associated with it if C is the velocity of light this momentum is:
(a) hf (b) $2hf$ (c) $\frac{hf}{c}$ (d) $\frac{hf}{c^2}$

ANSWER: (c) Page No:

238. A photon of frequency f has a momentum associated with it if C is the velocity of light this momentum is
(a) hf (b) $2hf$
(c) $\frac{hf}{c}$ (d) $\frac{hf}{c^2}$

ANSWER: (c) Page No: 319

239. The uncertainty in position of an electron in a certain state is 5×10^{-10} m the uncertainty in its momentum might be
(a) 5.0×10^{-24} kg. m/s (b) 4.0×10^{-24} kg. m/s
(c) 3.0×10^{-24} kg. m/s (d) 1.5×10^{-24} kg. m/s

ANSWER: (d) Page No: 330

240. When a hydrogen atom makes the transition from the second excited state to the ground state (at-13.6ev) the energy of the photon emitted is
(a) 1.5ev (b) 9.1ev (c) 12.1ev (d) 10.2ev

HINT: 2nd Excited state means n = 3

$\Delta E = E_3 - E_1$ = -1.51- (-13.6)

= 12.1 ev

ANSWER: (c) Page No: 355

241. Which equation represents β + decay?
(a) Neutron→ proton +positron +antineutrino
(b) Neutron → proton + positron + neutrino
(c) Proton → proton + neutron+ antineutrino
(d) Proton + neutron+ positron + neutrino

HINT: In positive β decay p →N+e^++r

While in $-\beta$ decay.

ANSWER: (d) Page No: 389

242. What is not conserved in nuclear processes?
(a) Charge (b) momentum
(c) The total number of neutrons
(d) The total number of nucleons

HINT: The total no of neutrons are no unserved.

ANSWER: (c) Page No: 400

243. What is not conserved in nuclear processes?
(a) Charge (b) momentum
(c) The total number of neutrons
(d) The total number of nucleons

HINT: The total no of neutrons are not unserved.

ANSWER: (c) Page No: 400

244. What is proton?

(a) A hadron

(b) A particle consisting of two down quarks and one up dark

(c) A positive fundamental particle

(d) A positive lepton

HINT: Hydrogen because proton is made up of two up and I down quark and neutron two down and 1 up.

ANSWER: (a)

245. X-ray photon due to transition from M-shell to the vacancy in the k-shell is called:

(a) K α characteristic of X-ray

(b) K β characteristic of X-ray

(c) K γ characteristic of X-ray

(d) K characteristic of X-ray

ANSWER: (b) Page No: 53 (Sub Topic: 2.4.2)

246. Select the one having half-filled P orbital's on losing an electron:

(a) Nitrogen (b) Lithium

(c) Oxygen (d) Fluorine

HINT: 0(8) = $1s^2$, $2s^2$, $2p^4$ on losing 1 electron it becomes $1s^2$, $2s^2$, $2p^3$

ANSWER: (c) Page No: 65 (Sub Topic: 2.6.4)

247. When a force retards the motion of a body the work done is:

(a) Zero (b) Negative

(c) Positive (d) +ve or –ve depending upon the magnitude of force and displacement

ANSWER: (b) Page No: 84

248. What is the relative rates of diffusion of equal volume (500 cm^3) of hydrogen and oxygen under same condition of temperature and pressure?

(a) 4:1 (b) 8:1 (c) 16:1 (d) 2:1

ANSWER: (a) Page No: 126 (Sub Topic: 4.8.1)

249. Select the correct order in boiling point:

(a) Butonal<2-Butanol<2 Methyl-2-proponal

(b) Butanol<1-Butonol<2-Methyl-2-propanol

(c) 2-Methyl-2-propanol<1-Butanol<2-Butanol

(d) 2-Methyl-2Propanol<2-Butanoic<1-Butonol

ANSWER: (d) Page No: 145

250. Consider the following reaction

$PCl_{5\,(g)} \Leftrightarrow PCl_{3\,(g)} + Cl_{2\,(g)}$

When Kp at 500K is 0.85 . what will be the value of Kc at the same temperature

(a) $Kc = \frac{0.85}{0.82 \times 500}$ (b) $Kc = \frac{0.82}{0.85 \times 500}$

(c) $Kc = \frac{0.85 \times 500}{0.82}$ (d) $Kc = \frac{0.85}{0.82}$

HINT: $Kp = Kc\,(RT)^{\Delta n}$

$Kc = KP/(RT)^1$

ANSWER: (a) Page No: 191 (Sub Topic: 7.1.3)

251. Which of the following is an acid?

(a) OH^- (b) PH_3 (c) HCO_3^- (d) SO_4^{-2}

HINT: The specie hawing ionizable H^+ is acid.

ANSWER: (c) Page No: 213

252. The equilibrium constant for the Protolysis of ammonium ion,

$\left(NH_4^+ + H_2O \rightleftharpoons NH_3 + H_3O^+\right)$ is 5.6×10^{-10} at $15°C$.

The pH of 1.0 M NH_4Cl solution is closet to which of the following.

(a) 9 (b) 7 (c) 5 (d)3

HINT: Ka of $NH4^+$ = 5.6 x 10^{-10}

Molarity = 1 M

$[H^+] = \sqrt{Ka.Molarity}$

$[H^+] = \sqrt{5.6\ x\ 10^{-10}}.1$

$[H^+]$ = 2.35 x 10^{-5}

PH = 4.8 = 5

ANSWER: (c)

253. A solution 0.1 M in H_2CO_3 and 0.1 M in $NaHCO_3$ is made. The pH of the resulting solution should be closest to

Note: H_2CO_3 Pka = 6.37

(a) 6.37 (b) 4.35 (c) 6.28 (d) 7.37

HINT: P^H =PKa + 10g $\frac{(salt)}{acid}$

P^H =37 + log $\frac{[0.1]}{[0.1]}$ P^H= 6.37 + 0 = 6.37

ANSWER: (a) Page No: 224 (Sub Topic: 8.6.2)

254. Solubility of non-polar solute in non-polar solvent is because of:

(a) Their same molecular sizes

(b) Large difference in molecular sizes of solute and solvent

(c) Weak van der Waal's forces of solvent and solute particles

(d) Both (a) & (c)

HINT: The attractive fores found in the molecules of solute and solvent is less than the attractive forces in the solute solvent molecules.

ANSWER: (c) Page No: 263 (Sub Topic: 10.1.3)

255. Select completely immiscible pair of liquids:
(a) Phonol-water system

(b) Trimethylamine and water system

(c) Carbon disulphide and water system

(d) Ethanol and water system

ANSWER: (c) Page No: 264 (Sub Topic: 10.1.3)

256. Select an incorrect statement about collides.
(a) Colloidal particles carry charges

(b) Addition of electrolytes coagulates the solution

(c) Every substance can be made to behave like lyphobic collides

(d) Every solid substance can be brought to colloidal state

ANSWER: (c) Page No: 261 (Sub Topic: 10.1.1)

257. Molality of 10% w/w NaOH solution is
(a) 1.5m (b) 2.0m (c) 2.5m (d) 3.5m

HINT: Molality = $\frac{No\ of\ moles\ of\ solute}{Kg\ of\ solvent}$

As solute solute = 10g

No of moles = $\frac{10}{40}$ = 0.25 moles

Now as solvent = 90g

Solvent (In Kg) = 90/100 = 0.09Kg

m= $\frac{0.25}{0.09}$ = 27 molal

ANSWER: (c) Page No: 268 (Sub Topic: 10.2.1)

258. How many grams of $(NH_4)_2SO_4 6H_2O$ be dissolved in 500cm^3 of distilled water to get 0.1 M solution? (*Molecular mass of Mohr's slat is 392*)
(a) 39.2g (b) 3.92g (c) 19.6g (d) 1.96g

HINT: M= $\frac{n}{V\ in\ L}$

When M= 0.1 mol/dm^3

Vol in L= 0.5dm^3

So n =0.1 x 0.5 = 0.05 moles

Mass (in) = 0.05 x 392

= 19.6g

ANSWER: (c) Page No: 269 (Sub Topic: 10.2.2)

259. If the force of attraction exists between the particles of dispersed phase and the dispersion medium terms the Sol is called:
(a) Lyophilic (b) Lyophobic

(c) Hydrophilic (d) Hydrophobic

HINT: Because dispersion medium is moot

water.

ANSWER: (a) Page No: 289

260. Which condition must apply for the work done by an expanding gas to be $P\Delta V$, where p is the pressure of the gas and ΔV is its change in volume?
(a) No thermal energy must be supplied to the gas.

(b) The expansion must be at a constant rate.

(c) The pressure must be constant.

(d) The temperature of the gas must be constant.

HINT: Volume explanative is associated with constant pressure i.e PΔV occurs at unstable pressure.

ANSWER: (c) Page No: 302

261. Consider the following reaction
$PCl_{5\,(g)} \Leftrightarrow PCl_{3\,(g)} + Cl_{2\,(g)}$

When Kp at 500K is 0.85 . what will be the value of Kc at the same temperature

(a) $Kc = \frac{0.85}{0.82 \times 500}$ (b) $Kc = \frac{0.82}{0.85 \times 500}$

(c) $Kc = \frac{0.85 \times 500}{0.82}$ (d) $Kc = \frac{0.85}{0.82}$

ANSWER: (d) Page No: 322

262. Calculate E^0 cell from the half-cell reactions:
$Zn \rightarrow Zn^{+2} + 2e^-\ E^0_{red} = -0.76v\ or$

$E^0_{ox} = +0.76v$

$Cu^{2+} + 2e^- \rightarrow Cu\ E^0_{red} = +0.34v$
(a) 1.10v (b) 1.20v (c) 1.0v (d) 1.40v

ANSWER: (a) Page No: 339 (Sub Topic: 12.6.2)

263. Choose the wrong statement.
(a) Operating life for fuel cell is unlimited

(b) Electrode in fuel cell may be porons solid and may contain catalyst

(c) The fuel in fuel cell can be gas, liquid, solid or solution

(d) In fuel cell the cell products cannot be regenerated

HINT: It is reversible reaction

ANSWER: (d) Page No: 346 (Sub Topic: 12.3.4.3)

264. Which elements have the highest 2nd ionization enger?
(a) Sr (b) Li
(c) Mg (d) Ca
HINT: For
Sr = [Kr] $5S^2$
Li = [He] 2S1
Mg = [Ne] 2S2
Ca = [Ar] 3S2
Sr, Mg. Ca will have the 1st ionization energy more but Li will have 2nd ionization energy greater.

ANSWER: (b) Page No: 4 (Sub Topic: 13.1.1.3)

265. Which of the following is an ionic oxide?
(a) Mn_2O_7 (b) ZnO (c) CO (d) H_2O_2

HINT: Metallic oxides are ionic oxides, when they are in their lower oxidation state.

ANSWER: (b) Page No: 10 (Sub Topic: 13.1.3)

266. Steam of chlorine is passed over heated sulphur and form an orange colored foul smelling liquid having formula :
(a) SCl_2 (b) S_2Cl_2

(c) S_2Cl (d) Mixture of SCl_2 and S_2Cl_2

ANSWER: (b) Page No: 13.1.2 (Sub Topic: 13.1.2)

267. Magnesium metal burn in air, the product form is
(a) Mgo (b) Mg_3N_2

(c) $MgCO_3$ (d) Both (a) and (b)

HINT: Mg reacts with O_2 and N_2 of air, the product form Mgo and Mgb N_2

ANSWER: (d) Page No: 26 (Sub Topic: 13.3.3.3)

268. Which of the following is amphoteric I nature;
(a) MgO (b) VeO (c) K_2O (d) CaO

ANSWER: (b) Page No: 26 (Sub Topic: 13.3.3.1)

269. Which of the following electronic configuration is/are correct?
i. $Cu_{29}\,[Ar]4S^1 3d^{10}$

ii. $Ti_{22}[Ar]4S^2 4d^2$

iii. $Fe_{26}[Ar]4S^2 3d^5 4P^1$

(a) I only (b) I & ii only

(c) ii& iii only (d) I & iii only

ANSWER: (b) Page No: 51 (Sub Topic: 14.1.4)

270. Complexes exists in various coordination numbers, choose the coordination number which is less common:
(a) 2 (b) 4 (c) 5 (d) 6

HINT: 4 Co-orddinated complex are for less common.

ANSWER: (b) Page No: 57 (Sub Topic: 14.2.3)

271. Choose the correct name of the complex $K_2[PtCl_6]$
(a) Potassium hexa chloroplatinum (IV)

(b) Potassium hexa chloroplatinate (VI)

(c) Potassium hexa chloropalatinate (IV)

(d) Potassium chloro platinate

ANSWER: (b) Page No: 55 (Sub Topic: 14.2.2)

272. Most solution s containing ferric ions are usually yellow or yellowish brown, this is due to the formation of
(a) $\left[Fe(H_2O)_6\right]^{3+}$ (b) $\left[Fe(H_2O)_5 OH\right]^{3+}$

(c) $\left[Fe(H_2O)_3(OH)_2\right]^{+}$ (d) $\left[Fe(H_2O)_3(OH)_3\right]^{0}$

ANSWER: (d) Page No: 74 (Sub Topic: 14.3.4.4)

273. Choose the mineral which is not of chromium
(a) Chrome irons stone (b) Chrome ochre

(c) Cordite (d) Chalcodite

ANSWER: (d) Page No: 62 (Sub Topic: 14.3.2)

274. Compounds of vanadium exists in the following oxidation states 5+, 4+, 3+, 2+ The compounds in the 3+ and 2+ oxidation states behave as
(a) Good oxidizing agent

(b) Good reducing agent

(c) Weak oxidizing agent

ANSWER: (b) Page No: 60 (Sub Topic: 14.3.1.1)

275. The following dynamics equilibrium exist between CrO_4^{2-} lons in solution
$CrO_4^{2-} \rightleftharpoons Cr_2O_7^{2-}$
(a) Equilibrium shifts to the right

(b) $Cr_2O_7^{2-}$ is decomposed to CrO_4^{2-}

(c) Equilibrium remains unaffected

(d) Equilibrium shifts to the left

ANSWER: (d) Page No: 63 (Sub Topic: 14.3.2.2)

276. The reaction between peroxodisulphate ions and iodide ions is given below:
$S_2O_8^{2-} + 2I^- \rightarrow 2SO_4^{2-} + I_2$
(a) Ni^{2+} (b) Fe^{2+} & Fe^{3+}

(c) Fe^{3+} (d) Fe^{2+}

HINT: The catalyst may be iron ll or iron III.

ANSWER: (b) Page No: 72,73 (Sub Topic: 14.3.4.3)

277. To differentiate between the white ppt of Agci and off white ppt of AgBr we use:
(a) Dil. Solution of NaOH
(b) Dil. Solution of $Pb(NO_2)_2$
(c) Dil. Solution of NH_3
(d) Dil. Solution of $FeCl_3$
HINT: Agcl is soluble in Din solution of NH_3 while AgBr is insoluble in dil. Solution of NH_3.

ANSWER: (c) Page No: 101

278. The compound that can not undergo addition reaction is:
(a) Cyclopropane (b) Benzene
(c) Butyne (d) None of these
HINT: Cyclopropane undergo ring opening to give open chain addition product.

ANSWER: (d) Page No: 122 (Sub Topic: 16.2.4)

279. Choose the correct statement about cycloalkanes:
(a) Cyclorpropane and cyclobutane are liquids at room temperature
(b) Cycloalkanes are insoluble in ethanol and ether but insoluble in water
(c) Their melting and boiling points who a gradual increase with increases molecular weight.
(d) Both b and c are correct
HINT: Cycloalkane are insoluble in water but Dissolve in ethanol and ether.

ANSWER: (c) Page No: 120 (Sub Topic: 16.2.2)

280. The less energetic and more stable compound among the following is:
(a) Cyclobutane (b) Her I ene
(c) Cyclopropane (d) Propene

ANSWER: (b) Page No: 122

281. Choose the least stable of the following butenes:
(a) 1 – Butene (b) CiS - 2 - Butene

(c) Trans-2-butene (d) Iso butylene

HINT: Heat of hydrogenate as is greater than

all.

ANSWER: (a) Page No: 129 (Sub Topic: 16.5.2)

282. The carbon-carbon triple bond length in acetylene is
(a) $1.09A^0$ (b) $1.119A^0$

(c) $1.39\ A^0$ (d) $1.19A^0$

ANSWER: (d) Page No: 146 (Sub Topic: 16.7.3)

283. Silver accylide in dry condition is highly explosive, it reacts with nitric acid to form:
(a) Sliver oxide, carbon dioxide and water

(b) Silver nitrate and ethyne

(c) Silver nitrate ethane

(d) Silver nitrate and carbon dioxide

ANSWER: (b) Page No: 145 (Sub Topic: 16.7.7)

284. Silver mirror is given by :
(a) Aldehyde (b) Ketone (c) Ethers

ANSWER: (a) Page No: 278 (Sub Topic: 19.6.4)

285. The carbonyl group of carboxylic acid do not exhibit the characteristics reaction of aldehyde and ketone due to :
(a) The C of carboxyl is less positive

(b) The C of carboxyl is more positive

(c) The C of Ketone is less positive

(d) Does not depend on C atom

ANSWER: (a) Page No: 297

286. Carboxylic acid react with ammonia to form ammonium salts which on heating produces:
(a) Co_2 (b) Alkane (c) Ester (d) Acetamide

ANSWER: (d) Page No: 302 (Sub Topic: 20.7.1.4)

287. $R-COONa+NaOH \xrightarrow[heat]{CaO} RH+Na_2CO_3$
The above relation is known as:

(a) Carboxylation (b) Decarbxylation

(c) Neutralization (d) Reduction

ANSWER: (b) Page No: 304 (Sub Topic: 20.7.4)

288. Food article spoiling involves oxidation reduction processes, to prevent this reaction we usually add preservative which act as:
(a) An oxidizing agent (b) A reducing agent

(c) An acid (d) A base

ANSWER: (c) Page No: 305 (Sub Topic: 20.7.4)

289. Solvent dyes are also known as:
(a) Spirit - soluble dyes

(b) Ether – soluble dyes

(c) Direct dyes (d) Basic dyes

ANSWER: (a) Page No: 365

290. Light naphtha contain hexane & heptane is obtained in the boiling range of
(a) $60 - 100^0$ C (b) $80 - 100^0$ C

(c) $40 - 60^0$ C (d) $60 - 80^0$ C

ANSWER: (a) Page No: 372

291. Nylon (6,6) six carbon atom in each monomer is the example of:
(a) Addition polymers

(b) Substitution polymers

(c) Condensation polymers

(d) Condensation monomers

ANSWER: (c) Page No: 374

292. Adipic acid react with dimethylter thalate to form condensation polymer:
(a) Nylon-6,8 (b) Dacron

(c) Teflon (d) Bylon-6,6

ANSWER: (a) Page No: 374

293. $CH_3 - \overset{O}{\overset{\|}{C}} - OONO_2$ is the formula of:
(a) PAN (b) Smog

(c) Ozone (d) Chlorofluro carbons

ANSWER: (a) Page No: 398

294. What is the colour of oxidizing smog:
(a) Reddish brownish gray

(b) Bluish brownish gray

(c) Brownish gray (d) Yellow

HINT: Photochemical smog is also called oxidizing smog.

ANSWER: (a) Page No: 397 (Sub Topic: 23.1.5)

295. Blue baby syndrome is caused due to:
(a) A phosphate in diets

(b) Chlorates in diets

(c) Excessive nitrate in diets

(d) Deficiency of nitrate

ANSWER: (c) Page No: 409 (Sub Topic: 23.3.1.2)

296. A sample containing copper weighing 10.0g yield 2.0g of copper sulphide. What is the percent of copper (amu Cu = 63.54) in the sample.
(a) $\frac{2.0\times100}{10.0}$ (b) $\frac{2.0\times2\times63.54\times100}{10\times95.60}$

(c) $\frac{2.0\times95.6}{10\times2\times43.54}$ (d) $\frac{2.0\times63.4\times100}{10\times95.60}$

ANSWER: (d) Page No: 422

297. Naila has two
(a) Sister in law (b) Sisters in law
(c) Sister in law's (d) Sister's in law

ANSWER: (b)

298. The plural of LOUSE is:
(a) Lices (b) Lice (c) Louses (d) Lyces

ANSWER: (b)

299. Which of the following is not an adjective?
(a) Bravery (b) Intelligent

(c) Beautiful (d) Honest

ANSWER: (a)

300. The feminine of MILKMAN is:
(a) Milkgirl (b) Milkmaid

(c) Milkwoman (d) Milklady

ANSWER: (b)

301. Katherine made her children _____ chores on Sunday
(a) make some (b) take some

(c) do some (d) does some

ANSWER: (c)

302. The synonym for the word "ANIMOSITY"IS:
(a) Powerful (b) Hatred

(c) Hatful (d) Quarrelsome

ANSWER: (b)

303. Hussain suffers from no _____ about his capabilities.
(a) Doubts (b) Hallucinations
(c) Illusion (d) Imaginations
ANSWER: (c)

304. I always _____ defy any authoritarianism.
(a) have and always will (b) have and will

(c) have defied and always will

(d) haven't but will

ANSWER: (b)

305. The emperor _____ his kingship and become a hermit.
(a) abolished (b) abated

(c) abdicated (d) abandoned

ANSWER: (d)

306. Choose the correct sentence:
(a) Brazil is a populous country; the beache's are warm sandy and spotless clean.

(b) Brazil is a populous country: the beaches are warm, sandy and spotlessly clean.

(c) Brazil is a populous country, the beaches are warm sandy and spotlessly clean

(d) Brazil is a populous; country the beaches are warm, sandy and spotlessly clean

ANSWER: (b)

307. The antonym for the word "ACQUIT" is:
(a) Retreat (b) Convict
(c) Conceal (d) Deprive

ANSWER: (b)

308. She said "I passed the examination long ago "
(a) She said that she had passed the examination long ago
(b) She said that she had passed the examination long before.
(c) She told she had passed the examination long before
(d) She asked that she had passed the examination long ago (b) (c) (d)

ANSWER: (b)

309. To have an old head on young shoulders' means:
(a) To be wiser than one's age
(b) To be young but appear old
(c) To have low IQ
(d) To be old but appear young

ANSWER: (a)

310. Do not disturb him for nothing.
(a) Let not he be disturbed for nothing
(b) He is not to be disturbed for nothing
(c) Nobody should disturb him for nothing
(d) We should not disturb him for nothing

ANSWER: (a)

311. Cannon had _____ unique qualities _____ it was used widely in ancient times.
(a) such, so (b) that, since
(c) that, that (d) such, that

ANSWER: (d)

312. Which of the following is not an adjective?
(a) Bravery (b) Intelligent
(c) Beautiful (d) Honest

ANSWER: (a)

313. Katherine made her children _____ chores on Sunday
(a) make some (b) take some
(c) do some (d) does some

314. The people who are hardworking always succeed. The underlined part of the sentence is
(a) Non defining clause (b) Phrase
(c) Defining clauses (d) Adjective clause

ANSWER: (b)

315. Hussain suffer from no _____ about his capabilities
(a) Doubts (b) Hallucinations
(c) Illusion (d) Imaginations

ANSWER: (c)

316. People claim to have seen the suspect in several cities.
(a) The suspect was claimed to be seen by the people in several cities.
(b) The suspect is claimed to have been seen in several cities.
(c) The suspect has claimed to be seen by the people in several cities.
(d) The suspect is being claimed to be seen in several cities by the people.

ANSWER: (b)

317. The antonym for the word "ACQUIT" is:
(a) Retreat (b) Convict
(c) Conceal (d) Deprive

ANSWER: (b)

318. She said "I passed the examination long ago "
(a) She said that she had passed the examination long ago
(b) She said that she had passed the examination long before.
(c) She told she had passed the examination long before
(d) She asked that she had passed the examination long ago (b) (c) (d)

ANSWER: (b)

319. $\sum_{j=2}^{10} \frac{1}{j} - \sum_{j=1}^{8} \frac{1}{j+2}$

(a) Zero (b) $\frac{9}{10}$ (c) $\frac{1}{2}$ (d) $\frac{1}{10}$

ANSWER: (c)

320. A sequence is a function whose domain is
(a) Real numbers (b) Natural numbers
(c) Integers (d) Positive

ANSWER: (b)

321. $\frac{1}{6!} + \frac{2}{7!} + \frac{3}{8!} =$

(a) $\frac{6}{8}$ (b) $\frac{6!}{8!}$ (c) $\frac{75}{8!}$ (d) $\frac{6}{2!}$

ANSWER: (c)

322. Non-negative constraints in a Linear problem is given by

(a) $x>0, y<0$ (b) $x\geq 0, y\geq 0$

(c) $x=0, y=0$ (d) $x\leq 0, y\leq 0$ ANSWER: (b)

323. The objective function in a linear programming is usually denoted by

(a) $f(x,x)=ax$

(b) $f(x,y)=ax+by, a,b\in R$

(c) $f(x,y)=(ax)(by)$

(d) $f(x,y)=ax+by+cz$

ANSWER: (b)

324. A cone is 9 cm high and has a vertical angle of 60^0 then the diameter of its base is:

(a) $3\sqrt{3}$ (b) $6\sqrt{3}$ (c) $9\sqrt{3}$ (d) $18\sqrt{3}$

ANSWER: (b)

325. n a equilateral triangle the ration 1 : 2 : 3 holds for

(a) $r_1 : r : R$ (b) $r : R : r$

(c) $r : r_1 : R$ (d) $r_1 : R : r$

HINT: Page No: 346 1st year Book.

ANSWER: (b)

326. Graph of the function y = sin x over the interval (0.2π) intersects the x – axis at

(a) One point (b) Two points ((c) Three points (d) Infinite points

ANSWER: (a)

327. Which of the following expresses periodic property

(a) $\sin(-\theta)=-\sin\theta$

(b) $\sin(\theta\pm 2\pi)=\sin\theta$

(c) $\sin(\theta-\pi)=-\sin\theta$

(d) $\sin(\pi-\theta)=\sin\theta$

HINT: periodic property.

F(x + k) = f(x)

ANSWER: (b)

328. If $f(x)=\begin{cases}+k(x+1), if\ x\leq 0\\ k(1-x^2), if\ x>0\\ 0, \quad if\ x=0\end{cases}$ then if $f(2)=5, k=$

(a) 0 (b) $\frac{5}{3}$ (c) $\frac{-5}{3}$ (d)5

ANSWER: (b)

329. $\frac{d}{dx}(\ln|x|)=\frac{1}{x}$ *then* $\int \ln x\,dx=$

(a) $\frac{1}{x}$ (b) $x\ln x$

(c) $x\ln x-1$ (d) $x\ln x-x$

ANSWER: (d)

330. Equation of a line parallel to Negative y - axis at a distance b units to the left of y – axis is given by:

(a) x = b (b) x = -b (c) y + b = 0 (d) y = -b

ANSWER: (b)

331. The point $p(x_1, y_1)$ lies above the line ax + by + c = 0. If

(a) $ax_1 + by_1 + c = 0, b = 0$

(b) $ax_1 + by_1 + c > 0, b < 0$

(c) $ax_1 + by_1 + c > 0, b > 0$

(d) $ax_1 + by_1 + c < 0, b > 0$

ANSWER: (c)

332. Equation of the tangent to the circle $x^2 + y^2 = a^2$ at point (x_1, y_1) is given by

(a) $xx_1-yy_1=0$ (b) $xx_1+yy_1=a^2$

(c) $xx_1+yy_1=a$ (d) $xy_1+yx_1=a^2$

ANSWER: (b)

333. In the equation $4px = y^2$, if p > 0, then the parabola is symmetric with respect to

(a) Negative X-axis (b) Positive Y-axis

(c) Positive X-axis (d) X-axis

ANSWER: (c)

334. In the horizontal ellipse if foci are $F_1(h-c,k) and\ F_2(h+c,k)$, then its standard equation is give by

(a) $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ (b) $\frac{(x-k)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$

(c) $\frac{(x-h)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$

(d) $\frac{(x-c)^2}{a^2}+\frac{(y-k)^2}{b^2}=1$

HINT: F_1 (h - c, k) and F_2 (h+c,k)

In transition case

$\frac{(x-h)^2}{a^2}+\frac{(y-h)^2}{b^2}=1$

ANSWER: (c)

335. In translation of axis

(a) Direction of axes changing

(b) Origin is changing

(c) Both axes and origin are changing

(d) Axes are changing through some angle

HINT: 2nd year Book Page No. 308

ANSWER: (b)

336. $y = x + A$ is a solution of the D.E

(a) $dy + dx = 0$ (b) $\frac{dy}{dx} = 0$

(c) $\frac{dy}{dx} = 1$ (d) $\frac{dy}{dx} = C$

ANSWER: (c)

337. If slope of the family of curved $F(x, y, c_1)$ for the equation $x^2 + y^2 = C$ is $\left(-\frac{x}{y}\right)$ then slope of the orthogonal Trajectory of the second family $G(x, y, c_2)$ is

(a) $\frac{x}{y}$ (b) $-\frac{x}{y}$ (c) $\frac{y}{x}$ (d) $\frac{1}{x}$

ANSWER: (c)

338. For $y = x^2 + c$ the equation of orthogonal trajectory is

(a) $2y = \imath n\left(\frac{c}{\sqrt{x}}\right)$ (b) $y = \imath n\left(c\sqrt{x}\right)$

(c) $y = \imath n\sqrt{x} \mid c$ (d) $y = \imath n\left(\frac{\sqrt{x}}{c}\right)$

HINT:

ANSWER: (a)

339. $\underset{(x,y)\to(-1,1)}{Limit} f(x, y) = \frac{x^2}{x^2 + y^2 + 2}$ is

(a) $\frac{1}{4}$ (b) $-\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

ANSWER: (a)

340. For the function
$f(x, y, z) = x\,y\,z \sin(xyz)$,
$\frac{d}{dx}(1.1, \frac{\pi}{2}) =$ _____

(a) $\frac{\pi}{2}$ (b) $3\frac{\pi}{2}$ (c) π (d) 1

ANSWER: (a)

341. For a continuous function $f(x)$ on [a, b] the approximate root lies in the interval [c, b]if

(a) $f(x)$ has opposite signs at x = a x = b

(b) $f(x)$ has opposite signs at x = a x = c

(c) $f(x)$ has opposite signs at x = a x = b

(d) $f(x)$ has opposite signs at x = c x = b

ANSWER: (d)

342. Degree of the homogenous function $f(x,y)=\frac{\sqrt{x}+\sqrt{y}}{x+y}$ is:

(a) 1 (b) Zero (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

ANSWER: (c)

343. The asymptotes of the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is given by

(a) $y = \pm\frac{b}{a}x$ (b) $y = \pm\frac{a}{b}x$

(c) $y = \pm\frac{c}{a}x$ (d) $y = \pm\frac{a}{c}x$

ANSWER: (a)

344. $ady + by\sin x\,dx = 0 is$

(a) Linear differential equation

(b) Homogeneous differential equation

(c) Separable differential equation

(d) Non Separable differential equation

ANSWER: (a)

345. $\frac{k!}{(k+1)!} =$ _____

(a) (k+1) (b) K (c) $\frac{1}{k}$ (d) $\frac{1}{k+1}$

ANSWER: (d)

346. If A and B are disjoint events, then P (A U (B) =

(a) P (A) + P (B) (b) P(A)+P(B)–P(A)∩(B)

(c) P (A) U P (B) (d) $\frac{n(AUB)}{n(S)}$

ANSWER: (a)

347. $\binom{n}{n-r} =$ _____

(a) $\binom{n}{r}$ (b) $\binom{n+1}{r}$ (c) $\binom{n+1}{r-1}$ (d) $\binom{n}{r-r+1}$

ANSWER: (a)

348. For two vector $\vec{a}$ and $\vec{b}$ it holds that $\overrightarrow{ah}$ = $|\vec{a}|\,|\vec{a}|\cos\theta$ then it hold $|\vec{a}| = \sqrt{a, a\ for}$ $\vec{a} = \vec{b}$ if and only if.

(a) When $\vec{a}$ and $\vec{b}$ are parallel

(b) $When\ \vec{a}$ and $\vec{b}$ are perpendicular

(c) When $\vec{a}$ and $\vec{b}$ are in the opposite direction (d) When $\vec{a}$ and $\vec{b}$ are parallel but opposite direction

ANSWER: (a)

349. The 3rd term of the expression $\frac{n^2-2}{n}$ is

(a) $\frac{7}{3}$ (b) $-\frac{7}{3}$ (c)3 (d)1

ANSWER: (a)

350. The angular momentum of a wheel change from 2L to 5L in 3 seconds the magnitude of the torque, acting on it is:

(a) $\frac{L}{S}$ (b) $\frac{L}{3}$ (c) $\frac{L}{2}$ (d) L

ANSWER: 0

351. $if\ y=\cos ec^{-1}(e^{-x})\ then \frac{dy}{dx}=$ _____

(a) $\frac{e^{-x}}{\sqrt{e^{-2x}-1}}$ (b) $\frac{-e^{-x}}{\sqrt{e^{-2x}-1}}$

(c) $\frac{+1}{\sqrt{e^{-2x}-1}}$ (d) $\frac{-1}{\sqrt{e^{-2x}-1}}$

ANSWER: (d)

352. Let *f(x)* be a differentiable function on (a, b) if then if *(x)* is strictly decreasing on (a, b) if

(a) $f'(x)>0\ for\ a<x<b$

(b) $f'(x)<0\ for\ a<x<b$

(c) $f'(x)=0\ for\ a<x<b$

(d) $f'(x)\leq 0\ for\ a<x<b$

ANSWER: (b)

353. If *f(x)*has a critical value at x = c i.e $f'(c)=0$ and $f''(x)=0$ exists on (a, b) containing C then $f''(c)=0$ provided that

(a) Function has maximum value at x = c

(b) Function has a minimum value at x = c

(c) Function has no minimum value or minimum at x = c

(d) Function is undefined at x = c

ANSWER: (c)

354. Z = f(x,y) = $\frac{x^3e^{y/x}}{y}-3\frac{y^2}{x}\sqrt{x^2y^2}$ is homogeneous of degree

(a) 0 (b) 1 (c) 2 (d) 3

ANSWER: (b)

355. The equation of directrix for the parabola $y^2=-4px$ is

(a) $y=-p$ (b) $y=p$

(c) $x=-p$ (d) $x=p$

ANSWER: (d)

356. The angle of the tangent line $x - y = 0$ to a curve $y = f(x)$ is

(a) 30° (b) 45° (c) 60° (d) 0

ANSWER: (b)

357. The line $2x - y + c = 0$ will touch the ellipse $\frac{x^2}{3}+\frac{y^2}{4}=1$ if c = _____

(a) ± 4 (b) ± 7 (c) ± 9 (d) ± 11

ANSWER: (a)

358. Let $\vec{G}(t)=\vec{ti}-(t+1)^{+2}\vec{j}+t^{-1}\vec{k}$ the Domain of the vector function $\vec{G}(t)$ is

(a) All value of t

(b) Only non-negative value of t

(c) All positive values of t

(d) All values except t = 0

ANSWER: (d)

359. The order of steepness of lines $L_1: y-x+3=0, L_2: y-\frac{1}{3}x-5, L_3: y-0.3x+6\ is$

(a) L_1, L_2, L_3 (b) L_2, L_3, L_1

(c) L_3, L_2, L_1 (d) L_1, L_3, L_2

ANSWER: (c)

360. The point A (4.5) is above the line:

(a) $3x-7y-15=0$

(b) $3x-7y+15=0$

(c) $3x+7y-15=0$

(d) $3x+7y+15=0$

ANSWER: (c)

361. If $x+iy=(5-3i)^3$, then x = _____ and y = _____

(a) (10, 198) (b) (10, -198)

(c) (-10, +198) (d) (-10, -198)

ANSWER: (b)

362. $|Z|=|-Z|$ for a complex number Z, if and only if it hold that (i) Z = -Z

(ii) $Z=\overrightarrow{Z}$ (iii) $Z=-\overrightarrow{Z}$ (a) Only (i) holds

(b) (i) and (ii) both holds

(c) (i), (ii) and (iii) holds

(d) Either (i) or (ii) holds

ANSWER: (d)

363. If $A=\begin{bmatrix}2 & \lambda\\ 3 & 1\end{bmatrix}$ is a non singular matrix, then λ can takes all the real values except for

(a) 0 (b) $\frac{2}{3}$ (c) $-\frac{2}{3}$ (d) $\frac{3}{2}$

ANSWER: (b)

364. If $\frac{\theta}{2}$ lies in the 3rd or 4th quadrant, then $\sin\frac{\theta}{2}$ =

(a) $\sqrt{\frac{1+\cos\theta}{2}}$ (b) $\sqrt{\frac{1-\cos\theta}{2}}$

(c) $-\sqrt{\frac{1-\cos\theta}{2}}$ (d) $\pm\sqrt{\frac{1-\cos\theta}{2}}$

ANSWER: (d)

365. If $\theta < \pi$, then the relation between $\frac{\theta}{2}$ and $\frac{\pi}{2}$ is given by

(a) $\frac{\theta}{2} = \frac{\pi}{2}$ (b) $\frac{\theta}{2} < \frac{\pi}{2}$

(c) $\frac{\theta}{2} > \frac{\pi}{2}$ (d) $\frac{\theta}{2} \leq \frac{\pi}{2}$

ANSWER: (b)

366. $\frac{\cos 5\theta + \cos 3\theta}{\sin 5\theta - \sin 3\theta}$

(a) $\sin 2\theta$ (b) $\cos 8\theta$

(c) $\cot\theta$ (d) $\tan\theta$

ANSWER: (a)

367. If $|\vec{a}+\vec{b}| = |\vec{a}-\vec{b}|$ for two non zero vectors $\vec{a}$ and $\vec{b}$ then it holds that

(a) $\vec{a}$ and $\vec{b}$ are perpendicular

(b) $\vec{a}$ and $\vec{b}$ are parallel

(c) $\vec{a}$ and $\vec{b}$ are coplanar

(d) $\vec{a}$ and $\vec{b}$ are non coplanar

ANSWER: (a)

368. Let $(fog)(x) = \sqrt{x^2+1} - 1 \text{ and } g(x) = x^2+1 \text{ then } f(4) =$

(a) 1 (b) -1 (c) 2 (d) -2

ANSWER: (a)

369. $\frac{d}{dx}(\text{cosec}^{-1}x)$ = _____ when x < 0

(a) $\frac{1}{x\sqrt{x^2+1}}$ (b) $\frac{-1}{x\sqrt{x^2-1}}$ (c) $\frac{-1}{x\sqrt{1-x}}$ (d) $\frac{1}{x\sqrt{1+x^2}}$

ANSWER: (d)

370. A person walks 10km north. 20km east and 10km south, then the resultant displacement is:
a) 10 km north-east
b) 20 km north-east
c) 20 km est.
d) 20 km west
Hints: c)
So st= 20 km east

371. The sum of magnitudes of two forces in 16 N. The result an force is 8 N and its direction is perpendicular to minimum force, then forces are:
a) 6 N & 10 N
b) 8 N & 8 N
c) 4 N & 12 N
d) 2 N & 14 N
Hints: a)
H= $\sqrt{b^2+p^2}$
H= 10 N
So
6N & 10N

372. If $\vec{A} = \vec{B}$, then what is the angle between A+B and A- B?
a) 0^0
b) 45^0
c) 60^0
d) 90^0
Hints: d) it means that
$\vec{A} - \vec{B} = 0$
$\vec{A} + \vec{B}$ = c
So the anglw b/w $\vec{A} - \vec{B}$ and $\vec{A} + \vec{B}$ is zero.

373. Multiplication invers of -2-3i is:
a) $-\frac{2}{13} + \frac{3}{13}i$
b) $\frac{2}{13} - \frac{3}{13}i$
c) $-\frac{2}{13} - \frac{3}{13}i$
d) All of the above
Hints: a)

374. A square matrix A= [a_{ij}] is called a diagonal matrix if:
a) aij = 0 for i = j
b) aij = 0 for i ≠ j
c) aij ≠ 0 for i = j
all of the above
hints: b)

375. If (x,y) = sinxy then f_y=
a) cosxy
b) xcosxy
c) –xcosxy
d) xycosxy
Hints: b)

376. Consider the following action involved in the manufacture of urea:
$Co_2 + 2NH_3 - NH_2COONH_4$ if 22.o g of co_2 react with 34 g of ammonia to from ammonium carbonate, the reaction is taken as irreversible and go to completion. Identify the limiting reagent and the amount of carbonate formed:
a) Co_2, 78_g
b) Nh_3, 78_g
c) Co_2, 39_g
d) Nh_3, 39_g
Hints: c)

377. When hydrogen gas is enclosed in a discharge tube using low pressure, it emits:
a) Green light
b) Blue light
c) Red light

d) Yellow light

Hints: b) in discharge tube experiment every gas on ionization gives specific color H_2 (gas) gives blue light glow.

378. Tetramethyisilane (TMS) is added to the compound as standard while carrying out its NMR spectra the TMS is a:
a) Non volatile compound
b) Less volatile compound w
c) Highly volatile compound
d) Highly reactive compound

Hints: c) because of 12H atoms in tetramethyisilane molecule are equitant. Its H NMR spectrum consist of a singlet. (its high volatility TMS can easily evaporated.)

379. Salam can readily answer any question about what is going on.
[select the correct passive voice]
a) A question is readily answered on about what is going on.
b) A bout what is going on, salaam can answer readily the questions.
c) Salam readily answered about ongoing question.
d) Any question about what is going on can be readily answer by salaam.

Hints: d)

380. A radioactive substance has a half- life of four months. Three fourth of the substance will decay in.
a) 6 months
b) 8 months
c) 12 months
d) 16 months

Hints: b) 1 half life = $\frac{t}{2}$ 2 Half life = $\frac{t}{4}$

Total time = $\frac{t}{2} + \frac{t}{4}$

$\frac{2t+t}{4}$ = $\frac{3t}{4}$

381. Which two nuclei contain the same number neutrons?
a) ${}^{12}_{6}C$ and ${}^{14}_{1}C$
b) $\frac{16}{7}$ N and $\frac{15}{8}$O
c) $\frac{23}{11}$ Na and $\frac{24}{12}$ mg
d) $\frac{32}{14}$ Si and $\frac{32}{15}$ P

Hints: c)

382. The maximum efficiency of an engine operating between the temperatures 400^0C and 60 ^{0}C is :
a) 50 %
b) 55 %
c) 85 %
d) 95 %

Hints: c)

n= $1 - \frac{T2}{T1}$

383. $\frac{(-1)^{n-1}\ (n-1)\quad a^n}{(ax+b)^n}$ is the nth derivative of
a) $f(x) = (ax+b)_n$
b) $f(x) = in\ (ax+b)_n$
c) $f(x) = in\ (ax+b)_n$
d) $f(x) = in\ (ax+b)_n$

Hints: a)

384. A homogenous system has non trivial solution, if a is a coefficient matrix, then
a) Det (a) ≠ 0
b) Det (a) = 0
c) Det (a) <0
Det (a) > 0

Hints: b)

385. IF a is the first term and r is the common ratio of a G. P then a5=:
a) a_1 r 5
b) a_1 r 4
c) a_1 (r-1)
d) a_1 r

Hints: b)

386. Most of the enzy mes start showing activities in the range of PH between
a) 2- 4
b) 5- 9
c) 3- 5
d) 10- 12

Hints: b)

387. Hydrolysis of fats accords in the mount and stomach to a slight extent because:
a) Very small amount of lipase is secreted by the salivary glands
b) Small amount of lipase is secreted by the salivary glands
c) No lipase is secreted by the salivary glands
d) Large amount of lipase is secreted by the salivary glands

Hints: a)

388. Sulpholipids are class of compounds that bonds fatty acidsm alcohols and carbohydrates. It contains a:
a) Sophie groups
b) Supplied group
c) Sulphate group
d) Bisulphite group

Hints: c)

389. He said to me, have been looking for work But haven t found a job :
[Select the correct indirect speech]
a) He told me that he had been looking for work, but hadn't found a job.
b) He told me that he had looked for work, but didn't found a job.
c) He told me that he had being looked for work, but haven't found a job.
d) He tolled me that he was looking for work, but hadn't find a job.

Hints: a)

390. Thermocouples convert:
a) Chemical into electrical energy
b) Heat into electrical energy
c) Mechanical into electrical energy

d) Light into electrical energy
Hints: c)

391. The kindest energy and potential energy of a particle exciting simple harmonic motion will be equal when displacement is:
(where a is the amplitude)
a) $a\sqrt{\frac{2}{3}}$
b) $\frac{2}{3}$
c) $\frac{a}{2}$
d) a $\sqrt{2}$
Hints: c)
$K.E_T = P.F_{mxi}$
$\frac{K}{2}(a^2 - x^2) = \frac{K}{2}x^2$ x = $\frac{9}{\sqrt{2}}$

392. In a stationary wave the distance between consecutive antinodes is 25 cm. If the wave velocity is 300 ms` then the frequency of the wave will be:
a) 150 Hz
b) 300 Hz
c) 600 Hz
d) 750 Hz
Hints: c) $A^1 = \frac{a}{2}$
$V = f\lambda$
$F = \frac{v}{\lambda}$

393. Speed of a vector function:
V= 2i – 3k + 4k is:
a) 5
b) 29
c) 1
d) $\sqrt{29}$
Hints: d)
$v = \sqrt{v_x^2 + v_y^2 + v_z^2}$

394. If f(x) is integrable on the interbal (a, b) and has indefinite integral then:
F (x) $\int_a^b f$ (x) dx =
a) F (b) – F (a)
b) $\int_a^b f$ (x) dx =
c) – {F(a) – F(b)}
d) All of the above
Hints: a)

395. The estimated value of circumference of a circle with radius, r = 5/ 11 cm, is:
a) 10/ 7
b) 20/ 7
c) 7/ 5
d) 5/ 7
Hints: a)

396. Choose the macronutrient, mineral essential for life:
a) Zinc
b) Calcium
c) Manganese
d) Lodine
Hints: b)

397. Secondary structure of protins is elucidated by which of the following technique?
a) Infrared spectroscopy
b) N M R spectroscopy
c) X- ray diffraction technique
d) All of the above
Hints: c)

398. Ethanol reacts with $k_2 Cr_2 o_7$ and $H_2 So_4$ to give:
a) $CH_3 CH_2$ C OH
b) $CH_3 CH_2$ C OK
c) CH_3 C OH
d) $CH_3 CH_2 H_2 O_4$
Hints: c)

399. Choose the correct sentence.
a) I go outside and looked in at the field.
b) I went out side and look out at the field.
c) I went outside and looking out in the field.
d) I went outside and looked out at the field.
Hints: d)

400. If two bulbs 25W and 100 W respectively, each rated at 220 volts are connected in series with the supply of 440 volts. Which of the bulb will fuse?
a) 100W bulb
b) 25 W bulb
c) Both a) and b)
d) None of the above
Hints: b)

401. In 10 mintes 3000 coulomb of free electrons enter one end of a conductor and 300 coulomb leave the other end. The current is:
a) 5A
b) 10A
c) 30A
d) Zero
Hints: a)
$I = \frac{Q}{t}$
Q = It

402. An electron enters a magnetic field acting vertically downwards with velwcity v from east. The electron is deflected along.
a) North
b) South
c) East
d) West
Hints: a)

403. $\frac{\pm\sqrt{1-cos\,2\alpha}}{2}$ =
a) – sine α
b) Cos α
c) Sin α
d) – cos α
Hints: c)

404. For the parabola y^2 = - 4ax ends of the latusreactum are:
a) (-a, 2a), (-a, -2a)
b) (a,2a), (a, -2a)
c) (2a,a), (-2a,a)
d) (2a, 2a). (-2a,-2a)
Hints: c)

405. Slop of the tangent to the circle $x^2+y^2=2$, which makes an angle 30^o, with x – axis is equal to:
a) 0
b) -1
c) $\frac{1}{\sqrt{3}}$
d) Undefined
Hints: c)

406. Choose the correct reaction?
a) $(CH_3CO)_2\ O + NH_3 \rightarrow CH_3C\ NH_2 + CH_3COOH$
b) $(CH_3CO)_2 + NH_3 \rightarrow (CH_3CO)_2\ NH + H_2O$
c) $(CH_3CO)_2O + 2NH_3 \rightarrow 2CH_3 – C – NH_2$
d) $(CH_3CO)_2O + 2NH_3 \rightarrow 2CH_3CH_2\ NH_2 + H_2O$
Hints: a)

407. What is the suitable catalyst for the reaction given below?
$H –C = C – H + H_2O \rightarrow CH_2 = CHOH \rightarrow CH_3 – C – H$
a) Zn, HCL
b) Li AL H_4
c) $HgSO_4H_2SO_4$
d) AL_20_3
Hints: c) for hydration reaction catalyst always used will be $HgSO_4/H_2SO_4$.

408. Which one is Hydrazine?
a) NH2OH
b) R2NH
c) $C_6H_5HNNH_2$
d) H_2NNH_2
Hints:d) NH2 – NH2 (hydrazine)

409. Each occupation has its own -----; banders, lawyers and computer professionals, for example, alluse among themselves language which outsiders have difficulty following.
a) Merits
b) Disadvantages
c) Rewards
d) Jargon
Hints: d)

410. A long solenoid has magnetic field strength 3. 14 x 10^{-3} T inside it when a corrent of 5A passes through it. The number of turns in 1 m of the solenoid is:
a) 1000
b) 3000
c) 5000
d) 10000
Hints: c)
$B = \mu_o nl$
$B = \mu_o \frac{N}{I} I$
$N = \frac{BI}{\mu 0 I}$

411. The fringe width in young' s double slit experiment increases when?
a) Wavelength increases
b) Distance between the source and slit decrreases
c) Distance between the slits increases
d) The width of the slits increases
Hints: a)
F.W = $\frac{\lambda D}{d}$

412. Which of the following properties of an electron is made use of in the electron microscope?
a) High velocity
b) Wave nature
c) Interference
d) Diffraction
Hints: b)

413. $a_n = \frac{2n}{n+I}$ is the general term of:
a) 1,2,3,4.....
b) 1,4/3,6/4,8/5,.....
c) 1, ½, 2/3, 4/5,.....
d) None of the above
Hints: b)

414. Sum of the series 1, 1/3, 1/9,.....$1/3^n$ is:
a) Zero
b) 3/2
c) $1/3^n$
d) $n/3^n$
Hints:b)

415. Two vector $\vec{a}$ and $\vec{b}$ are called collinear if:
a) $\vec{a}$ = k$\vec{b}$ (for any scalar)
b) $parallel$ to each other
c) $\vec{a} = \vec{b} = 0$
d) $\vec{a} \neq$ kb
Hints:

416. Alcohols are weakly acidic with ka value in the range of:
a) 10^{-8} to 10^{-10}
b) 10^{-10} to 10^{-12}
10^{-12} to 10^{-15}
c) 10^{-16} to 10^{-18}
Hints:d) Alcohol weakly acidic because less ka value and more Pka value. Weak will be acid.

417. Choose the correct option of the following?
a) Ammonia is stronger base than Aliphatic primary amines
b) Aliphatic primary amines are stronger bases than ammonia
c) Aliphatic primary amines and ammonia have almost equal basic strength
d) Aliphatic amines are not basic in nature
Hints:b) NH3 is a weak base which R – NH2 primary amines are more basic than ammonia due to presence of Alkyl group which anhance electronegtivty of Nitrogen in turn power for accepting proton in R – NH2 will be greater.

418. Choose the correct IUPAC name of the compound given below?
a) 2 – Butene
b) Cis -2 – Butene
c) Tran 2 – Butene
d) Trans-dimethylethylene

Hints:c) same group on opposite side known as trans isomer.

419. Somebody broke into wur bungalow last Friday.
Select the correct passive voice:
a) Our bungalow was broken into last Friday.
b) Our bungalow was broken in last Friday.
c) Our bungalow is broken in last Friday.
d) Our bungalow was broken by somebody on last Friday.
Hints: c)

420. Magnetic field will not deflect:
a) γ – rays
b) β^{-1} – rays
c) β^{+1} – rays
d) α – rays:
Hints: a)

421. Work function for a certain surface is 3.26 eV. Minimum frequency, light must have in order to ejects election from surface will be:
a) 1.6x 10^{14} Hz
b) 3.2x 10^{14} Hz
c) 7.8x 10^{14} Hz
d) 6.4x 10^{14} Hz
Hints:
$Hf_o = \emptyset$
$f_o = \frac{o}{n}$

422. A radioactive substance has a half – life of 60 minutes. During 3 hours the percentage of the material decayed would be:
a) 12.5%
b) 87.5%
c) 8.5%
d) 25.1%
Hints:
$\frac{T}{8} x$ 100%

423. In equation $2x^2 + 2y^2 + 4x - 6y + 8 = 0$ centre is:
a) (-2,3)
b) (-ag,-af)
c) (-a/2, -f/2)
d) (2,3)
Hints:

424. S_{oo} of arithomaticgeomatic series is given by:
a) a / 1 –r
b) a/ 1 –r + dr/1 –r
c) a/ 1-r + dr/ $(1-r)^2$
d) None of the above
Hints:

425. Total three digit numbers formed from the digits 1,2,3 and 4 if repetition is allowed
a) 60
b) 64
c) 10
d) 24
Hints:

426. Choose the orrect name of the compound given below.
$Ag^x C \equiv C^- A g+$
a) Silver carbide
b) Alkynide
c) Silver dicharbid
d) None of the above
Hints: a)

427. Select the o/p directing group but ring deactivators of the following ?
a) – CH_3
b) – CI
c) – NO_2
d) – OH
Hints:b) All the halogens are except (f) are o/p directing group but ring deactivator. Halogens inductive effect is less than resonance effect.

59. A solution contain 2 mole of sucrose ***** in 6 mole of water. What is the mole fraction of sucrose?
a) 0.25
b) 0.75
c) 0.5
d) 3.0
Hints:

60. Choose the correct sentence.
a) With the vial set inside the fly box, all the flies could be put to sleep within seconds.
b) With the vial stted inside the fly box, all the lfies could be putting to sleep within seconds.
c) With the vial set inside the fly box, all the lfies could be putting to sleep within seconds.
d) With the vial set inside the fly box, all the fly could be put to sleep in seconds.
Hints: a)

61. In a nuclear reaction there is conservation of:
a) Only mass
b) Only energy
c) Only momentum
d) All of the above
Hints: d) in a nuclear reactor there is conservaton of mass, energy and momentum.

62. A charge Q is divided into two parts q and Q-q and separated by a distance R the face of repulsion between them will be maximum when:
a) q= Q/ 4
b) q= Q/ 2
c) q= Q
d) q= Q/ 8
Hints:
F= $\frac{K}{\gamma}$ (Q- q) q
If q= $\frac{Q}{2}$
Then Fm x *i*

63. A ball of mass o.5 kg is thrown mormally against a with at a speed of $12ms^{-1}$. It bounces back normally with a speed of 8 ms^{-1}. The collision lasts for 0.10 s. What is the average force on the ball due to the collision?
a) 0.2 N

b) 1 N
c) 20 N
d) 100N
Hints:
$F = \frac{\Delta p}{\Delta t}$
$F = \frac{mv2-mv1}{\Delta t}$

64. Equation of the normal to the circle $X^2+y^{2+}=a^2$at the point $(x_1,y_{1)}$
a) $xy_1-yx_1=0$
b) $xy_1-yx_1=0$
c) $x= y+ y_1 x = 0$
d) $xy_1-yy_1=0$
Hint:

65. Non – linear equation in the following equation is:
a) dv/dt = -32
b) dy /dx=x+1
c) $d^2y/dx^2+2xdy/dye=3$
d) $d^2y/dx^2+4y(die/dx)+y=cost$
Hints:

66. If f(x,y) is a given function, then
$\lim_{\Delta y\to 0} \frac{f(x,y+\Delta y)-f(x,y)}{\Delta y} =$
a) f_x
b) f_y
c) $d^2y/dx^2+2xdy/dx+y=3$
d) $d^2y/dx^2+4y(dy/dx)+y=cosx$
Hints:

67. The stability of colloidal system depends on:
(a) Charge on the particle (b) Solvation
(c) Brownian motion (d) All of the above
Hints:

68. Atomic size of xenon is larger than Neon. Considering the London dispersion forces which one of the following is true.
(a) Neon molecules have weaker London dispersion forces
(b) Xenon molecules have weaker London dispersion forces
(c) Xenon and Neon have almost same London dispersion forces
(d) Xenon have lower boiling point than neon
Hints:a)

69. The compound Y BaCu3 O3 consists of:
(a) Cu(I) and Cu(II) Captions
(b) Cu(II) and Cu(III) Captions
(c) Cu (III) and Cu(IV) Captions
(d) Cu(II) and Cu(IV) Captions
Hints:b)

70. Abid is _____ in his field; no other contemporary scientist commands the same respect.
(a) Disparaged (b) Ignominious
(c) Intelligent (d) Preeminent
Hints:b)

71. A science museum designs an experiment to show fall of a feather in a vertical glass vacuum tube. time of fall from rest is too close to 0.5 s. What le of tube is required?
(a) 1.3 m (b) 2.5 m (c) 5.0 m (d) 10.0 m
Hints:

72. When will 1C of charge pass a point in an electrical circuit?
(a) When 1A moves through a voltage of 1V
(b) When a power of 1W is used for 1s
(c) When the current is 5mA for 200s
(d) When the current is 10 A for 10s
Hints: *Q = it*

73. The intensity of beam of monochromatic light is
double, which of the following represent the
corresponding change if the intensity of the
monochromatic beam of light is double then the
corresponding change in momentum of each photon
will be:
(a) Increased (b) Double (c) Same
(d) Halved
Hints: c)

74. Let n be the unit vector orthogonal to both a and b then n?□□
Hints:c)

75. Pascal sequence for (n=3) is:
(a) 1, 1, 0, 0, 0, ….. (b) 1, 2, 1, 0, 0,….
(c) 1,3,3,1,0,0,… (d) 1,4,6,4,1,0,….
Hints:

76. Let
Z
be a complex number, then
Z.Z ? □
(d) All of the above
Hints:

77. The coloursof MN

and mN2+ solution in water are respectively:
(a) Intense dark purple color and colorless
(b) Light purple color and colorless
(c) Intense dark purple color and brown color
(d) Light purple color and brown color
Hints:a)

78. A ring contains 1.2gram of diamond, the number of
carbon atoms in the ring are:
(a) $N_a/10$
(b) N_a
(c) $N_a/2$
(d) 1.2 N_a
Hints:

79. Cylinder ―A‖ contain 4.6 grams of C2H5 OH and
cylinder ―B‖ has 3 grams C
2H6
:
(a) Both cylinder A and B have equal number of molecules

(b) Cylinder A has greater number of molecules than
cylinder B
(c) Both cylinders have the equal number of hydrogen atoms
(d) Both (a) & (c)
Hints:

80. They don‘t allow people to park in front of their gate.
Select the correct passive voice:
(a) People are not allowed to park in front of their gate.
(b) People are un-allowed to park in front of their gate.
(c) People were not allowed to park in front of their gate.
(d) People were not being allowed to park in front of
their gate.
Hints:a)

81. The tip of a needle does not give a sharp image. It is
due to:
(a) Polarization (b) Interference
(c) Diffraction (d) Refraction
Hints:c)

82. A fluid is undergoing incompressible flow which
represents that:
(a) The pressure at a given point cannot change with time
(b) The velocity at a given point cannot change with time
(c) The density cannot change with time or location
(d) The velocity must be the same everywhere
Hints:

83. If C and R denote the capacity and resistance
respectively the dimensions of CR are:
Hints: Rc=t

84. If y = f (x) is continuous on (a, b) then f (x) has
inflection point at x = c, if:
(a) f′ (c) = 0
(b)f′ (c) > 0
(c)f′ (c)< 0
(d)f′′ (c) = 0
Hints:

85. $2x^2+ 2y^2- xy-2y= 0$ does not represent a circle,
because
(a) Degree is not two
(b) Involving the term xy
(c) Coefficient of x2and y2are unequal
(d) None of the above
Hints:

86. One root of Z
2 + 2Z + 1 = 0 is given by:
(a) –1 + i (b) 1 + 2i (c) 1 – i (d) 1 + i
Hints:

87. Helium shows negative joule Thomson effect due to
its:
(a) Low viscosity (b) Inert nature
(c) Resistance to polarize (d) Low density
Hints: c)

88. Bond energy of covalent bond decreases with the
increase in:
(a) Polarity (b) Multiplicity
(c) Size of atom (d) All of the above
Hints: c)

89. What volume of oxygen is required for complete
combustion of 5cm3of CH4and 5cm3of C2H4
in same conditions?
(a) $5cm^3$
(b) $10cm^3$
(c) $25cm^3$
(d) $15cm^3$
Hints: b) according to Avogadro’s law V+N=Volume of oxygen

90. He said to her, ―What a hot day!‖ Select the correct
Indirect speech:
(a) He exclaimed sorrowfully that it was hot day
(b) He told her that it was a hot day
(c) He exclaimed that it was a very hot day
(d) He said that it was a hot day
Hints:

91. The power loss, P in resister is calculated by using the formula $p = V+^2/R$. the uncertainty in the potential difference V is 3% and the uncertainty in the resistance R is 2%. What is the uncertainty in P?
a) 1%
b) 7%
c) 8%
d) 11%
Hints: P = 2 (2%) + 2%

92. Vectors →A and →B each have magnitude L. when drawn with their tolls at the same point, the angle between
them is 30^0. The value of $\vec{A}\vec{B}$ is:
(a) Zero
(b) L2
(c) $\sqrt{3l2}$ /2
(d) $2L^2$
Hints: $\vec{A}\vec{B} = l^2 Cos30^0$

93. A stone is thrown upward from the top CA = 59.4m
high cliff with an upward velocity component of
19.6m/s. How long is stone in the air?
(a) 4.00 s (b) 5.00 s(c) 6.00 s (d) 7.00 s

Hints:

94. A square matrix C = [c_{ij}]is called upper triangular if:
(a) $a_{ij} = 0 \forall i>j$
(b) $a_{ij} = 0 \forall i<j$
(c) $a_{ij} = 0 \forall i = j$
(d) Both (b) & (c)
Hints:

95. The tangent line x + y = 0 intersects the parabola x
2
=
y
1
at:
(a) Two coincident point
(b) Two real distinct points
(c) Two imaginary points (d) All of the above
Hints:

96. Newton-Raphason method for numerical approximation of a function f (x) = 0 is:
Hints:

97. Which of the following sample contain maximum
number of atoms?
a) 4 grams of H2
(b) 28 grams of N2
c) 22.4 grams of co_2 at STP
(d) 1.5 mole of O_2
Hints: a) No of atoms of g of $H_2$1 mole of H_2 = 2g of H = 6.022 x 10^{23}

98. Earthen pots keep water cool in hot summer due to:
(a) Capillary action (b) Surface tension
(c) Evaporation(d) Combined effect of (a)&(b)
Hints: d) earthen pots keep water cool due to capillary action and surface tension.

99. In the compound
CH2
=
CH –
CH =
CH2

(a) C-1 and C-2 are SP2 hybridized
(b) C-1 and C-2 are SP hybridized and C-2 and C-3 are
SP2 hybridized
(c) All the carbon atoms are SP2 hybridized
(d) All the statements are wrong
Hints: c)

100. Choose the correct sentence
a) My father is thinking that I should stop smoking
b) My father thinks I should stop smoking
c) My father through I should stop smoking
d) My father think I should stop smoking
Hints: c)

101. A 5Kg concrete block is lowered with a downwar
acceleration of 2.8m/s
2
by means of a rope. The forc
of the block on the rope is:
(a) 14 N, up (b) 14 N, down
(c) 35 N, up (d) 35 N, down
Hints:

102. A monkey is accelerating down a string whose
breaking strength is two third of his weight. The
minimum acceleration of the monkey should be:
(a) 1/3 g (b) 2/3 g (c) g (d) 0 m/s
Hints:

103. For a wheel spinning on an axis through its center, the
ratio of the radial acceleration of a point on the rim to
the radial acceleration of a point halfway between the
center and the rim is:
(a) 1 (b) 2 (c) ½ (d) 4
Hints: $a_c = rw^2$

104. In the polynomial p
x(x) = anx+ an-1x+ ….+ ao, on is called leading coefficient if:
(a) n< 0 (b) n < 0 (c) n ≠0 (d) $a_n \neq 0$
Hints:

105. If measure of the central angle of a minor are is □, then
measure of the angle made by the major are is:
(a) $^1/_2$.(b) 20 (c) 30 (d) 10
Hints:

106. For what value of ‗m' the angle between
→a = m ∧i +∧ j - ∧k and ⃗b = i∧ +∧ mj - k∧ is and b i m j k, is 3? (a) 1 (b) 14
(c) 0 (d) 2
Hints:

107. Fullerenes are solid allotropes of:
(a) Fluorine (b) Phosphorus (c) Sculpture (d) Carbon

108. DDT is used as insecticides its molar mass is
354.5g/mol when DDT was analysed by chemist he
found that it contained 47.4% carbon. How many
carbon atoms are there in DDT molecule:
(a) 10 (b) 12 (c) 14 (d) 16
Hints:

109. Which of the following has the same number of
electron as an alpha particle;
(a) He (b) H (c) H+
(d) Li+
Hints: c)

110. Choose the correct sentence
(a) He probably isn‘t going to come to school tomorrow.
(b) He probably doesn‘t go to school tomorrow
(c) He probably isn‘t go to come to school tomorrow
(d) He probably won‘t come to school tomorrow
Hints: c)

111. A piston in a gas supply pump has an area of 500 cm
2
and
it moves a distance of 30cm during one stroke. The pump
moves the gas against a fixed pressure of 4000 Pa. How
much work is done by the piston during one stroke?
(a) 60 J
(b) 6.0 x 10^3J
(c) 6.0 x 10^5 J
(d) 6.0 x 10
Hints:
w = pdv
w = PA.S

112. A 0.50-kg block attached to an ideal spring with a
spring constant of 80N/m oscillates on a horizontal
frictionless surface. The total mechanical energy is
0.12 J. the greatest speed of the block is:
(a) 0.15m/s (b) 0.49m/s (c) 0.69m/s (d) 1.46m/s
Hints:
$v = \frac{k}{m}(r^2 - x^2)$
$v = \frac{2}{m} \times \frac{k}{2}(r^2 - x^2)$
$v = \frac{2}{m}(E)$

113. Two trailers, X with mass 500 kg and Y with mass
2000 kg, are being pulled at the same speed. The ratio
of the kinetic energy of Y to that of X is:
(a) 1:1 (b) 2:1 (c) 4:1 (d) 9:1
Hints:

114. The approximate solution of a function y = f (x) lies in
the interval (a, b) if:
(a)f (a)f (b)> 0
(b)f (a)< 0
(c)f (a)f (b)< 0
(d) f (b) 0
Hints:

115. The multiplicative inverse of Z = (–1, 1) is:
(a)12
(b)11,22
(c)12
(d)11,22
Hints:

116. If 125a8, 2r5, n7□, then na □;
(a)16625
(b)8125
(c)62516
(d)16125
Hints:

117. Grain spirit is:
(a) Isopropyl alcohol (b) Isobutyl alcohol
(c) n-propyl alcohol (d) Ethyl alcohol
Hints: d)

118. Pickup the Arrhenius acid or Base:
(a) BF3
(b) NH3
(c) AlCl3
(d) None of the above
Hints: d)

119. In auto mobiles ethylene glycol is used to prevent:
(a) Freezing of water in cold winter
(b) Boiling of water in hot summer
(c) Drying up radiator (d) Both (a) & (b)
Hints: d)

120. Chose the word most similar in meaning to the
capitalized word ―IGNOMINY‖:
(a) Dishonor (b) Enthusiasm (c) Besiege (d) Contrary
Hints: a)

121. In the equation dsin□ = m□ for the lines of a diffraction
grating m is:
(a) The number of slits (b) the slit width
(c) The slit separation (d) The order of the line
Hints:

122. Two point particles, one with charge +8 □ 10
–9
C and
the other with charge –2 □ 10
–9
C, are separated by 4m.
The electric field in N/C midway between them is:
(a) 9 x10
(b) 13, 500 (c) 36 □ 10–9
(d) 22.5
Hints:

123. The time constant RC has units of:
(a) Second/farad (b) Second/ohm
(c) 1/second (d) None of the above
Hints: d)

122. If fx and gx are two functions, then
1f g x?
(a)g f x
(b)11 f g x

(c) 11 g f x
(d)1gfx
Hints:

123. ca log a.log b?
(a)clog a
(b)blog c
(c)clog b
(d)1
Hints: d)

124. Domain of the function f (x) = is:
(a) Set of real numbers
(b) Set of non-zero real numbers
(c) Set of whole numbers (d) None of the above
Hints: d)

125. Which of the following species have the same number of neutron and electron as in C-14:
Hints:

126. For which of the following standard heat of formation is not zero:
(a) Cl2
(b) Na
(c) Br2
(d) Hg(l)
Hints:

127. Choose the correct order of decreasing basic strength
(a) MgO< Na2O > P4O10> Al2O3
(b) Al2O3>MgO> P4O10> Na2O
(c) Na2O >MgO> Al2O3> P4O10
(d) P4O10> Na2O >MgO> Al2O3\
Hints: c)

128. The Govt. is making arrangements to _____ the fugitive who is now being detained in a foreign country.
(a) Exile (b) Extradite (c) Exonerate (d) Expel
Hints: c)

129. The Govt. is making arrangements to _____ the fugitive who is now being detained in a foreign country.
(a) Exile (b) Extradite (c) Exonerate (d) Expel

130. A rectangular loop of wire has area A. It is placed perpendicular to a uniform magnetic field B and then spin around one of its sides at frequency f. the maximum induced emf is:
(a) BAf (b) 1BAf (c) 2BAf(d) 2□BAf

131. A 35-□F capacitor is connected to a source of sinusoidal emf with a frequency of 400 Hz and a maximum emf of 20 V. The maximum current is:
(a) 0 (b) 0.28 A (c) 1.8 A (d) 230 A

132. The probability of selecting a prime number from the set {1, 2, 3 … 20} is:
(a)920
(b)12
(c)25
(d)720
Hints:

133. If y = Cos2x, then y3=:
(a) –4 cos 2x (b) –4 sin 2x
(c) 4 cos 2x (d) 4 sin
Hints:

134. If 21f x dx 6,21g x dx 9, then 213f x 4g x dx:
(a) 18 (b) 54 (c) 35 (d) 60
Hints:

135. Which of the following compounds has acidic hydrogen?
(a) Ethylene (b) 2-butyne
(c) Propyne (d) 3-butadiene
Hints:

136. Benzene molecule have six carbon atoms and six hydrogen atoms the NMR spectrum of benzene will show:
(a) 12-peaks (b) 6-peaks
(c) 3-peaks (d) Only a single peak
Hints:

137. Reaction of water with magnesium is:
(a) Slow (b) Fast
(c) It is slow in the start and become fast at the end
(d) It is slow in the start and become very slow at the end
Hints: c)

138. Choose the word most similar in meaning to the capitalized word ―VESTIGE‖:
(a) Servile (b) Embark (c) Hunch (d) Indication
Hints:

139. The half-life of a radioactive isotope is 6.5 h. If there are initially 48 □ 1032 atoms of this isotope, the number of atoms of this isotope remaining after 26 h is:
(a) 12 x 1032
(b) 6 x 1032
(c) 3 x 1032
(d) 6 x104
Hints:

140. The proper time between two events is measured by clocks at rest in a reference frame in which the two

events:
(a) Occur at the same time (b) Occur at the same coordinates
(c) Are separated by the distance a light signal can
travel during the time interval
(d) Occur in Boston
Hints: d)

141. In a photoelectric effect experiment the stopping potential is:
(a) The energy required to remove an electron from the sample
(b) The kinetic energy of the most energetic electron ejected
(c) The potential energy of the most energetic electron ejected
(d) The electric potential that causes the electron current to vanish
Hints: b)

142. In terms of □, sin a = _____, where a, b, c are
length of sides of a triangle.
(a) 4sbc
(b)bc
(c)2bc
(d)2a
Hints: b)

143. The range of y = Cos–1x, is:
(a) ,22
(b) ,22
(c) 1 0,□
(d)10,22
Hints:d)

144. The eccentricity of an ellipse, 9x + 4y = 36, is:
(a) 35
(b) 53
(c)35
(d)53
Hints:

145. When chlorine water is added to K1 solution the
solution become
(a) Pale yellow (b) Violent
(c) Brown (d) Red
Hints:

146. Which of the following elements with the given electronic
configuration has the highest ionization energy?
(a) $1S^2 2S\ 2P^4$
(b) $IS^2 2S^2 2P^3$
(c) $IS^2 2S22P63S1$
(d) $IS^2 2S^2 2P^6 3S^2 3P^3$
Hints:

147. Lucas reagent is:
(a) H
2/ Pb2
(d) HCl/ZnCl3
(c) HCl/ NaNO2
Hints:

148. The custom department _____ the goods which were
being smuggled into Pakistan.
(a) Usurped (b) Grabbed
(c) Confiscated (d) Posses
Hints: b)

149. A radium atom,
226
Ra (Z = 86) emits an alpha particle.
The number of protons in the resulting atom is:
(a) 84 (b) 85 (c) 86 (d) 88
Hints:

150. The function of the control rods in a nuclear reactor is to:
(a) Increase fission by slowing down the neutrons
(b) Decrease the energy of the neutrons without absorbing
them
(c) Increase the ability of the neutrons to cause fission
(d) Decrease fission by absorbing neutrons
Hints: b)

151. Soft X-rays have:
(a) High energy (b) Low energy
(c) High frequency (d) Refracted by heavy atom
Hints: a)

152. If g x 3x 1, then 1g g x:
(a) Zero (b) x (c) g(x) (d) None of the above
Hints: d)

153. Coordinates of the focus of the Paramedical y 2 = –x is
given by:
(a) 1,0 (b)1,04 (c) 1,04 (d) 4, 0
Hints: b)

154. If 23x 2, for x 1fxx 1, for x 1, then f1is:
(a) –1 (b) 0 (c) 3 (d) 5
Hints:

155. 60 a.m. of C-12 contain carton atoms:
(a) 60 (b) 60 6.02 1023
(c) 56.021023
(d) 5
Hints:

156. The heat of vaporization of the liquid A, B and C are
60, 30 and 40 recall/mule respectively the order of
decreasing inter molecular forces among their
molecules is:
(a) A>B>C (b) C>B>A (c) A>C>B (d) B>C>A
Hints:

157. Complementary color of orange color is:
(a) Red (b) Green (c) Green blue (d) Yellow

Hints: b)

158. Choose the correct sentence
(a) I am much thankful to you
(b) I am quite thankful to you
(c) I am just thankful to you
(d) I am very thankful to you
Hints: d)

159. Two bodies of unequal mass, placed at rest on a frictionless surface, are acted on by equal horizontal forces for equal times. Just after these forces are removed, the body of greater mass will have:
(a) The greater acceleration
(b) The smaller momentum
(c) The greater momentum
(d) The same momentum as the other body
Hints: c)

160. Joule degree–1 is the unit for
(a) Solar constant (b) Boltzmann‘s constant
(c) Stefan‘s constant (d) Planck‘s constant
Hints:d)

161. An object moves in a circle. If the mass is tripled, the speed halved, and the radius unchanged, then the magnitude of the centripetal force must be multiplied by a factor of:
(a) 3/2 (b) 3/4 (c) 9/4 (d) 6
Hints b)

162. The general term n $u_n$of the series1 1 11.4.7 4.7.10 7.10.13, is:
(a)13n 2 3n 1 3n 1
(b) 13n 3n 1 3n 4
(c) 13n 1 3n 1 3n 4
(d)13n 2 3n 1 3n 4
Hints: b)

163. If are the angles of a triangle with a, b and as its sides, then which is the correct statement?
(a)2 2 2a b c 2bc.cos
(b) 2 2 2a b c 2bc.cos
(c) 2 2 2a b c 2bc.cos
(d)2 2 2a b c 2bc.cos
Hints:

164. Equation of a tangent to the parabola y 2+ 4zx in the slope form is:
(a)my maxi
(b) ay mm
(c)22 my m x a
(d) None of these
Hints:

165. Cr and Cr2 are inter convertible represented by equation:
Cr Yellow Orange
In the above reaction
(a) Cart as base
(b) Addition of base change the color from orange to yellow
(c) The addition of acid change the state of Cr from +6 to +4
(d) both (a) & (b)
Hints:

166. The polymer which contain nitrogen is:
(a) Pole theme (b) Polyester (c) Teflon (d) Nylon
Hints:

167. ----------

168. ―Be Poles apart‖ means:
(a) Either of the two poles
(b) Having nothing in common
(c) Leading position in a race
(d) Affect somebody greatly
Hints d)

169. A 2.5kg stone is released from rest and falls towards Earth after 4.0s, the magnitude of its momentum is:
(a) 98 kg .m/s (b) 78 kg . m/s
(c) 39 kg .m/s (d) (0)
Hints: b)

170. The angular speed of the minute hand of a watch is:
(a) $(60/\pi)$m/s (b) $(1800/\pi)$ m/s
(c) (39) m/s (d) $(\pi/1800)$ m/s
Hints: b)

171. One end of a cylindrical pipe has a radius of 1.5cm. Water (density = 1.0×10^3 kg/m^3j which mass is leaving the pipe is:
(a) 2.5kg/s (b) 4.9kg/s
(c) 48 kg/s (d) 7.0×10^3kg/s
Hints:

172. If f (x, y, z) = x + y = $\frac{1}{2}$ then $\frac{1}{az} f(0,0,z)$ =:
(a) z^2
(b) $\frac{1}{z2}$
(c)$2\times\frac{1}{z2}$
(d)-$\frac{1}{z2}$
Hints:

173. The rank of matrix _A‘ is the number of _____ rows in its echelon form.
(a) Zero (b) Identical (c) Non-zero (d) Equal
Hints:

174. The number of signals that can be given by six flags of different colors, using three flags at a time are:
(a) 6 (b) 3 (c) 120 (d) 18
Hints:

175. Which of the following cannot be explained by Bohr‘s theory?
(a) Be+++
(b) H (c) He (d) Li++
Hints:

176. A flask contain 6 gram of hydrogen gas

and 64 gram
oxygen at r.t.p the partial pressure of hydrogen gas in
the flask of the total pressure (p) will be:
(a) 2/3 p (b) 3/5 p (c) 2/5 p(d) 1/3 p
Hints:

177. Methanethiol and ethanethiol is added to the natural gas:
(a) To make the combustion of natural gas very easy
(b) To increase the boiling point
(c) to detect the gas leakage by smell
(d) Both (a) & (b)
Hints: c)

178. He said, ―May this child live long.‖ Indirect form of
the sentence is:
(a) He prayed that that child may live king
(b) He prayed that that child will living king
(c) He prayed that that child might live king
(d) He said that that child might live king
Hints:

179. It is impossible for two particles, each executing
simple harmonic motion, to remain in phase with each
other if they have different:
(a) Masses (b) Periods
(c) Amplitudes (d) Spring constants

180. On a warm day a pool of water trainers energy to the
air as heat and freezes. This is a direct violation of:
(a) The zeroth law of thermodynamics
(b) the first law of thermodynamics
(c) The second law of thermodynamics
(d) the third law of thermodynamics
Hints: c)

181. Polaroid glass is used in sun glasses because:
(a) It is cheaper
(b) It increases the light intensity to one and a half
times on account of polarization
(c) It reduces the light intensity to half its value on
account of polarization
(d) It produces irritation in the eye
Hints: c)

182. If $\theta = 0, \pm\pi, \pm 2\pi, \ldots\ldots, \pm n\pi$, n ∈ Z, then R - $\{\frac{t}{t} = n\pi$, n ∈ Z$\}$, is the domain of:
(a) Sine (b) Cosine (c) Tangent
(d) Cotangent
Hints: b)

183. If f (x,y,z) = $x^2ye^{2x} + (x+y-z)^2$ then $\frac{\partial}{\partial x}$ f(x,x,x) = :
(a)$3x^3 ex^2 + 2x^2 e^{2x} + 2x$
(b)$2^3e^{2x}+2x$
(c)$2x^3e^{2x}+2x^2e^2+2x$
(d)$3x^2e^{2x}+2x$
Hints: c)

184. The coefficient of x^5 in the expansion of $(2x3 - \frac{3}{x})^{10}$, is:
(a) - $(\frac{10}{5})$ $2^5 . 3^5$
(b) $(\frac{10}{5})$ $2^5 . 3^5$
(c) - $(\frac{10}{5})$
(d) $(\frac{10}{5})$
Hints:

185. If 2 2 2xf x, y, z x ye x y z , then f x, x, xx:
(a)3 2x 2 2x3x e 2x e 2x
(b)3 2x2 e 2x
(c) 3 2x 2 2x2x e 2x e 2x
(d)2 2x3x e 2x (a)
3 2x 2 2x
3x e 2x e 2x □□
Hints:

186. The coefficient of 5xin the expansion of 10232xx, is:
(a)55102 .35
(b)55102 .35
(c)105
(d)105
Hints:

187. A gas diffuses ½ times as fast as hydrogen gas its
molecular mass is:
(a) 32 a.m.u (b) 25 a.m.u (c) 8 a.m.u
(d) 16 a.m.u
Hints:

188. A solution has three components A, B and C. the mole
fraction of A and C are 0.15, 0.45 respectively the
mole fraction of is;
(a) 0.25 (b) 0.005 (c) 0.40 (d) 0.60
Hints: c)

189. Balance the given equation by using the suitable
coefficients from the following sets:
FeS2 + O2□ Fe2O3 + SO2
(a) 4:11:2:8 (b) 1:10:2:8 (c) 6:5:3:7
(d) 2:11:4:8
Hints: a)

190. Choose the word most similar in meaning to the
capitalized word ―REVILE‖:
(a) Perceive (b) Pawn (c) Abuse (d) Prevent
Hints:

191. A certain wire has resistance R. Another wire, of the
same material, has half the length and half the
diameter of the first wire. The resistance of the second
wire is:
(a) R/4 (b) R/2 (c) R (d) 2R

Hints:

192. The uncertainty in position of an election in a certain state is 5 □ 10–10m. The uncertainty in its momentum might be:
(a) 5.0 □ 10–24 kg .m/s(b) 4.0
(b) 10–24kg . m/s
(c) 3.0 □ 10–24kg .m/s
(d) All of the above
Hints:

193. A nucleus with mass number A and atomic number Z undergoes □ decay. The mass number and atomic number, respectively, of the daughter nucleus are:
(a) A, Z - 1 (b) A – 1, Z (c) A + 1, Z
(b) (d) A, Z + 1
Hints: d)

194. Period of the function y = 5 sin 3x, is:
(a) 52
(b) 32
(c)23
(d)2
Hints:

195. 1151 Tan Tan 6 11?
(a) 4
(b) 4
(c)5
(d)11
Hints:

196. Domain and range of the relation: x 2+ y2 = 9, is:
(a) R
(b)a a R, a 0
(c) 3, 3
(d)3, 3
Hints:

197. Which one of the following is carbolic acid?
(a) H 2CO3
(b) 5% solution of benzoic
(c) 5% solution of phenol
(d) 5% solution lactic acid
Hints: c)

198. ----------
Hints: a)

199. Methanol on treatment with Grignard‘s reagent CH3 Mgrs. the product formed is:
Methanol on treatment with Grignard‘s reagent CH3 Mgrs. the product formed is:
Hints: a)

200. The foreign ministers would not _____ on the talks ended in a dead lock.
(a) Consult (b) Negotiate
(c) concede (d) Compromise
Hints: d)

201. The tissues present in angiosperms but absent in gymnosperms are:
(a) Vessels (b) Companion cell
(c) Sieve tube (d) Both (a) and (b)
Hints: d) vessel elements in Xylem is the characteristic feature of Angiosperms and Companion cells of phloem is the characteristic feature of Angiosperms which is absent in gymnosperms and ferns.

202. Individuality of every persons is maintained by nucleotide genome sequence difference of:
(a) 1% (b) 2% (c) 3% (d) 5%
Hints: a) They`ve been discovering that Human don`t just have differenced within their genes. They also have differences in the number of copies of genes as well. The latest finding suggests that human difference between individuals in 1%. What is more interesting is that we are 98.7% chimpanzee.

203. Mature cells of cartilage are:
(a) Chondrocytes (b) Osteocytes
(c) Osteoblasts (d) Osteoclasts
Hints: a: cartilage is a connective tissue consisting of a dense matrix of collagen fibers and elastic fibers embedded in rubbery ground substance. The matrix is produced by cells called chondroblasts, which become embedded in the matrix as chondrocytes. That is, mature cartilage cells are called chondrocytes.

204. The total energy of a particle executing S.H.M. is:
(a) Inversely proportional to the square of the amplitude
(b) Directly proportional to the amplitude
(c) Zero
(d) Directly proportional to the square of the amplitude
Hints: d)

205. A weight suspended from an ideal spring oscillates up and down with a period T. If the amplitude of the oscillation is doubled, the period will be:
(a) T (b) 1 (c) 2T (d) T
Hints: a) As T = $2\pi\sqrt{m/k}$

206. A heat engine:
(a) Converts heat input to an equivalent amount of work
(b) Converts work to an equivalent amount of heat
(c) Takes heat in, does work, and loses energy as heat
(d) Uses positive work done on the system to transfer heat

from a low temperature reservoir to a high temperature
reservoir
Hints: c)

207. Choose the correct sentence.
(a) Each contained a different species of insect.
(b) Each contained a different species of insect.
(c) Each contained a different species of insects.
(d) Each contained a different species of insect.
Hints: b)

208. The hydrated captions of first transition series that
imparts a blue color:
(a) Cr^{+3}, CO^{+2}, $Cu+^{3}$
(b) Cu^{+2}, Zn^{+2}, $Ti+^{4}$
(c) Tt^{+3}, Zn^{+2}, $Cu+^{2}$
(d) Cr^{+3}, Tt^{+4}, $Cu+^{2}$
Hints: a)

209. Select the correct order of the acids strength?
(a)CH3COOH>>CHCl2COOH>CH2ClCOOH
(b)
CHCl2COOH>CH2ClCOOH>CH3COOH
(c)
CH2COOH>CHCl2COOH>CH2ClCOOH
(d)CHCl2COOH>>CH2COOH>CH2ClCOOH
Hints: d)
Because when electron withdraw group attached to carboxylic acid increases its acidity.

210. If 50 KV is the applied potential in ax X-ray tube then
the minimum wavelength of X-rays produced is:
(a) 0.2 nm (b) 2 nm (c) 0.02 nm(d) 2A
Hints: c) $\lambda = \frac{h}{E}$,

211. Two projectiles are in flight at the same time. The
acceleration of one relative to the other:
(a) Is always 9.8 m/s2
(b) Can be as large as 19.8 m/s2
(c) Can be horizontal (d) Is zero
Hints: d)

212. Choose the correct sentence.
(a) He can speak Japanese because he was born in Canada.
(b) He can speak Japanese until he was born in Canada.
(c) He can speak Japanese even though he was born in Canada
(d) He can speak Japanese so he was born in Canada.
Hints: c)

213. Which is not correct about the manufacture of ammonia by Haber – Process? The break opening of the nitrogen triple bond (N □ N) to form N2H2in first step of the reaction is taken as:
(a) Very difficult step (b) Highly unstable (b) product
(c) Highly endothermic (d) None of the Above
Hints: c)

214. hydrogenolysis Carbon monoxide can be converted by
to alkanes by the process known as:
(a) Contact process
(b) Fischer-tropic (FT) process
(c) Fermentation process
(d) Haber-Bosch process
Hints: d)
Fischer tropic is the process by which co and H_2 converted into alkanes'
$CO+H_2 \rightarrow CnH_2n+2$

215. How much phosphorus is required by an adult man per
day?
(a) 500 mg (b) 400 mg (c) 800 mg
(d) 1800 mg
Hints: c) Phosphorus is an essential macromineral, meaning to be healthy you must include this nutrient in your diet. Dietary sources include almost all foods. Phosphorus is the second most abundant mineral nutrient in the body, after calcium. Adults need about 800 mg
daily.

216. Of the following the dioeciously plant be
(a) sun-flower (b) Wheat
(c) Mulberry (d) Maize
Hints: A dioeciously plant is a plant with male and female reproductive parts on separate plants. The male and female parts are known as the staminate and the pistil late, respectively. Some well-known Dioeciously plants include holly,
asparagus, dates, mulberry, ginkgo, persimmons, currant bushes, juniper bushes, sago, and spinach.

217. Each kidney of human being is weighing about:
(a) 140 grams (b) 160 grams
(c) 130 grams (d) 150 grams
Hints: The kidneys are dark red, slightly flattened, bean shaped organs about 12cm long, 6cm wide and 4cm thick each weighing about 150 grams.

218. How many sodium ions (Na+) will be pumped out, when IO-potassium ions (K+) are transported inward of resting member potential.
(a) 5 (b) 10 (c) 15 (d) 20
Hints: c) For every two K+ ions that are actively transported inward, three Na+ are pumped out

219. At absolute zero the molecules of

hydrogen gas will have:
(a) Only translational motion
(b) Only vibrational motion
(c) Only rotational motion
(d) All the motion are ceased
Hints: b)
Because at absolute temperature all the hydrogen gas changes to solid and in solids vibration motion occurs.

220. Which one of the following discovered the vaccine for first time against the small pox in 1796.
(a) Edward Jenner (b) Hoi stem wings
(c) F. H Harbor (d) JammesShwang
Hints: a) Smallpox vaccine, the first successful vaccine to be developed, was introduced by Edward Jenner in 1796. He followed up his observation that milkmaids who had previously caught cowpox did not later catch smallpox by showing that inoculated cowpox protected against inoculated smallpox.

221. The main axis culminates in a flower and produces three or more daughter axis each of which continues the branching in similar manner is know as:
(a) Uniparous cyme (b) bigamous cyme
(c) Multiparous cyme(d) Cymosecapitulum
Hints:

222. The ripened & fertilized ovule is called:
(a) Fruit (b) Seed
(c) Endosperm (d) Per sperm
Hints: b) A seed is a ripened ovule. At the time of separation from the parent plant it consists of an embryo and stored food sypply, bothy of which are encased in a protective covering. The activation of the metabolic machinery of the embryo leading to emergence of a new seedling plant is known as germination.

223. In Compton scattering from stationary electrons the largest change in wavelength occurs when the photon is scattered through:
(a) 0^0
(b) 45^0c
(c) 90^0
(d) 180^0
Hints: d) $\Delta\lambda = \frac{h}{m.c}(1- \cos\theta)$

224. If the potential difference across a resistor is doubled: (a) Only the current is doubled
(b) Only the current is halved
(c) Only the resistance is doubled
(d) Only the resistance is halved
Hints: V=IR

225. Nuclear fusion in the sun is increasing in supply of:
(a) Hydrogen (b) Helium (c) Nucleons
(d) Positrons
Hints: b)

226. _____ my mind, what we need in this company i a better marketing plan.
(a) For (b) In (c) To (d) At
Hints: c)

227. A dilute hydrochloric acid is added to a flask containing time stone a gas is produced which is dissolved in time water in a test tube a white precipitate is formed the precipitate is of:
(a) $CaSO_4$
(b) $CaCO_3$
(c) $CaCl_2$
(d) $MgCO_3$
Hints: b)
$HCI + CaCO_3 \rightarrow H_2O + CO_2 + CaCI_2$ gas produce CO_2 passes to lime water $(CA/OH)_2$
$CO(OH)_{2(AG)} + CO_{2(g)} \rightarrow CaCO_{3(s)} + H_2O(I)$

228. 2XeF6+ SiO2□ 2XeOF4+ SiF4Consider the above chemical reaction. If 122.6 g of XeF6 reacts with 60 g of SiO2to form the products. Select the limiting reagent and amount of SiF4formed: (XeF6245.3 amu, SiO2= 60 amu,SiF4= 104 amu)
(a) XeF6, 26 g
(b) SlO2, 26 g
(c) XeF6, 52 g (d) SlO2, 52 g
Hints: a)

229. Ethanol reacts with CH3CH2Mg Br the product formed is:
(a) CH3CH2CH2OH
(b) $\frac{ch2}{ch3}$ >CHOH
(c)CH_3CH_2CHOH
(d)$CH_3CH_2CH_2COH$
(d)$CH_3CH_2CH_2COH$
Hints: c)

230. The functional group region in infra-red spectrum lies between:
(a) 500 – 1300cm–1
(b) 600 – 1500cm–1
(c) 1500 – 4000cm–1
(d) 2500 – 3500cm–1
Hints: c)

231. Which one of the following comes into existence when bacterial plasmid naturally modified to produce it?
(a) pBR 322 (b) Npq 303
(c) oSR 210 (d) kMG 319
Hints: a)

232. Exophthalmia is a classic symptom of:
(a) Hyperthyroidism (b) Hypocalcaemia
(c) Hypochondria (d) Hyperglycemia
Hints: a) exophthalmia refers to abnormal

protrusion of the eyeball or eye balls. This is an autoimmune condition that affects around one in every three people with an overactive thyroid gland (hyperthyroidism) caused by Graves` disease.

233. Percentage of CO carried by plasma is:
(a) 5% (b) 6% (c) 7% (d) 8%
Hints: c) carbon dioxide is more soluble in blood than is oxygen. About 5 to 7 percent of all carbon dioxide is dissolved in the plasma. Second, carbon dioxide can bind to plasma proteins or can enter red blood cells and bind to hemoglobin forming car boxy Hemoglobin (10%). Binding of carbon dioxide to hemoglobin is reversible. The majority of carbon dioxide molecules (85 percent) are carried as part of the bicarbonate buffer system.

234. In stationary waves:
(a) There is not transfer of energy
(b) Energy is constant at all points
(c) Phase is the same for all points
(d) both (a) & (b)
Hints: a)

235. If each vector have unit magnitude than $\vec{}A$. $\vec{}A$ is:
(a) South (b) One (c) North(d) West
Hints: b)

236. Which is not true about Grignard reagent?
(a) They are highly reactive compounds
(b) They are very stable compounds and can be isolated easily
(c) They have synthetic importance
(d) They are represented by general formula RMgX.
Hints: b)

237. Choose reaction that is not correct?
(a)22 || ||OOOH SOCl Cl Hcl SO RC RC
(b)33 || ||OOOH PCl Cl Hcl DOCl RC RC
(c)3 2 3 3 2|| ||23OOCH COOH P O CH O CC H O CCH C
(d)3 2 3 3 2 3|| ||OO CH OH C H Cl CH Cl C H OH CC
Hints: b)

238. —C.S.F‖ is found in between.
(a) Pia matter and Dura mater
(b) Pia mater and arachnoid mater
(c) Pia mater and neural canal
(d) Dura mater and arachnoid mater
Hints: b) The cerebrospinal fluid (CSF) is produced from arterial blood by the choroid plexuses of the lateral and fourth ventricles by a combined process of diffusion, pinocytosis and active transfer. It is present between Arachnoid mater and pia mater (meninges layer consists of pia mater, Arachnoid Mater and Dura mater)

239. Kelps are:
(a) Diatoms (b) Red-algae
(c) Green-algae (d) Brown-algae
Hints: d) kelps are large seaweeds (algae) belonging to the brown algae (phaeophyceae) having approximate length of 100m,

240. Independent gametophyte and sporophyte are found in:
(a) Liverworts (b) Tracheophytes
(c) Ectocarpus (d) Mosses
Hints: c) Alternation of Generations. …In bryophytes (mosses and liverworts), the dominant generation is haploid, so that the gametophyte comprises what we think of as the main plant. The opposite is true for tracheophytes (vascular plants), in which the diploid generation is dominant and the sporophyte comprises the main plant .

241. In a purely resistive circuit the current:
(a) Leads the voltage by one-half of a cycle
(b) Leads the voltage by one-fourth of a cycle
(c) Leads the voltage by one-half of a cycle
(d) Is in phase with the voltage
Hints: d)

242. ----------

243. ----------

244. Your friend proved more sympathetic than I, expected he _____ do.
(a) will (b) shall (c) would (d) should
Hints: c)

245. XYZ are the elements in the same short period of the periodic table the oxide of X is amphoteric the Exide of Y is basic and the Exide of Z is acidic what is the order of increasing atomic number for these elements?
(a) XYZ (b) XZY (c) YXZ(d) ZXY
Hints: c) X=amphetric, Y=Basic, Z=acidic order of increasing atomic number for these elements.
Basic → amphoteric, → acidic
Y → X → Z = YXZ

246. In which of the following reaction hydrogen acts as oxidizing agent.
(a) $H_2 + Cl_2 \rightarrow 2HCl$
(b) $C_2H_4 + H_2 \rightarrow C_2H_6$
(c) 2Na + H2→2NaH
(d) $N_2 + 3H_2 \rightarrow 2NH_3$
Hints: c)
$Na0 + H_20 \rightarrow 2Na^{+1}H^{-1}$

247. The correct order of the reactivity of hydrocarbon given below is:
(a) $C_2H_4 > C_2H_2 > C_6H_6$
(b) $C_6H_6 > C_2H_4 > C_2H_4$
(c) $C_2H_2 > C_2H_4 > C_6H_6$
(d) $C_2H_4 > C_6H_6 > C_2H_4$
Hints: a)
In this order reactivity order is increasing because Alkene >Alkynes >Benzene, Alkynes are less reactive than alkanes

because of two pi bonds.

248. The guard cell of the stomata in Monocot is:
(a) Kidney shape (b) Oval
(c) Rounded (d) Dumbbell shaped
Hints: d) kidney or bean shape guard cells are found in Dicot plants whereas Dumbel-shape

249. Photorespiration involved the following reaction which occurs in the sequence of:
(a) Glycolate→Glycine, Glycine →Serine+CO_2,
RuBP + O_2→Glycolate
(b) RuBP+ O_2→Glycolate, Glycine →Serine+CO_2, Glycolate→Glycine
(c) RuBP+ O_2 →Glycol ate,Glycolate→Glycine,
Glycine →Serine + CO_2
(d)Glycine →Serine + CO_2, RuBP+ O_2→Glycolate, Glycol ate→Glycine

250. Which of the following statement is correct?
(a) High concentration of ADH increases blood pressure
(b) High concentration of ADH decreases blood pressure
(c) High concentration of ADH does not affect blood pressure
(d) High concentration of ADH bring blood pressure to normal
Hints: d) ADH is a hormone made by the hypothalamus in the brain and stored in the posterior pituitary gland. It tells the kidneys how much water to conserve. ADH constantly regulates and balances the amount of water in blood. Higher water concentration increases the volume and pressure of blood.

251. The number of ejected photoelectrons increases with
increase.
(a) In intensity of flight (b) In wavelength of light
(c) In frequency of light (d) Never
Hints: a)

252. How many oxygen atoms are present in 278g of
Hydrated Ferrous Sulphate?
(FeSO4.7Hz 0 = 278 any)
(a) 6.023 × 1023
(b) 6.525 ×1024
(c) 2.408 ×1023
(d) 6.023 ×1022
Hints: a)
n$\frac{no\ of\ particles}{NA}$
No. of particles (atom) = n × NA
n = $\frac{mass}{molar\ mass}$
$\frac{278}{278.0146}$ = 1
No. of atoms = $\frac{1 \times 6.022 \times 1023}{= 6.022 \times 1023}$

253. Porifera is related to the sub Kingdom of:
(a) Protozoa (b) Parazoa (c) Metazoa
(d) Aves
Hints: b) The protozoa are considered to be a subkingdom of the kingdom Protista. The parazoa are an ancestral subkingdom of animals, literally translated as beside the animals.
Parazoa display no body symmetry (are asymmetrical); all other animal groups display some sort of symmetry. There are currently
5000 species, 150 of which are freshwater. Larvae are planktonic and abults are sessile. Metazoa are multicellular organisms.

254. The females of one of the following classes possess a single overy, that is:
(a) Pisces (b) Amphibia (c) Reptilla (d) Aves
Hints: d) In the primitive jawless fish, and some teleosts, there is only one ovary, formed by the fusion of the paired organs in the embryo.

255. The florescent pigments in the eyes of fruit fly is an
example of:
(a) Over dominance (b) Complete dominance
(c) Incompliete (d) Co-dominance
Hints: a) overdominance : the condition wherein a heterozygote produces a phenotype more extreme or better adapted than that of the homozygeote.

256. The number of loops in the standing waves is directly
dependent on:
(a) Wavelength (b) Frequency
(c) Velocity (d) Speed
Hints: d) $fn=nf_1$

257. In Einstein‘s universe what is the fourth dimension:
(a) Distance (b) Speed (c) Time (d) Energy
Hints: c)

258. A.C and D.C have the same:
(a) Affect in charging battery
(b) Affect in charging capacitor
(c) Heating effect through a resistance
(d) Affect passing through an inductance
Hints: c) RMS values

259. —I am disappointed that you feel you have to lie to me, lason,‖ said his father.
Select the correct indirect speech:
(a) His father said to Jason that he is sorry to feel
disappointed that he has to lie to me.
(b) Jason‘s father said to him that he was sorry that he felt he had to lie to me.
(c) Jason‘s father said that he was disappointed to know that he felt he had to lie to him.
(d) Jason‘s father was disappointed and sorry that he had to lie to him and that he felt it.
Hints: c)

260. Which is strong electrolyte?
(a) $Ca(OH)_2$
(b) $SiCI_4$
(c) KCl
(d) $SrCl_2$
Hints: c)
KCL → it is a strong electrodyle and dissociates completely. It is move ionic compound than others and good at solvating ions.

261. The roots given out from rhizome of fern are called:
(a) Pneumatophore (b) Phizophores
(c) Rhizoids (d) Adventitious roots
Hints: d) pneumatophore: an aerial root specialized for gaseous exchange.
Rhizophore: A downward-growing stem in moss that forms roots. Rhizoid: a filamentous outgrowth or root hair on the underside of the thallus in some lower plants, especially mosses and livewords, serving both to anchor the plant and
(in terrestrial forms) to conduct water.
Adventitious roots: some roots, called adventitious roots, arise from an organ other than the root usually a stem, sometimes a leaf. They are especially numerous on underground stems. The formation of adventitious roots makes it possible to vegetatively propagate many plants form stem or leaf cuttings.

262. Pigment combination of a carotenoid is:
(a) Blue, green, brown, or red
(b) Orange, yellow, blue, or brown
(c) Yellow, orange, red, or brown
(d) Blue, red, orange, or brown
Hints: c) carotenoids are land pigments responsible for right red, yellow and orange hues in many fruits and vegetables

263. The study of fishes is called:
(a) Ornithology (b) Ichthyology
(c) Herpetology (d) Ethoogy
Hints: b) ornithology is a branch of zoology that concerns the study of birds. Ichthyology is the branch of zoology that deals with fishes. Herpetology is the branch of zoology concerned with reptiles and amphibians. Ethology is the science of animal behavior.

264. X-rays are widely used as a diagnostic tool in
medicine because of its:
(a) Particle property (b) Cost of X-ray unit is low
(c) High penetrating power
(d) It is not electromagnetic waves
Hints: c)

265. To obtain greater dispersion by a diffraction grating:
(a) The slit width should be increased
(b) The slit width should be decreased
(c) The slit separation should be increased
(d) The slit separation should be decreased
Hints: a)

266. The unit ―henry‖ is equivalent to:
(a) Volt-second/ampere(b) Volt/second
(c) Ohm (d) Ampere volt/ second
Hints: a)

267. Choose the word most similar in meaning to the
capitalized word ―OBLITERATE‖:
(a) Offend (b) Haul (c) Rent(d) Destroy
Hints: d)

268. The compound Aldehyde hydrazone is:
(a) $\frac{R}{H} > C = N - NH_2$
(b) $\frac{R}{H} > CH - NH - O - NH_2$
(c) $\frac{R}{H} > CH - NH - NH_2$
(d) $\frac{R}{H} > CH - O - N = NH$
Hints: a)

269. Which is the correct IUPAC name of the compound
given below?
O = C – CH3
(a) Acetophenon
(b) Phenylethanone
(c) Phenyl ethanol
(d) Phenylacetate
Hints: b)

270. Chromium compounds in which oxidation state of
chromium is 2 + behaves as a:
(a) Strong oxidizing agent
(b) Strong reducing agent
(c) Very weak oxidizing agent
(d) Very weak reducing agent
Hints: b) Transition metals with small oxidation number are good reducing agents. $Cr^{+3}Cl_3^{-3}$are good reducing agents, $K^{+2}{}_2Cr^{+6}O^{-8}{}_4$are good oxidizing agents.

271. Primary amines on treatment with alkyl halide yield;
(a) Secondary amine (b) Tertiary amine
(c) Quaternary ammonium salt
(d) Mixture of (a), (b) & (c)
Hints: a)

272. D.N.A of bacterium is:
(a) Haploid, single stranded, coiled
(b) Diploid, double stranded, coiled
(c) Haploid, double stranded, coiled
(d) Diploid, single stranded, coiled
Hints: c) DNA is double stranded and since bacteria are generally considered genetically haploid, have a rapid generation time and can be easily grown to large population densities, traditional genetic analysis is that much more straight forward than for diploid eukaryotes.

273. Chiroptera are:
(a) Flying mammals (b) Flesh eating mammals
(c) Hoofed mammals (d) Aquatic mammals
Hints: c) chiropteran, hand wing, alludes to

the great elongation of the fingers that support the flying membrane. Bats are mammals of the order chiropteran whose forelimbs form webbed wings, making them the only mammals naturally capable of true and sustained flight.

274. The swallowing process is regulated by:
(a) Throat (b) Pharynx
(c) Medulla oblongata(d) Stomach
Hints: c) Swallowing is a complex mechanism using both skeletal muscle (tongue) and smooth muscles of the pharynx and esophagus. The reflex is initiated by touch receptors in the pharynx as a bolus of food is pushed to the back of the mouth by the tongue, or by stimulation of the palate (palatal reflex).

275. A total charge of 100C flows through a 12W bulb in a
time of 50 second. What is the potential difference
across the bulb during this time?
(a) 0.12V (b) 2.0V (c) 6.0V(d) 24V
Hints: c) $P = V\frac{Q}{T}$
$\frac{pt}{Q} = V$

276. The total energy of a hydrogen atom in its ground state
is:
(a) Zero (b) Negative
(c) Positive (d) None of the above
Hints: b) this function is known as la atomic orbtal. H atom in ground state has energy = -13.6V.

277. Becquerel is the unit of:
(a) Decay constant (b) Half life
(c) Mean life (d) Activity
Hints: d)

278. The revolution in art has not lost its steam; it
_____ on as fiercely as ever.
(a) Trudges (b) Meanders
(c) Ambles (d) Rages
Hints: a)

279. The principal has forbidden smoking on the campus.
Select the correct passive voice:
a) Smoking has been forbidden on the campus by the
principal.
b) Smoking had been forbidden on the campus by the
principal.
c) Smoking was being forbidden on the campus by
the principal.
d) It is forbidden by the principal to smoke on campus.
Hints: a)

280. Choose reaction that does not require ZnCl3 catalyst:
(a) $CH_3CH_2OH+HCI \rightarrow CH_3CH_2CI+H_2O$
(b) $CH_3CH_2OH+HBr$ □ $CH_3CH_2Br+H_2O$
(c) $CH_3CH_2OH + Hl$ □ $CH_3CH_2I+H_2O$
(d) Both (b) & (c)
Hints: d)

281. 81. Select the correct reaction of the following
(a) SnO + 4NaOH →Sn (OH)4+ 2Na2O
(b) SnO + 4NaOH →Na4Sn (OH)4
(c) SnO + 2NaOH →Na2Sn (OH)4
(d) None of the above
Hints: a)

282. Choose the true statement regarding the reaction given below 2Na(g)+ Cl2(g)→2NaCl(s)
(a) Chloride is oxidized and sodium is reduced
(b) Chlorine acts as an oxidizing agent and sodium as reducing agent
(c) Chlorine acts as a reducing agent and
(d) None of the above
Hints: b) The estimated 1.2 million [0.98-1.6 million] people dying from HIV globally in 2014

283. World-wide, mortality rate per annum due to AIDS is
more than:
(a) One million (b) Two-million
(c) Three million (d) five-million
Hints: b)

284. —Portuguese-man of warǁ is the:
(a) Desert-snake (b) Coelenterate
(c) A big-reptile (d) Black-forest monkey
Hints: c)

285. Rootless, stem-less and leafless plants are:
(a) Liverworts (b) Mosses
(c) Psilopsida (d) Onion
Hints: a) In Liverworts, the gametophytic plant body may be thallose (e.g.,Riccia) or foliose. In Mosses, the gametophytic plant body is differentiated into prostrate, branched filamentous, thalloidprotonema and leafy erect gametophore.

286. The changing electric flux in a certain region of spaceproduces:
(a) An electric field
(b) Magnetic field
(c) both S//and A//
(d) None of the above
Hints: b)

287. What are the values of principal quantum number and azimuthal quantum number for the last electron in Chlorine atom?
(a) 1.6 (b) 1.3 (c) 3.1 (d) 6.1
Hints: c)

288. $Kp= Kc(RT)^{2m}$in the equation if □n < 0 then:
(a) Kp= Kc
(b) Kp<Kc
(c) Kp>Nc
(d) Kp< 0
Hints: b)

289. Amphibians generally have three chambers in their
hearts. What type of chambers they are?
(a) One ventricle, one atrium, one outflow tract
(b) Two ventricles, one atrium
(c) One ventricle, one atrium
(d) One ventricle, one atrium, one sinus venous
Hints: c) The frog heart has 3 chambers: two atria and a single ventricle. The atrium receives deoxygenated blood from the blood vessels (veins) that drain the various organs of the body. The left atrium receives oxygenated blood from the lungs and skin (which also serves as a gas exchange organ in most amphibians).

290. Release of calcium from bone in to blood is controlled by
(a) Parathormone (b) Calcitonin
(c) Thyroxine (d) Both (a) & (b)
Hints: d) The parathyroid hormone (PTH), secreted by the parathyroid glands, is responsible for regulating blood calcium levels; it isreleased whenever blood calcium levels are low. PTH increases blood calcium levels by stimulating asteoclasts, which break down bone to release calcium into the blood stream.

291. That 1st field trial of genetically engineered plant soccurred in France and USA in:
(a) 1980 (b) 1982 (c) 1984 (d) 1986
Hints: d)

292. A laser beam can be sharply focused because it is:
(a) Highly coherent (b) Plane polarized
(c) Intense (d) Highly directional
Hints: d)

293. A charged capacitor stores 10 C at 40 V. Its stored
energy is:
(a) 400 J (b) 4 J (c) 0.2 J (d) 200 J
Hints: d) U = $\frac{1}{2}QV$

294. A hydrogen atom that has lost its electron is moving east in a region where the magnetic moving east in a region where the magnetic fields directed from south to north. It will be deflected:
(a) Up (b) Down (c) North (d) South
Hints: a)

295. Choose the word opposite in meaning to the
capitalized word ―TANGIBLE‖:
(a) Embodied (b) Conceptual
(c) Phenomenal (d) Verifiable
Hints: b)

296. The colour of thin films is a result of:
(a) Dispersion (b) Absorption of light
(c) Scattering of light (d) None of the above
Hints: d)

297. Together the old man and the young boy washed the dishes. Select the correct passive voice:
(a) The old man and the young boy were washing the dishes together.
(b) The old man and the young boy together washed the dishes.
(c) The dishes were washed by the old man and the young boy together.
(d) Together, the old man and the young boy wash the dishes.
Hints: b)

298. Shown below are portion of orbital diagrams
representing the ground state electronic configuration of certain elements. Which of them obeys the Pauli‘s exclusion principle? Hund‘s rules?
↑ ↑ ↑↑
↑ ↑↓ ↑
↑ ↑↑ ↑↓
Hints: c)
Hund`s rule states when degenerate orbital you have first filled electron with same spin then with opposite spin.

299. Chemical shift in NMR spectroscopy is expressed as delta (δ) or tan (t) scale. Choose the correct relationship between δ and t:
(a) δ= 10 – t
(b) δ= 10 + t
(c) t = δ– 10
(d) t = 10 – δ
Hints: d)

300. Choose the correct statement:
DDT an insecticide is considered as:
(a) Very unstable molecule having half-life ½ to 1 year.
(b) Unstable molecule having half-life 2 to 5 years.
(c) Stable molecule having half-life 5 to 8 years.
(d) Very stable molecule having half-life 10 to 15 years.
Hints: d) DDT is very stable compound

301. Sense of taste is called:
(a) Gustation (b) Tactition
(c) Nociception (d) Olfaction
Hints: a) Gustation: the action or faculty of tasting.
Tactition: Sence of touch and pressure.
Nociception: Sense of pain.
Olfaction: Sense of smell

302. Select meta directing group of the following?
(a) –OH (b) – NR2
(c) –CN (d) –OR
Hints: c) CN is meta dilectriq group because multiple bond attached to benzene are meta directing

303. The asmotic pressure of dilute solution is

given below by relationship:

a) $\pi = \frac{MRT}{C}$

b) $\pi = \frac{RCT}{M}$

c) $\pi = \frac{MR}{TC}$

d) $\pi = \frac{RC}{TM}$

Hints: b)

304. Choose the one which is not the assumption of collision theory of reaction rate:
(a) For chemical reaction to occur molecule/ particles must colloids
(b) For reacting molecules/ Particles must possess a certain minimum amount of energy, the activation of energy
(c) Every collision is not productive
(d) For hydrogen molecule formation from atoms require specific orientation
Hints: d)

305. Basidiocarps are developed by:
(a) Primary mycelium
(b) Secondary mycelium
(c) Tertiary mycelium
(d) Quaternary mycelium
Hints: c) The tertiary mycelium is simply an organized mass of secondary mycelium. It is a morphologically complex tissue and form structures such as the typically mushroom-shaped basidiocarps commonly seen in nature.

306. Outer wall of guard cell is:
(a) Thick & elastic (b) Thick & non elastic
(c) Thin & elastic (d) Thin & non elastic
Hints: c) The inner wall of a guard cell in thicker than the outer wall. When the guard cell is filled with water and it becomes turgid, the outer wall balloons outward, drawing the inner wall with it and causing to stomata to enlarge.

307. Eating of high carbohydrate food are signs and symptoms of:
(a) Obesity (b) Bulimia nervosa
(c) Dyspepsia (d) Anorexia nervosa
Hints: a) Bulimia Nervosa is a an eating disorder in which a person may eat a lot of food (Binje eating of high carbohydrates) and then try to get rid of the food by vomiting, using laxatives and over exercising.

308. The frequency at which 1 henry inductor have reactance of 500Ωis:
(a) 80Hz (b) 800Hz (c) 8000Hz (d) 50Hz
Hints: a) $f = \frac{X2}{2\pi L}$

309. A neutron with K.E equal to 0.04ev is called?
(a) Slow neutron (b) Thermal neutron
(c) Fast neutron (d) Both (a) and (b)
Hints: d)

310. Radiation damages living organism is primarily due to:
(a) Excitation phenomena (b) Ionization
(c) Photo electric effect (d) Heating
Hints: d)

311. . Communication technology has brought a tremendous revolution in modern societies. Select the correct passive voice:
(a) A tremendous revolution has been brought in communication technology in modern societies.
(b) In modern societies a tremendous revolutions has been brought in communication technology.
(c) A tremendous revolution has brought in communication technology in modern societies
(d) Communication technology has tremendous revolution brought in modern societies
Hints: a)

312. Pka values of some acids are given below: Choose the weaker acid?
(a) HClO4(–10)
(b) HBr (–9)
(c) H_2SO_4
(d) HCl (–7)
Hints: c)
The larger Ka, is the more negative the pKa so the lower the PKa, the stonger the acid H_2SO_4 (-3) Greater PKa→weak acid

313. The water formed in the combustion analysis is usually absorbed by:
(a) Mg (NO3)2
(b) Mg (ClO4)2
(c) Mg (OH)2
(d) Mg (ClO2)2
Hints: b)
Water in combustion analysis is absorbed by $Mg(ClO_4)_2$ which is deliquescent (white powder)

314. When small amount of ammonia is added to CUSO4solution in water, blue PPt of [Cu(H2O)4(OH)2] is formed. The blue PPt dissolves on addition of excess of ammonia.
The product formed is:
(a) [Cu(H2O)2(NH3)2(OH)2]
(b) [Cu(NH3)4(OH)2]
(c) [Cu (NH3)4(H2O)2]2+
(d) [Cu (NH3)3(H2O3]2+
Hints: a)
$[Cu(H_2O)_4(OH)]+NH_3 \rightarrow$

315. In case of immunity, the first line of body defense is:
(a) Macrophages (b) Lymphocytes
(c) Blood cells (d) Skin
Hints: d) skin – 1st line of defense
Cellular counterattack – 2nd line of defense
Lymphocyte mediated ammunity: Third line of defense.

316. Transport of organic solutes from the source of assimilation to the source of sink is:
(a) Transportation (b) Transduction
(c) Translocation (d) Transformation
Hints: c) Translocation moves photosynthates via the phloem from sources to sinks.
Transduction is the process by which foreign DNA is introduced into a cell by a virus or viral vector.
Transformation is one of three processes for`` horizontal gene transfer, in which exogenous genetic material passes from bacterium to another, the other two being conjugation (transfer of genetic material between two bacterial cells in direct contact and transducation (injection of foreign DNA by a bacteriophage.

317. The percentage of symbolic association by Ascomycota is more than:
(a) 50% (b) 40% (c) 20% (d) 30%
Hints: b) more than 40% of Ascomyctes live with green algae and cyanobacteria in beneficial symbiotic association forming lichens.

318. A vector of magnitude 20 is added to a vector of magnitude 25. The magnitude of this sum might be:
a) Zero (b) 3 (c) 12 (d) 47
Hints: c) $\vec{R} <\_ \vec{A} + \vec{B}$

319. Graphite is one of the allotropic form of Carbon it is:
(a) Isotropic (b) Anisotropic
(c) Bond conductor of electricity
(d) Both (b) & (c)
Hints: b)
Graphite is anisotropic property of being directionally dependent which implies different properties in different directions.

320. Delayed wound healing is caused by deficiency of:
(a) Zn (b) Fe (c) Co (d) Mn
Hints: b)

321. If one Faraday was to be 30,230 coulombs instead of 96,500 coulombs then charge on an electron is:
(a) 1.5 ×10–19C
(b) 1 ×10–19C
(c) 0.5 ×10–19C
(d) 6.02 ×10–19C
Hints: c) Q=ne

322. Which of the following statements is correct?
(a) Antipyretic drugs lower the temperature set point
(b) Antipyretic drugs rise the temperature set point
(c) Antipyretic drugs do not effect on temperature set point
(d) Antipyretic drugs first lower the temperature set point and then rise
Hints: a) Antipyretic is medication used to lower body temperature when a fever is present. Examples: Aspirin, acetaminophen (Tylenol), ibuprofen, and others.

323. Which of the following is correct about speed of nerveimpulse:
(a) Thicker the nerve fiber-less resistance to flow of current-faster the nerve impulse.
(b) Thicker the nerve fiber-more resistance to flow of current-slower the nerve impulse
(c) Thinner the nerve fiber-less resistance to flow of current-slower the nerve impulse
(d) None of the above
Hints: a) The speed at which nerve impulses travel depends on the diameter of the axon and the presence of the myelin sheath

324. Archaea live in both extreme and moderate
environments those living in extreme condition are called:
(a) Extremophil (b) Methanogeus
(c) Extremophyte (d) Extremogeus
Hints: a) An extremophile is an organism that thrives in physically or geochemically extreme conditions that are detrimental to most life on Earth.

325. In a cricket match 500 spectators are counted one by one. How many significant figures will be there in the final result?
(a) 0 (b) 1 (c) 2 (d) 3
Hints: d)

326. The time period of a simple pendulum is 2 seconds. If its length is increased by 4 times, then its period becomes:
(a) 16 s (b) 12 s (c) 8 s (d) 4 s
Hints: d) $\tau = 2\pi\sqrt{\frac{L}{g}}$

327. 127. A moving charged particle is surroundes ??
(a) 1 fields (b) 3 fields (c) 2 fields (d) 4 fields
Hints: c)

328. Water flows from a 6.0cm diameter pipe into 8.0cm diameter pipe. The speed in the 6.0cm pipe is 5.0m/s. the speed in the 8cm pipe is:
(a) 2.8m/s (b) 3.7m/s (c) 6.6m/s (d) 8.8m/s
AIVI = A2V2
Hints: a)
AI = $\pi\frac{D12}{2}$

329. I insist _____ the withdrawal of your statement.
(a) for (b) on (c) at (d) in
Hints: b)

330. In the CH3CH2C = CH + H2O →?
(a) CH3CHO + CH3CHO
(b) CH3CH2CH2CH2– OH
(c) CH3CH2CH2COOH
(d) CH3CH2COCH3
Hints: d)
CH3-CH2C=CH+H^+-OH →CH_3-CH_2-

$C=CH_2$

331. The infrared spectra commonly referred to as IR spectra is usually expressed as:
(a) Wave length (b) Wave number
(c) Frequency (d) All of the above
Hints: a)

332. Which statement is correct for three way catalytic converter:
(a) Reduces emission of unburnt HC‘s
(b) Reduces pollutants
(c) Oxidize pollutant like CO
(d) All of the above
Hints: d)

333. Which of the following are components of homeostatic mechanism;
(a) Receptor, Regulators, Effectors
(b) Receptors, Integrator, Effectors
(c) Sensors, Brain, Effectors
(d) All of the above
Hints: d) Homeostatic control mechanisms have at least three interdependent components: a receptor, integrating center, and effector. The receptor senses environmental stimuli, sending the information to the integrating center (brain and spinal chord) which signls an effector (e.g. muscles or an organ to respond to the stimuli.

334. The botanical name of deadly nightshade is:
(a) Atropa belladonna(b) Taxusbaccata
(c) Narcissus spp (d) Both (a) & (b)
Hints: a) Atropa belladonna, communly known as belladonna or deadly nightshade, is a perennial herbaceous plant (rhizomatous hemicryptophyte) in the Nightshade family (which includes tomatoes, potatoes, eggplant, etc.) Solanaceae, native to Europe, North Africa, and western Asia.

335. Hormone inhibin is produced by:
(a) Hypothalamus (b) Pituitary gland
(c) Prostrate (d) Sertoli cells
Hints: d) Inhibin is produced n the gonads, pituitary gland, placenta, corpus luteum and other organs. FSH stimulates the secretion of inhibin from the granulosa cells of the ovarian follicles in the ovaries. In turn, inhibin suppresses FSH.

336. A particle, held by a string whose other end is attached to a fixed point C, moves in a circle on a horizontal frictionless surface. If the string is cut, the angular momentum of the particle about the point: C.
(a) Increases (b) Decreases
(c) Does not change
(d) Changes direction but not magnitude
Hints: c)

337. An electron has charge-e- and mass m. A proton hascharge e and mass 1840m. A ―Proton volt‖ is equal to:
(a) 1 eV (b) 1840 eV
(c) (1/1840) eV (d) √
Hints: a)

338. The rotational inertia of a disk about its axis is 0.70 Kg. m2. When a 2.0-kg weight is added to itsrim, 0.40m from the axis, the rotational inertia becomes:
(a) 0.38 Kg – m2
(b) 0.54 kg – m2
(c) 0.86 kg – m2
(d) 1.0 kg – m2
Hints: c) $I = \frac{1}{2} mr^2$

339. As you have not prepared your work, …..
(a) You may not fail in the examination
(b) You could prepare harder next time
(c) You would do better in the examination
(d) You are not likely to do well this time
Hints: d)

340. Which of the following is closest to a yard:
(a) 0.01 m (b) 0.1 m (c) 1 m (d) 100 m
Hints: c)

341. You stand on a spring scale on the floor of an elevator. Of the following, the scale shows the highest reading when the elevator:
(a) Moves upward with increasing speed
(b) Moves upward with decreasing speed
(c) Remains stationary
(d) Moves downward with increasing speed
Hints: a) $F = T - W \Rightarrow T = F + W$

342. A wheel starts from rest and has an angular acceleration of 4.0 rad/s2. When it has made 10 rev its angular velocity is:
(a) 16 rad/s (b) 22 rad/s (c) 32 rad/s
(d) 250 rad/s
Hints: b)

343. Choose the word opposite in meaning to the capitalized word ―ANARCHIC‖:
(a) Riotous (b) Turbulent
(c) Disordered (d) Organized
Hints: d)

344. The electronic transition that is involved in the visible region is:
(a) σ– σ (b) d – d (c) π– π (d) π– σ
Hints: b)
d-d occurs only in transition element.

345. A water sample contains 3.8 ×103g of mercury per kilo gram of the sample. What is the concentration of mercury in parts per million?
(a) 3.8 ppm (b) 38 ppm (c) 0.38 ppm
(d) 380 ppm
Hints: a)

346. Select the reaction when the supply of air is very limited.
(a) CH4+ 202→CO2+ 2H2O + heat
(b) 2CH4+ 3O2→2CO2+ 4H2O + heat
(c) CH3– CH3+ 7O2→CO2+ 6H2O + heat
(d) 2CH4+ 2O2→2C + 4H2O + heat
Hints: d)

$CH_4+2O_2 \rightarrow 2C+4H_2O+heat$

347. All of the following are micronutrients accept
(a) Iron (b) Chlorine (c) Copper (d) Potassium
Hints: b) there are 7 essential plant nutrient elements defined as micronutrients [boron (B),zinc (Zn), manganese (Mn), iron (Fe), copper (Cu), molybdenum (Mo), chlorine (Cl)]. They constitute in total less than 1% of the dry weight of most plants.

348. Auxin travels by diffusion towards:
(a) Shoot (b) Flowers
(c) Leaves (d) Base of plant
Hints: a) In the root vasculature, auxin is transported directionally downwards, towards the root tip.

349. Reptiles flourished in _____ period.
(a) Jurassic (b) Mesozoic
(c) Metazolc (d) Both (a) & (b)
Hints: b) Reptiles flourished in Mesozoic era (225-65millio years ago).

350. Signal from a remote control to the device operated by it, travels with the speed of:
(a) Sound (b) Supersonic
(c) Ultrasonic (d) Light
Hints: d)

351. Frown on somebody' means to:
(a) Fall flat upon a stranger
(b) Stay alive working hard
(c) Unable to be successful
(d) Disapprove of somebody
Hints: d)

352. The main components of lipstick are:
(a) Mixture of non-volatile oil and solid wax
(b) Mixture of volatile oil and wax
(c) Fats and wax (d) Fates, oil and wax
Hints: a)

353. Which of the following solution will have
(a) 1 molar solution of urea
(b) 1 molar solution of glucose
(c) 1 molar solution of sodium chloride
(d) 1 molar solution of magnesium chloride
Hints: d)

354. The spin states of a nucleus of an atom in absence of applied magnetic field have:
(a) Different energies (b) Equal energies
(c) Zero energies (d) High energies
Hints: b)
Both have equal energies because no change will occur in the absence of magnetic field.

355. The Sulphur Bacteria which obtain energy by oxidizing H2S instead of water is called:
(a) Alpha proteobacteria (b) Beta proteobacteria
(c) Gamma proteobacteria
(d) Gamma proteobacteria
Hints: c) The purple sulfur acteria are a group of proteobacteria capable of photosynthesis, collectively referred to as purple bacteria. They are anaerobic or micreaerophilic, and are often found in hot springs or stagnant water. They use hydrogen sulfide, which is oxidized to produce granules of elemental sulfur.

356. Which of the following is non-steroidal hormone?
(a) Cortisol (b) Testosterone
(c) Insulin (d) Aldosterone
Hints: c) steroidal hormones a devaives of cholesol. E.g.cortisol, aldosterone, estrogen, progesterone and testosterone.

357. Stop codons are:
(a) UAA,UAG,UGA (b) UGC,UCG,AAA
(c) UUG,UCG,UCA (d) UAA,UGC,UCA
Hints: a) stop codons are sequences of DNA and RNA proteins by stringing amino acids together. There are three RNA stop codons: UAG, UAA, and UGA in DNA,the uracil (U) is replaced by thymine (T).

358. Which of the following electromagnetic waves has the smallest wavelength?
(a) X-rays (b) Gamma rays
(c) Microwaves (d) Ultraviolet rays
Hints: c) $\lambda = \frac{hc}{E}$

359. The temperature coefficient of resistance of a semiconductor is:
(a) Positive (b) Negative
(c) Imaginary (d) Zero
Hints: b)

360. The ground state energy of H-atom is 13.6 eV. The energy needed to lonize H-atom from its second excited state is:
(a) 1.51 eV (b) 3.4 eV (c) 13.6 eV (d) 12.1 eV
Hints: a)

361. The tissue culture method occur in the following sequence:
(a) Sterilization →media preparation →inoculation →callus development →plantlets
(b) Media preparation →sterilization →inoculation →callus development →plantlets
(c) Media preparation →inoculation →sterilization →callus development →plantlets
(d) Inoculation →sterilization →media preparation →callus development →plantlets
Hints: a)

362. A condition in which the artery is thickened and blocked by cholesterol is called.
(a) Arteriosclerosis (b) Atherosclerosis
(c) Thrombosis (d) Embolism
Hints: a) The thickening and hardening of the walls of the arteries, occurring typically in old age.

363. The path traced by ¡particles in air is:
(a) Straight (b) Erratic
(c) Circular (d) Elliptical

364. Angle that a body traverses at the centre of a circle in two turns is:
(a) 4πRads (b) 720
(c) 12.6 Rads (d) All of the above
Hints: d)

365. Two tuning forks of frequencies 256Hz and 260Hz are sounded together the time interval between two consecutive maximum sound heard by a listener is:
(a) 0.5 Sec (b) 2 Sec (c) 1 Sec (d) 0.25 Sec
Hints: d) $T=\frac{i}{f}$

366. Choose the word most similar in meaning to the capitalized word ―PRODIGIOUS‖:
(a) Enormous (b) Sacred (c) Seismic (d) Tiny
Hints: a)

367. Oligosaccharides are involved in the formation of:
(a) Secreted proteins (b) Blood clotting factors
(c) Anti-bodies (d) All of the above
Hints: d)

368. Select the correct product:

R – C □ N + N2O
The hydrolysis of Alkyl nitriles in the presence of acid form:
(a) R CO NH2
(b) R CH2NH2
(c) R–CJ–NH2
(d) R–C–OH OH | O ||b
Hints: d)

369. If p is a pressure and δis a density then p/δha units of:
(a) m2/s2
(b) N/m2
(c) Kg/m2
(d) m3/Kg
Hints: a)

370. Intrinsic semi-conductor can be converted into extrinsic semi-conductor by adding:
(a) Trivalent impurity (b) Pentavalent impurity
(c) Pentavalent or trivalent impurities
(d) None of the above
Hints: c)

371. A 30-cm long string, with one end clamped and the other free to move transversely, is vibrating in its second harmonic. The wavelength of the constituent traveling waves is:
(a) 10 cm (b) 30 cm (c) 40 cm (d) 120 cm
Hints: b) $l = n\gamma$

372. If you like sport, this is a great place. There‘s a lot to choose _____.
(a) Among (b) From (c) At (d) For
Hints: b)

373. What is the concentration of nitric acid solution having PH of 4?
(a) 4 (b) –4 (c) 10–4
(d) 10–10
Hints: b)

374. What is the concentration of nitric acid solution having PH of 4?
(a) 4 (b) –4 (c) 10–4(d) 10–10
(a) Carbocation (b) Oxonium ion
(c) Carbanion (d) Oxalate ion
Hints: a)

375. A cell is constructed of the following two half cells. What is Eof the cell?
Ag++ e–Ag + 0.80 V Al3++ 3e–Al – 1.67 V
(a) 2.47 V (b) 0.087 V (c) – 0.87 V (d) 5.81V
Hints: a)

376. A slowly progressive disease of the brain that is characterized by the impairment of memory and eventually by disturbance in reasoning, planning, language and perception is one of the following?
(a) Alzheimer‘s disease (b) Meningitis
(c) Cerebrovascular accident (d) Malignant
Hints: a) the progressive mental deterioration that can occur in middle or old age, due to generalized degeneration of the brain is called as Alzheimer`s disease, It is the commonest cause of premature senility.

377. If $\vec{A}$. $\vec{B}$= 1, A = 2, B = 1 then the angle between them is:
(a) 30^0
(b) 60^0
(c) 90^0
(d) 45^o
Hints: b) A.B = ABcosθ $\theta = \cos^{-1}[\frac{A-B}{AB}]$

378. An object of mass 1 g is whirled in a horizontal circle of radius 0.5m at a constant speed of 2m/s. The work done on the object during one revolution is:
(a) 0 (b) 1 J (c) 2 J (d) 4 J
Hints: b) No work is dones

379. The candidate _____ when asked why he had left his last job; he did not want to admit that he had been dismissed.
(a) Demurred (b) Confided
(c) Dissembled (d) Rejoiced
Hints: c)

380. What is the formula of Dichloro-Bis-Ethylenediamine cobalt (II)?
(a) [CO (en)2Cl2]
(b) [CO (en)2Cl2]2–
(c) [CO (ebn)2Cl2]1–
(d) [CO (en) 2Cl2]1+
Hints: a)

381. Lithium reacts with air to form:
(a) Li2O
(b) Li2N
(c) Li2O2+ Li2CO3
(d) Both (a) & (b)

Hints: d)

382. What will be the shape of a molecule which contains two sigma bond pairs and one lone pair?
(a) Linear (b) V shape (c) Tetragonal
(d) Triangular
Hints: b)

383. The most abundant lymphocytes are:
(a) C–cells (b) A & B cells
(c) B & C cells (d) B & T cells
Hints: d) B lymphocytes, also known as B cells, are one of the five types of white blood cells, or leukocytes, that circulate throughout the blood. They and T-lymphocytesare the most abundant types of white blood cells. B lymphocytes are a vital part of the body`s immune system.

384. The number of cortical nephrons are:
(a) 70–80% (b) 80–90% (c) 60–70%
(d) 60–80%
Hints: a) Corticol nephrons comprise 70 – 80% of nephrons and Juxtamedullary nephrons comprise 20 – 30%

385. The outer tissue of cambium develops in to:
(a) Xylem (b) Phloem (c) Cortex
(d) Epidermis
Hints: b)

386. A mass accelerates uniformly when the resultant force acting on it is:
(a) Zero (b) Constant but not zero
(c) Increases uniformly with respect to time
(d) Both (a) & (c)
Hints: b)

387. The 1stsymptom of Leaf curl disease of cotton infection appear within:
(a) 1 – 2 weeks (b) 2 – 3 weeks
(c) 3 – 4 weeks (d) 4 – 5 weeks
Hints: b) the first symptoms of infection in cotton appear within 2-3 weeks of inoculation and are initially characterized by deep downward cupping of youngest leaves caused by complex of Begomovirus species transmitted by white fly Bemisia Tabaci.

388. The mutation that occurs in an egg or sperm cell, or those that occur just after fertilization, are called_____ mutation.
(a) New (b) De novo (c) Drift (d) Both(a)&(b)
Hints: d)

389. In Young‘s double slit experiment both the separation between the slits and the distance between the slits and the screen are halved; then the fringe width is:
(a) Halved (b) Unchanged (c) Doubled
(d) Zeros
Hints: b) $y = \frac{\gamma L}{d}$

390. In pure inductance, the average power dissipated is:
(a) 1 (b) Greater than 1
(c) Less than 1 (d) Zero
Hints: d)

391. As a loop of wire with a resistance of 10□ moves in a constant non-uniform magnetic field, it loses kinetic energy at a uniform rate of 4.0 ms/s. The induced current in the loop is:
(a) 0 (b) 2 mA (c) 2.8 mA (d) 20 mA
Hints: d)

392. Choose the correct sentence
(a) Turn left by the crossroads when you reach it
(b) Turn left by the crossroads until you reach it.
(c) Turn left with the crossroads when you reach it.
(d) Turn left at the crossroads when you reach it.
Hints: d)

393. Which of the following electronic configuration is / are correct?
(i)23Na 1S22S22P63S1
(ii) 29Cu [Ar] 4S13d10
(iii)24Cr [Ar] 4S23d4
(a) I only (b) I and III only
(c) I and II only (d) II and III only
Hints: c)

394. Which of the following is spontaneous reaction?
(a) Zn + Cu2+→ Zn2++ Cu
(b) 2NaCl(g)→ 2Na(g)+ Cl2(g)
(c) Zn2++ Cu → Zn + Cu2+
(d) 2Fe(OH)3→2Fe + 3O2+ 3H2
Hints: a)

395. Two objects, P and Q have the same momentum. Q has more kinetic energy than P if it:
(a) Weighs more than P
(b) Is moving faster than P
(c) Weighs the same as P
(d) Is moving slower than P
Hints: b) $E = \frac{P2}{2m} Ea \frac{I}{m}$

396. A child, riding on a large merry-go-round, travels a distance of 3000m in a circle of diameter 40m. the total angle through which she revolves is:
(a) SO rad (b) 75 rad (c) 150 rad (d) 314 rad
Hints: c)

397. Anwar said, ―Naveed must go tomorrow‖. Select the correct indirect speech:
(a) Anwar declared that Naveed must have gone the following day
(b) Anwar exclaimed that Naveed would have to go the following day.
(c) Anwar said that Naveed would have to go the
following day.
(b) Anwar said that Naveed shall go the following day.
Hints: a)

398. Choose atom that is not having a spin quantum number .
(a) C13
(b) N15
(c) F19
(d) O16
Hints: d)

399. Select the correct reaction.
(a)
(b)
(c)
(d)
Hints: a)

400. Excess of BaSO4 was dissolved in pure water at 250C. If its Ksp = 1 ×10–10what is the Conc: of Ba2+ions in water?
(a) 10–10
(b) 10–20
(c) 10–5
(d) 10–6
Hints: a)`

401. The domain of principal sine function is:
(A) $0, \frac{\pi}{2}$
(B) $-\frac{\pi}{2}\frac{\pi}{2}$
(C) $0, \frac{3\pi}{2}$
(D) $0, 2\pi$
Hints: b) sine function is not 1 -1 Domin is restricted to $-\frac{\pi}{2}\frac{\pi}{2}$ to make 1-1.

402. If any two rows or two columns in a square matrix A
are interchanged, then the determinant of the resulting matrix is:
(A) |A| (B) |A–2|
(C) |A–2| (D) -A
Hints: d) properties of determinant

403. If n is even in (a + (b)n
then number of middle term is:
(A) One (B) Two
(C) No middle term (D) Three
Hints: a) M.T = (n/2+ 1) the term, if n is even.

404. Which of the following is not a state variable?
(A) Work (B) Internal energy
(C) Entropy (D) Pressure
Hints: a) work and heat can not determined direct.

405. The acceleration of proton in a given electric field is:
(A) 1840 times of that of electron in the same field
(B) 10×1840 times of that of electron in the same field
(C) 1/1840 times of that of electron in the same field
(D) 10/1840 times of that of electron in the same field
Hints: c) F=ma, a = F/m, a *a* 1/m, so it is 1840 times heavier then an electron so its acceleration will be less.

406. The electric field at a distance of 10cm from an isolated point particle with a charge of 10–9C is:
(A) 1.8 N/C (B) 180 N/C
(C) 18 N/C (D) 1800 N/C
$E = \frac{9 \times 109 \times 2 \times 10-9}{(0.1m)2}$
Hints: d)
$E = \frac{18}{0.1}$, = 1800

407. Which of the following contain maximum number of atoms?
(A) 6 mol of Sulphur(S)
(B) 2 Mol of S8
(C) 5.0 mol of SO2
(D) 4.8dm3of CO2at STP
Hints: b) No of atoms in S8 is greater No of atoms = n × N_A, = 256 × 6.022 ×10^{23}

408. Equal volume of CO and N2are taken in identical conditions, the correct relation between masses of two gases is:
(A) CO < N2
(B) CO > N2
(C) CO = N2
(D) N2< CO
Hints: c) (=) representing both equal

409. Choose the major product of the following reaction: O || CH3CH2CO C2H5 Product
(A) CH3CH2CH2OH
(B) CH3CH2OH
(C) CH3CH2CH2OH + CH3CH2OH O
(D) CH3CH2COH
Hints: c) $CH_3CH_2CH_2OH$+CH_3CH_2OH

410. When a permanent magnet is strongly heated?
(A) It becomes an induced magnet
(B) It loses its magnetism
(C) Its magnetism increases
(D) Its polarity reverses
Hints: b) Via Heat ferromagnet materials will lose their magnetism if heated above a point known as the Curie temperature.

411. 11. You _____ have told me the sad news earlier.
(A) Would (B) Must (C) Should
(D) Ought
Hints: c) should

412. If for the circle $x^2 + y^2$ 2gx + 2fy c = 0, $g^2 + f^2$ - c < 0, then it is called:
(A) Real circle (B) Point circle
(C) Imaginary circle (D) Circum circle
Hints: c) Radical vector is not tangent to the circel

413. If x = x f (t) and y = g (t), then dy/dx=
(A) $\frac{dy}{dt}\frac{dt}{dx}$
(B) $\frac{dy}{dt}, \frac{dx}{dt}$
(C) $\frac{dy}{dt}\frac{dx}{dt}$
(D) All of the above

Hints: d) Chian Rule

414. *F*udv=
(A) uv
(B) uv - fvdu
(C) u - *f*vdu
(D) All of the above
Hints: *uf idv=uv*

415. You push a permanent magnet with its north pole away from you towards the loop of conducting wire in front of you. Before the north pole enters the loop the current in the loop is:
(A) Clockwise (B) Anti-clockwise
(C) Towards left (D) Towards right
Hints: b) Anti – clockwise induced current.

416. In an ideal transformer connected to a 240v A.C with number of turns in the primary coil are 1000 and in the secondary coil are 50 turns. The output connected to the load of 10□. The current passes through load is:
(A) 1.2 A (B) 24 A (C) 48 A (D) 120 A
Hints: a) *I = V/R*
VP = 240v
NP = 1000
NS = 50
R = 50
I = ?
$V_s = \frac{Ns}{Np} \times Vp$
$V_s = \frac{50}{1000} \times 240$
$V_s = 12$
I = V/R, = 12/10 = 1.24

417. An alternating current in ampere varies with time to second as I = 4 sin (200πt), the frequency of current is:
(A) 100 Hz (B) 50 Hz
(C) 400 Hz (D) 150 Hz
Hints: a) $w = \sum \pi f$
$200\pi = 2\pi f$
$f = \frac{200}{2} = 100HZ$

418. The radius of hydrogen atom is:
(A) 0.529 Ao
(B) 0.529 × 10-20m
(C) 0.529 × 10-8cm
(D) both ((A) & (C)
Hints: d) 0.592 A^o = o.592 × 10^{-10}m OR 0.592 × 10^{-8}

419. Select ortho/para directing group of the following:
(A) – NO2
(B)– OH O||
(C)– CN
(D) – C – OH
Hints: b) – OH is is electron donating group. Which increase the electron density at ortho and para position.

420. The number of atoms in 18g of H2O are equal to:
(A) 6.023 × 1023atoms
(B) 6.023 × 1024atom
(C) 1.806 × 1024atoms
(D) 3.052 × 1023atoms
Hints: a) no of moles = no of atoms /N_A No of atoms = n x N_A, N=18/18, =1Atoms = 1 x N_A, N_A= 6.023 x 10^{23}

421. Students _____ submit their assignments in time or they will be marked absent.
(A) Would (B) Shall (C) Must
(D) May
Hints: c) Must

422. $f\frac{x}{x2+1}dx$ is:
(A) In|x2 + 1| +C
(B) $\frac{1}{2}$ In $|x2 + 1|$ +C
(C) – In $|x2 + 1|$ +C
(D) - $\frac{1}{2}$ In $|x2 + 1|$ +C
Hints: b) Rule $f\frac{f(x)}{f(x)}dx = In\, f(x) + C$

423. The ratio of dyto dxforxy 2 □is:
(A)dy/dx=y
(B)dy/dx=z/y
(C)dy/dx=y/ x
(D)dy/dx=x/ y
$\frac{d}{dx}(xy) = \frac{d}{dx}(2)$
Hints: c) $x.\frac{dy}{dx} + y.1 = 0$
$\frac{dy}{dx} = -\frac{y}{x}$

424. The critical values of $f(x) = 2x^3+3x^2-12x.5$ (for relative extreme) are:
(A) 1 and 2
(B)-1 and -2
(C) 1 and -2
(D) -1 and 2
Hints: c) for c. Value *f* (x)=0

425. In N type semi-conductor, conduction is due to mainly by:
(A) Hole (B) Protons
(C) Electrons (D) Neutrons
Hints: c) Electrons

426. According to the band theory of solids in the conductors, the conduction band and valance band are:
(A) Separated by large space
(B) Overlapped
(C) Separated by forbidden energy gap
(D) None of the above
Hints: b) The top of valence bond is above the bottom of the conduction bond.

427. Starting from rest, a proton and an a-particle are accelerated through the same potential differences the ratio of their final speed is:
(A) ½
(B)1/$\sqrt{2}$
(C) $\sqrt{2}$
(D) 2

Hints: c) $\frac{1}{2}mv^2 = eV_o$

$V = \sqrt{\frac{2Voe}{m}}$

$\frac{Vf}{Va} = \sqrt{\frac{\frac{2Voe}{m}}{\frac{2Voe}{m}}}$

$= \sqrt{2}$

428. The lines 1 1 1a x b y c 0 □ □ □, 2 2 2a x b y c 0 □ □ □and3 3 3a x b y c 0 □ □ □, are three non-parallel lines, then these three lines are concurrent if:
(A) 1 1 12 2 23 3 3a b ca b c 1a b c□□
(B) 1 1 12 2 23 3 3a b ca b c 1a b c□
(C) □1 1 12 2 23 3 3a b ca b c 0a b c
(D) 1 1 12 2 23 3 3b c cc b a 0b a c□
Hints: c) By the concurrency of three lines

429. Equation of the normal at (x1, y1) to the circle x2+ y2 + 2gx + 2fy + c = 0, is:
(A)□ □1111yfy y x xxg□□ □ □□
(B)□ □1111yfy y x xxg□□ □ □□
(C)□ □1111yfy y x xxg□□ □ □□
(D)□ □1111yfy y x xxg□□ □ □□
Hints: b) Normal is perpendicular to the tangent $y\text{-}y_1 = -1/m\ (x\text{-}x_1)$

430. A rifle of mass M is initially at rest but free to recoil. It fires a bullet of mass am and velocity v (relative to the groun(d). After firing, the velocity of the rifle (relative to the groun(d) is:
(A) –mv (B) –Mv/m (C) –mv/ M (D) –v
Hints: c) –mv/M

431. Consider the following reaction
A + B + C □ M + N + O
The fact that enthalpy of M + N + O is higher than that of A + B + C indicates that:
(A) The reaction ex exothermic
(B) The reaction is endothermic
(C)Catalyst for the reaction is unnecessary
(D) The activation energy required for the reverse reaction is higher than for the forward reaction
Hints: b) Because in case of end othermic reaction ΔH of reaction will be higher.

432. X rays are:
(A) Electromagnetic waves
(B) Negatively charged ions
(C) Rapidly moving electrons
(D) Rapidly moving protons
Hints: a) Electromagnetic waves

433. London forces are stronger in:
(A) Br2
(B) I2
(C) F2
(D) Cl2
Hints: b) Greater the size of the atom, stronger will be the London forms.

434. In SN2reaction, there is:
(A) 50% inversion of configuration
(B) 100% inversion of configuration
(C) 80% inversion of configuration
(D) No inversion of configuration
Hints: b) SN2 promary alkyl halide react with base e.g. (NaOH)

435. Let f (x) = 2x-1and g (x) 2x 5, then f (g (2)
(A) 5
(B)11
(C) Undefined
(D) -5
Hints: a) composition of functions
$fog(x)=f(g(x_1)$
$f(g(2)=f(3)=6\text{-}1=5$

436. A square matrix M=[aij] of order n with complex entries. If (M^t),then which is correct?
(A) M is skew-hermitical
(B) $a_{ij} = -a_{ij}$ for i.j - 1, 2, 3…. n
(C) M is Anti-hermetical
(D) All of the above
Hints: M is a skew – hermetain.

437. A helicopter of mass 3.0 × 103Kg rises vertically with a constant speed of 2m/s, what resultant force acts on the helicopter?
(A) Zero (B) 3 ×104N downwards
(C) 4.5N upwards
(D) 7.5 × 104N upwards
Hints: a) Zero F = ma *v* = cons tan *t*
F = 0, a = o
$A = \frac{\Delta v}{\Delta t} = \frac{0}{\Delta t} = 0$

438. The velocity of projectile equal to its initial velocity added to:
(A) A constant horizontal velocity
(B) A constant vertical velocity
(C)A constantly increasing horizontally
(D) A constantly increasing downward vertically
Hints: d) same velocity both proctection and impact pont.

439. A feather and lead ball are dropped from rest in vacuum on the moon, the acceleration of feather is:
(A) More than that of the lead ball
(B) The same as that of lead ball
(C) Less than that of lead ball
(D) 9.8 ms-2
Hints: b) The same as that of lead ball

440. Choose the statement which is NOT correct. When chlorine gas is passed through potassium iodide solution, iodine is liberated according to the reaction.
2Kl9 (q)+ Cl2 (g)□ 2 KCl + l2
(A) Chlorine acts as an oxidizing agent
(B) Chlorine accepts electron and form chloride ion
(C) Iodide ion done its electron to chlorine
(D) Iodine oxidizes chlorine to form chloride ion
Hints: a) CI-act as oxidizing agent because CI_2 oxidation changes form O →-1 (decrease in oxidation number)

441. Ammonium hydroxide is added to an aqueous solution containing CU2+ions deep blue Colored solution is formed. The color is due to the formation of the complex:
(A) [Cu (H2O)4(OH)2]
(B) [Cu (NH3)4(H2O)2]2
(C)[Cu (H2O)6]2+
(D) [Cu (H2O)6]2–
Hints: b) Addition of NH3 of Ammonium deep blue complex copper ammoniuion.
$[Cu(H2O)_6^{2+} + 4NH_3$
$Cu(NH_3)_4[(H_2O)_2]^{2+} + 4H_2O$

442. The number of colliding molecules of different gases calculated from kinetic molecular theory per liter per second at standard condition is of the order of magnitude of:
(A) 10^{23}
(B) 10^{29}
(C) 10^{32}
(D) 10^{43}
Hints: c) The value is given in literature gas molecules magnitude is 10^{32}

443. Choose the reaction that does not require ZnCl2catalyst:
(A) CH3CH2OH + HCI □ CH3CH2CI +H2O
(B) CH3CH2OH + HB r □ CH3CH2Br + H2O
(C) CH3CH2OH + HI □ CH3CH2I + H2O
(D) Both ((A) and ((B)
Hints: c) The value is given in literature gas molecules magnitude is 10^{32}

444. She is very nice to look _____.
(A) at (B) by (C) beside (D) on
Hints: a) at

445. The sigma notation for the series $a_1\ a_2\ a_3 + a_n =$
(A)nkk1a□□
(B) njj1a□□
(C)nrr1a□□
(D) All of the above
Hints: b) $\sum_{j=1}^{n} xj = x_1 + x_2 + \ldots . x_n$

446. If 1, 3, 3, 1 are the binomial coefficients in an expansion (a+b), then the index n in the expansion is:
(A) 4 (B) 2 (C) 3 (D) 8
Hints: c) n=4-1,=3
n = number of terms – 1

447. The in-radius of circle inscribed in a triangle with sides a, b, c is:
(A) $\frac{\Delta}{s-a}$
(B) $\frac{\Delta}{sb}$
(C) $\frac{\Delta}{s-c}$
(D) $\frac{\Delta}{s}$
$\Delta = \sqrt{s(s-a)(s-b)(s-)}$
Hints: d)
$S = \frac{a+b+c}{2}$

448. Conductivity is:
(A) The same as resistivity
(B) Expressed in Ω-1
(C)Equal to 1/ resistance
(D) Expressed in Ω-m)-1
Hints: d) $\sigma = \frac{1}{\delta} = \frac{1}{\Omega m}$

449. An electron travel due north through a volume in a region of uniform magnetic field that is also directed due north, it will
(A)Be unaffected by the field (B) Speed up
(C)Slow down (D) follow a clockwise path
Hints: a) Be unaffected by the field F= qvBsincos=0

450. If the streams of protons moves parallel to each other in the same direction, then they:
(A) Repeat each other
(B) Attract each other
(C) Doesn‘t exert force on one anther
(D) Get rotate
Hints: b) Because proton have same charges direction.

451. Deficiency of iron in the body causes disease called:
(A) Anemia (B) Hemosiderosis
(C) Renal rickets (D) None of the above
Hints: b) Because Anemia is a disease due to iron deficiency.

452. Finger print region in IR spectroscopy lies between
(A) 300-600 cm-1
(B) 600-1500 cm-1
(C) 500-1000 cm-1
(D) 1500-2000 cm-1
Hints: b) 600 1500cm^{-1}

453. Oxygen is prepared by the thermal decomposition of KCIO3as:
2K CIO3Δ→2KCI + 3O2. How many moles of KCIO3are required to prepare 6 moles of oxygen?
(A)3.17 mol (B) 4.0 mol
(C) 5.01 mol (D) 2 mol
Hints: b) 3 moles of $KCIO_3$= 2 moles of O_2
1 moles of $KCIO_3$= 2/3 × 1
6 moles = 2/3 × 6 =4mole

454. When —Nal‖ burns in atmosphere of chlorine, it gives:
(A) Golden yellow flame
(B) Bright orange flame
(C) Apple green flame
(D) Crimson flame
Hints: b) Flame colour of Na on flame bright orange flame due to excitation and dexcitation of electrons.

455. The general formula of cycloalkane is Cn H2n where:
(A) n> 2 (B) n > 3 (C) n = 3 (D) n < 2
Hints: b) Cycle alkanes CnH_2n (b) n >3 because first cycle alkane is pr
So a cycle cannot be formed.

456. He said to me, —Will you lend me your cell phone‖? [Select the correct indirect speech]
(A) He said to me that will I lend him your cell phone.
(B) He asked to me that will your cell phone be lent?
(C) He asked me if I would lend him my cell phone.
(D) He inquired that whether your cell phone can be lent.
Hints: c) He asked me if I would lend him my cell phone.

457. 1201dxx1□□, is equal to:
(A)$\frac{\pi}{2}$
(B)2π
(C)$\frac{\pi}{4}$
(D)-2π
Hints: c)

458. If 1212mm01 m m□□□, then the angle formed will be:
(A) Acute (B) Obtuse
(C) Right (D) All of the above
Hints: a) tan θ= $\frac{m1-m2}{1+m1m2}$

459. Length of the lotus rectum of 23x 4y □, is:
(A) 4 (B) –4 (C) 43 (D)34
Hints: c) x^2 = 4/3 y x^2=4ay
L.R = 4a = 4/3

460. Measurement of radiation from an astronomical source showed a decrease in the wave length at which the greatest energy was being received. This could mean that the source had:
(A) Increase in temperature
(B) Decrease in temperature
(C) Expand but maintained a constant temperature
(D) Moved further away
Hints: a) $fa\frac{1}{\lambda}$ Doppler effect
Eaf

461. A certain automobile is 6m long at rest, if it is measured to be 4/5 as long, its speed is:
(A) 0.1c (B) 0.3c (C) 0.6c (D) 0.8c
Hints: c) $l = 10\sqrt{1 - v2/l2}$

462. 18 carat gold contain:
(A) 70-75% Gold (Au) and 15-20% copper (Cu)
(B) 70-75% Gold (Au) and 20-25% copper (Cu)
(C) 75-80% Gold (Au) and 20-30% Copper(Cu)
(D) 100% Gold (Au) with no Copper (Cu)
Hints: b) 70-75% Gold (Au) and 20-25% copper (Cu)

463. The correct sentence is:
(A) Everyone should mind his/her own business
(B) Everyone should mind their own business
(C) Everyone should mind one‘s own business
(D)Everybody should mind one‘s own business
Hints: c) Everyone should mind one`s own business

464. 2 3 4x x x1x2 6 24□ □ □ □ □ □
(A) Sin x
(B) Cos x
(C) e^{-x}
(D) log x
Hints: c) Maclaurin Series

465. The equation of continuity for fluid flow can be derived from the conservation of:
(A) Volume (B) Mass (C) Energy
(D) Pressure
$A_1v_1 = A_2V_2$
Hints: b)
$\Delta m/\Delta t = \delta\Delta v/\Delta t$

466. In a hyperbola, e□
(A)$\frac{\sqrt{a2+b2}}{a2}$
(B) $\frac{\sqrt{a^2-b2}}{a2}$
(C) 1
(D) 0
Hints: a) ac=c
e=c/a in hyperbola c=$\sqrt{a2+b2}$

467. The scientific notation of a number 0.0023 is expressed as:
(A) 2.3 × 10-3
(B) 0.023 × 10-2
(C)2.3 × 10-4
(D) 0.2 × 103
Hints: a) 2.3 × 10^{-3}

468. Which one of the following pairs of electrical unit are not equivalent?
(A) wbm–2, T
(B) J-S–1, w
(C) J–C–1, V
(D) AS–1, C
Hints: d) AS^{-1},C

469. Two vectors $\vec{A}$ and $\vec{B}$ are such that $\vec{A}$ $\vec{B}$ $\vec{C}$ andA^2 B^2 C^2. If $\theta$is the angle between positive direction of A and B□□, then $\theta$is:
(A) 0=0
(B)π/2
(C)0=$\pi/3$= π/3
(D) 0= π
Hints: b) $\underset{a.}{\rightarrow}\underset{b.}{\rightarrow}$ = if $\underset{a.}{\rightarrow}$ ב $\underset{b.}{\rightarrow}$ (θ=90°)

470. The energy of electromagnetic radiation depends on its:
(A) Frequency (B) Wave length
(C) Wave number (D) All of the above
Hints: d) E = hc/λ EMR depends on all.

471. 18.0 g of glucose is dissolved in 100g of solvent water the molality of the resultant solution is:
(A) 0.01m (B) 0.1m (C)1.0m (D) 10.0m
Hints: a) Mass of Glucose = 18.0g

472. A leakage of natural gas is usually detected by the strong repulsive smell of certain compound such as:
(A) Methanethiol (B) Phenol
(C) Formaldehyde (D) Naphthalene
Hints: a) CH4 is a color less and odourless gass by adding methanol due to (s) group methane have pungent

473. _NEPOTISM‘ means:
(A) Criticism (B) Socialism
(C) Favoritism (D) Monotheism
Hints: d) Monotheism

474. For any Complex number Z, Z.Z□
(A)Z.Z (B) 2Z (C) 2Z (D) All of the above
Hints: b) z.z = $(a+ib)\ (a-ib) = a^2+b^2$

475. For n∈, N ∑2n 1kk11□□□□ □
(A) 1
(B) 0
(C)∞
(D) -1
Hints: d) -4 is odd for 4=2n-1

476. Fehling‘s solution is added to the following compounds. Select the one that will show positive test.
O O
|| ||
(A) CH3CCH3
(B) CH3CC2H5
O O
|| ||
(C) CH3C– H
(D) CH3CH2C CH2CH3
Hints: c) CH3C-H

477. If you had _____ her on the matter, you would not have made this blunder.
(A) Advised (B) Consulted
(C) Discussed (D) Referred
Hints: b) Consulted

478. What is the inverse function of $f(x) = 4\sqrt{2x}$
(A)1/2 $(x-4)^2$
(B) $2-x^2$
(C) $4-x^2$
(D) $(4-x)^2$
Hints: a) y=*f(x)*
$X=f^1(y)$

479. $\frac{cos3\ a-sin3\ a}{\cos a-\sin a}$ =
(A) 1 + 2 in *a* cos *a*
(B) 1 – 2 sin *a* cos *a*
(C) 1+ sin *a* cos *a*
(D) 1- sin *a* cos *a*
Hints: c)
$a^3 - b^3 = (a-b)(a^2+ab+b^2) \rightarrow$
$\cos^2 a+\sin^2 a+\sin^2 a$ - =1

480. If z = a + *bi*, then z. z
(A)$\sqrt{a2+b2}$
(B) $\sqrt{a2-b2}$
(C) (a2 + b2)
(D) – (a2 + b2)
Hints: c) z = z

481. A body in simple harmonic motion makes n complete oscillation in one second. The angular frequency of this motion is:
(A)n rad-s^{-1}
(B) 1/n rad-s^{-1}
(C) 2πnrad-s^{-1}
(D) n/2π rad – s^{-1}
Hints: c) as $f = \frac{n}{t}$ t = 1s
$F = n$
$W = 2\pi\ frads^{-1}$
$W = 2\pi nrads^{-1}$

482. A particle performs simple harmonic motion of amplitude 0.02m and freq 2.5 Hz, what is its maximum speed?
(A) 0.0008 ms-1
(B) 0.125 ms-1
(C) 0.157 ms-1
(D) 0.314 ms-1
Hints: a) $v = wx_o$

483. Newton second is the unit of:
(A) Work (B) Angular momentum
(C) Power (D) Liner momentum
Hints d) FΔt = ΔP

484. Number of orbital‘s in the 3rdshell are:
(A) 3 (B) 6 (C) 9 (D) 18
Hints: b) 1st shell K= s
2nd shell L= s, p
3rd shell M= s, p, d, = 6 orbital

485. Which element is required for maintaining the plasma concentration of vitamin A?
(A) Iron (B) Calcium (C)Zinc
(D)Phosphorus
Hints: c) Zinc is trace element to maintain concentration of vitamin A in plasma.

486. She found too late that her precious art pieces were not worth a dime.
The underlined phrase means:
(A) In good state (B)New
(C) Of little value (D) Priceless
Hints: d) Priceless

487. The slope of a line is a measure of the:
(A) Height of a line
(B) Steepness of a line
(C) Thickness of a line
(D) None of the above
Hints: b) Steepness of a line

488. The line y = mx + c is the tangent to the circle $x^2 + y^2 = a^2$, if:
(A) c= a/m
(B) c = ±a$\sqrt{1+m2}$
(C) c = ± $\sqrt{a2m2+b2}$
(D) c=± $\sqrt{a2m2-b2}$
Hints: b) Tangent to the circle y=mx±c, where c=a $\sqrt{1+m2}$

489. Degree of the equation $\frac{dy5}{dx} + \frac{d2y}{dx2}$ + y = 3, is
(A) 5 (B) 2 (C)3 (D) 1
Hints:) power of highest order derivative

490. An A.C varies with time (t) sec as I = 4 sin(200πt), the r.m.s value of current in —A‖ is:

(A) 2
(B) $4\sqrt{2}$
(C) $\frac{4}{\sqrt{2}}$
(D) $\frac{2}{\sqrt{2}}$
Hints: c) $^{1}rms = \frac{1}{T2} = \frac{4}{\sqrt{2}}$

491. The resonance frequency of an LCR circuit is:
(A) $\frac{1}{2\pi Lc}$
(B) $2\pi\sqrt{Lc}$
(C) 1/Lc
(D) $\frac{1}{2\pi\sqrt{Lc}}$
Hints: d) $\frac{1}{2\pi\sqrt{Lc}}$

492. The phase angle between the voltage and current in
A.C through a pure inductor is:
(A) 0^o
(B) 90^o
(C) 60^o
(D) 180^o
Hints: b)

493. Two glucose units combined byglycoside bond the product formed is known as:
(A) Sucrose (B) Maltose (C) Lactose
(D) Cellulose
Hints: b) Maltose

494. In helium neon LASER, the laser light arises from a transition from a ____ state to _____.
(A) He-He (B) Ne-Ne (C) He-Ne
(D) Ne-He
Hints: b)

495. The half-life of radium is about 1600 years if a rock initially contains 1g of radium, amount left after 6400 years will be about:
(A) 62mg (B) 31mg (C) 16mg
(D) Less then 16mg
Hints: a) 1g=1000mg, $\frac{6400}{1600}$ = 4 000 divided four time by 2
$\frac{1000}{2} = \frac{500}{2} = \frac{250}{2} = \frac{125}{2}$ = 62.5 or 62 mg

496. Which of the following is a noble metal?
(A) Argon
(B) Silicon
(C) Gold
(D) Iron
Hints: a) Group VIII noble metal contain Argon as an element

497. 800cm3of a gas at 400 torr pressure and 60 0C was heated unit the volume of gas become 2000cm3. The final temperature of the gas will be:
(A) 832.5 K (B) 559.5K
(C) 1105.2 K (D) 726.5 K
Hints: a) Acording to Charles Law
$\frac{VI}{TI} = \frac{V2}{T2}$, $T_2 = \frac{V2 \times TI}{V2}$

498. A gaseous mixture contains 9.6% NH3, 22.6% N2and 67.8% H2gases. If the total pressure is 50 atm, then the partial pressure of H2is:
(A) $\frac{67.8\times100}{50}$
(B) $\frac{50\times100}{67.8}$
(C) $\frac{50\times100}{67.8}$
(D) $\frac{67.8\times50}{100}$
Hints: d) partial pressure
$H_2 = \frac{67.8\times50}{100}$
Because 67.8% 0f $H_2 = \frac{PP\ H2 \times100}{50}$

499. The police arrested him for dangerous driving. (Select the correct passive voice:)
(A)He was arrested by the police for dangerous driving.
(B) He was arrested by the police for dangerous driving.
(C)For dangerous driving he was arrested by the police.
(D) By the police was he arrested for dangerous driving.
Hints: b) He was arrested by the police for dangerous driving.

500. If n is a positive integer and $f(x) = x^{-n}$, where x ≠, then $f(x)$
(A) nxn^{-1}
(B)-nx^{-n}
(C) –nx^{-n-1}
(D) nx^{-n-1}
Hints: c) power rule of derivative

501. If $x = t^2+3t - 2$, y = 2 – t – t^2, then $\frac{dy}{dx}$ = :
(A) $\frac{t2+3t-2}{2-t-t}$
(B) $\frac{2t+3t-2}{-t-2t}$
(C) $\frac{-(2t+1)}{2t+3}$
(D) $\frac{2t+3}{-2t-1}$
Hints: c) Chain rule of derivative

502. nth term of arithmetical-Geometric series is:
a) ar^n
(b) $[a+(n-1)d]r^{n-1}$ (C)
(c) $(n-1)r^n$
(d) All of the above
Hints: b) A= [a + (n – 1] d], nth term = Ar^{n-1}

503. If n is a unit vector in the direction of $\vec{A}$, then
(A) n = $\frac{\vec{A}}{A}$
(B) n = $\vec{A}$ A
(C) n = $\frac{A}{A}$
(D) n = n$\vec{A}$
Hints: a) $\vec{a}=\vec{a}$ a

504. A body initially at rest, explode into pieces of mass 2Kg and 3Kg respectively having total K.E —E‖, the kinetic energy of the piece of mass 2Kg after the explosion is:

(A) E/3 (B) E/5 (C) 2E/5 (D) 3E/5
Hints: c) K.E = ½ $5v^2$, *fum* = 2kg e = K.E = ½ $2v^2$ = v^2 = E K.E = 5/2 E

505. A light and a heavy body have equal kinetic energies, which one have greater momentum?
(A)The light body (B) The heavy body
(C)Both have equal momentum
(D) Not possible to say anything
Hints: b) K.E = $\frac{P2}{2m}$, 2mK.E = p^2
Greater mass, greater momentum

506. Grignard Reagent (RMgI) on reaction with aldehydes other than formaldehyde, the product formed on hydrolysis gives:
(A) Primary alcohol
(B) Secondary alcohol
(C) Tertiary alcohol
(D) Mixture of A, B & C
Hints: b) $R - Mg - I + CH3 - C - H \rightarrow CH3 - C - H + Mg\ OH$

507. Halogens in uncombined state exist as diatomic covalent molecule (X2), their discrete molecules are held together by:
(A) Dipole – dipole attraction
(B) Electrostatic attraction
(C) Weak Vander Waal's forces
(D) Strong Vander Waal's forces
Hints: b) Because of weak vander waal`s forces they always exist as diatomic form E.g (CI_2, Be_2, I_2)

508. NH3(aq)+ H2O(l) N + O Calculate the ionization constant for the above equation if (NH4+) is 10-5M, (NH3) is 1.0M and (OH) is 0.15M.
(A) 1.5× 10-5
(B) 1.5× 10-6
(C) 1.5× 10-4
(D) 1.0× 10-6
Hints: b)

509. A pale moon and watery sun are known as prognostics of rain. The underlined word means:
(A) Indications (B) Start (C) Cause
(D) Friends
Hints: a) Indications

510. Linear programming plays important role in:
(A) Trade (B) Industry
(C) Agriculture (D) All of the above
Hints: b) Industry

511. _CRANKY SPOUSE' implies:
(A) A carefully selected loving partner of life
(B) Fussy and bad-tempered wife or husband
(C) Money squandering younger second wife
(D) A device fitted behind the rear seat of a car
Hints: b) Fussy and bad – tempered wife or husband

512. Sin (2π- β)=
(A) Sin β
(B) –sin β
(C) Cos2 π
(D) Sin2 π
Hints: b) Allied angle for sine

513. The initial point of the vector r = (-2, -1,2) form the terminal point (4, -1, -2) is:
(A) (2, 1, -2)
(B) (-4, 1, 2)
(C) (-6, 0, -4)
(D) (-6, 0, 4)
Hints: c) $\vec{A}.B = \vec{R}$

514. Area of a triangle having vertices A(2, 2, 0), B (-1, 0, 2) and C (0, 4, 3) is:
(A) 30
(B) 15
(C) 15/2
(D) 16
$\vec{AB}$ = (4,-1,-2)
Hints: c) $\vec{AC}$ = (-2,2,3)
= 15/2

515. If the displacement of a particle executing S.H.M is given by x = sin (20πt) cms, its amplitude is:
(A) 5/πm
(B) 5/πcm
(C) 20πcms
(D) 100 cms
Hints: b) $x = x_o \sin 2hft$ cms
$X = 5/\pi \sin 2\ hft\ cms$
$X_o = 5/\pi$

516. The total energy of the body executing S.H.M is E. The K.E when the displacement is half of the amplitude is:
(A) E/a
(B) E/4
(C) 3E/4
(D) $\sqrt{\frac{a}{4}}$ E
Hints: c) E = K.E = ½ $mv^2 mw2x^2_o$
K.E = ½ $mw^2\ x^2_o - \frac{x20}{4}$
= ½ $mw^2 \frac{4x2o - x2o}{4} = \frac{3x2o}{4}$
$= \frac{3}{4} \times \frac{1}{2} mw^2 = \frac{3}{4}$ E

517. The rest mass of the deuteron 1H2 is equivalent to energy of 1876 Mev, the rest mass of proton is equivalent to 939 Mev and that of neutron is 940 Mev. A deuteron may disintegrate to a proton and neutron if it.
(A) Captures an x-ray photon of energy 2Mev
(B) Exists an x-ray photon of energy 2Mev
(C) Exists an x-ray photon of energy 3Mev
(D) Captures an x-ray photon of energy 3Mev
Hints: a) $E=\Delta mc^2$ Binding energy and direction distintegrate is 2.22 MeV or 2 MeV

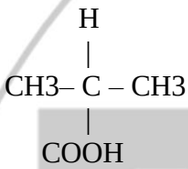
518. A water sample contains 3.8 × 10-2g of mercury per kilo gram of the sample. What is the concentration of mercury in parts per million?
(A) 3.8 ppm (B) 38 ppm (C) 0.38 ppm

(D) 380 ppm
Hints: b) wt of solute = 3.8 × 10 -2 g wt of solution = 1kg wt
Wt of solute (Hg) in ppm= ?
ppm= $\frac{3.8\times10-2g}{1000g}\times 10^6$

519. A stone thrown horizontally from the top of a tall building follows a path that is:
(A) Circular
(B) Made of two straight line segments
(C) Hyperbolic
(D) Parabolic
Hints: d)

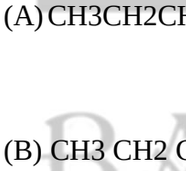
520. If the amplitude of wave at a distance r from a poinsource is A then amplitude at a distance 2r will be:
(A) 2A (B)A (C)A/2 (D) A/4
Hints: b) Amplitude is constant

521. Choose the IUPAC name of the following:

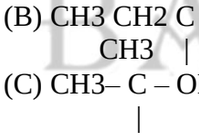


(A) 2-methylpropanoic acid
(B) 2-methylbutanoic acid
(C) 2-butanoic acid
(D) 2-methylethanoic acid
Hints: a)

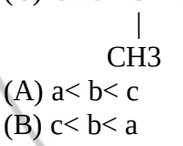
522. Arrange the following Alcohols in increase order of their boiling points.
(A) CH3CH2CH2CH2OH



(B) CH3 CH2 C HOH



(C) CH3– C – OH



(A) a< b< c
(B) c< b< a
(C) c< a< b
(D) b< c< a
Hints: a) Those hydrocarbons which are straight chain form have high (B.P) branching will decrease boiling point.

523. Which one of the following is carbolic acid?
(A) 10%solution of Acetic acid
(B) 5%solution of Benzoic acid
(C) 5% solution of phenol
(D) Concentrated solution of lactic acid
Hints: c) C_6H_5-OH or phenol is known as carbolic acid (phenol)

524. Choose the correct sentence;
(A) I am a Pakistani and so is she.
(B) I am a Pakistani and she is also.
(C) She and me are Pakistani.
(D) I am a Pakistani as is she.
Hints: a) I am a Pakistani and so is she.

525. If A and B are any two events defined in a sample space then P (A – B)=:
(A) P (A) -P (A∩ B)
(B) P (A) -P (A∪ B)
(C) P (A ∪ B) -P (A)
(D) P (A ∩ B)
Hints: a) p (A)-P(A ∩ B)

526. For a geometric series $a_1 + a_2+a_3+$…..an with common ratio r≠1, Sn=:
(A) $\frac{rn-1}{r-1}$
(B) $\frac{r-1}{rn-1}$
(C) $\frac{a1(rn-1)}{r-1}$
(D) $\frac{a1(rn+1)}{r+1}$
Hints: c) sum to 1st n terms of G.P

527. Fire destroyed the top floor of the building. Select the correct passive voice
(A)The top floor of the building got destroyed by fire
(B) By tire was destroyed the top floor of the building
(C) Destroyed by fire was the top floor of the building
(D) The top floor of the building was destroyed by fire
Hints: d) The top floor of the building was destroyed by fire.

528. $a^2=b^2+c^2$-2bc cosa is called
(A) law of sines
(B) law of cosine
(C) 1aw of tangents
(D) law of cotangents
Hints: b) Law of cosines

529. In thee dimensional space two vectors are said to be collinear if they lie
(A) along the same line
(B) along the different lines
(C) above the line
(D) below the line
Hints: a)

530. ∀$Z_1 + Z_2 \in C, Z_1 – Z_2$ =
(A) $Z_1 + Z_2$
(B) $Z_1 – Z_2$
(C) $Z_1 – Z_2$
(D) $Z_2 – Z_1$
Hints: b) Conjugate of complex numbers

531. In a meter bridge experiment an unknown resistance ,,x,, is compared with a known resistance ,,R,, should
(A) much higher in value than R
(B) much lower in value than R
(C) In the same order as R
(D) on the right of R in the bridge circuit
Hints: d) On the right of R in the bridge circuit

532. In a conductor carrying an electron, we expect the electron drift speed to be:
(A) A much greater than the average electron speed.
(B) Much less than the average electron speed.

(C) About the same as the average electron speed.
(D) Less than the average electron speed at low temperature and greater at higher temperature.
Hints: d) Less than the average electron speed at low temperature and greater at higher temperature.

533. A cylindrical copper rod has resistance R, it reform to twice the original length with no change of volume. Its new resistance will be:
(A) 2 R (B) 4R (C) 8R (D) R/2
Hints: b) Ral
$Ra\frac{1}{A}$
$R` = \frac{\delta 2I}{A/2} = \frac{4\delta I}{A}$
$R` = 4R$

534. Theoretical yield is always:
(A) Less then practical yield.
(B) Greater than actual yield
(C) Both are equal
(D) None of the above
Hints: a) Because theoretical value is always greater by performing practicals (Human error) will decrease practical value.

535. Which of the following rays are not electromagnetic radiations?
(A) X-rays (B) UV rays
(C) Cathode rays (D) Infrared rays
Hints: c) Actually electrons are emited in form of cathode rays.

536. The energy level of an electron in a hydrogen atom are given by where n-1,2,3…… the energy required to excite an electron state is:
(A) 3.4ev (B) 4.5ev (C) 10.2ev
(D) 13.6ev
Hints: d)

537. How muny grams of Al2O3will be obtained if 13.5g of aluminum completely reacts with oxygen as 4Al + 3O2□2Al2O3 molar mass of Al=27g/mol.
(A) 25.5g (B) 27.54g (C) 54.27g
(D) 14.27g
Hints: a) Because molar mass in g × moles = 25.5 g

538. The resonance structure differs from one another only on the basis of:
(A) Position of atoms
(B) No of unpaired electrons
(C) Position of electrons.
(D) Position of nuclei
Hints: b) Because unpaired electron are responsible for resonance

539. Chiral carbon is the carbon which is attached to
(A) 4 identical atoms
(B) 4 different atoms
(C) 3 similar atoms and 1 dissimilar atom.
(D) 2 similar atoms and 2 dissimilar atoms.
Hints: b) Chiral carbon
Different group attached called chiral carbon (asymmetric carbon)

540. GET HOLD OF ONESELF implies:
(A) To start running (B) To catch a thief
(C) To become calm (D) to feel exhauste
Hints: c) To become calm

541. $\frac{d}{dx}\text{Cos}^{-1}$ x =
(A) $\frac{1}{\sqrt{1+x2}}$
(B) $\frac{1}{\sqrt{1-x2}}$
(C) $\frac{-1}{\sqrt{1+x2}}$
(D) $\frac{-1}{\sqrt{1-x2}}$
Hints: d) Derivation inverse of cosine function

542. Equation of the normal at the point x_1 y_1 ,to the parabola $y^2 = 4ax$ is:
(A) $yy_1 = 2a\ (x + x_1)$
(B) $y - y_1 = -\frac{y1}{2a}(x\text{-}x_1)$
(C) $y + y_1 = -\frac{y1}{2a}(x\text{-}x_1)$
(D) $yy_1 = 2a\ (x\text{-}x_1)$
Hints: b) $y - y_1 = -\frac{y1}{2a}(x - x_1)$

543. The conic having eccentricity e>1, is called:
(A) Hyperbola (B) Ellipse
(C) Parabola (D) Asymptotes
Hints: a) Conic depends on e, e>1, for herperbola.

544. In a Compton scattering from stationary electrons the largest change in wave length occurs when the photon scattering through:
(A) 0^o
(B) 45^o
(C) 90^o
(D) 180^o
Hints: d) $\Delta\lambda = \frac{h}{moc}(1 - \cos\theta)$, cos 180 = -1

545. DAUNTED means:
(A) Intimidate (B) Speculate
(C) Emancipate (D) Evacuate
Hints: a) Intimidate

546. For any two vectors a and b making an angle θ between the, then a . b = 0 □if and only if:
(A) a ⊥ b
(B) $\theta = \frac{\pi}{2}$
(C) Either a=0 or b=c
(D) All of the above.
Hints: b) $\vec{a}.\vec{b}$ = ab cos 90, cos 90 = 0,$\vec{a}.\vec{b}$ = 0

547. If A, G, H are Arithmetic, Geometric and Harmonic Mean, between two positive numbers a, b then;
(A) G>H
(B) G^2=AH
(C) A>G
(D) All of the above.

Hints: d) All of the above

548. In the expansion $(a+b)^n$, ${}^nC_o$=
(A) ${}^nC_1$
(B) ${}^nC_2$
(C) ${}^nC_{n-1}$
(D) ${}^nC_n$
Hints: d) ${}^nC_n$

549. When a mass is rotating in a plane about a fixed point, its angular momentum is directed along
(A) Radius (B) Tangent to the orbit
(C) A line perpendicular to the plane of rotation
(D) None of the above.
Hints: c)

550. A simple pendulum is suspended on the roof of a lift when the lift is moving downward with an acceleration a (a<g), then its time period is given by T= 2□ √
where g is equal to
(A) g (B) g-a (C) (g+(a) (D) g2
Hints: b) $T = 2\pi\sqrt{\frac{I}{g-a}}$ apparent weight decreases.

551. When a body of mass m is taken to the bottom of a deep mine, its
(A) Mass increases (B) Mass decreases
(C) Weight increases (D) Weight decreases
Hints: d)
W = mg
W = constant g
Wag
ga $\frac{1}{r2}$ *g decreases*

552. What is the oxidation state of copper in Cs2 CuF6?
(A) 1+ (B) 2+ (C) 3+ (D) 4+
Hints: a) $CS_2Cu\ F_6$ so oxidation state will be+4

553. The conversion of dichromate to chromate is brought out by the addition of:
(A) Acid
(B) Base
(C) Salt
(D) Both ((A) & ((C)
Hints: b) dichromate →chromate
$K_2Cr_2O_4 \rightarrow Cr_2O_4$

554. Ethyne is treated with HBr, the product formed is
(A) CH3CH2Br
(B) CH3CHBr2
(C) CH2BrCH2Br
(D) CH3CBr3
Hints: a)

555. kxa dx□□
(A) $\frac{ax}{K}$ + C
(B) $\frac{akx}{K\ In\ a}$ + C
(C) akc In a + C
(D) $\frac{Ina}{K}$ + C
Hints: b) formula

556. An example boson is a
(A) Photon (B) Electron (C) Neutrion (D) Neutron
Hints: a) photon

557. If $h^2 < ab$, then the equation $ax^2 + 2hxy + by^2 = 0$represents a pair of straight lines, which are:
(A) Real (B) Coincident (C) Imaginary
(D) Perpendicular
Hints: c) Imaginary

558. Bernoulli's equation can be derived from the conservation of:
(A) Energy (B) Mass (C) Volume
(D) Pressure
Hints: a) Δw = ΔK.E+ΔP.E This equation derive from conservation of energy.

559. Which of he following element does not belong to p-block of the periodic table?
(A) Lead (P(b) (B) Helium (He)
(C) Phosphorus (P) (D) Aluminum (Al)
Hints: a) Lead (Pb) Because it is (d) block element

560. Compound nitrated with difficulty is
(A) Toulene (B) Phenol
(C) Nitro Benzene (D) Benzene
Hints: c) Because Nitro group (NO_2) attached with benzene decreases reactivity of benzene.

561. The critical temperature (T(c) of oxygen is
(A) -147.1°C
(B) -183°C
(C) -239.9°C
(D) -118.8°C
Hints: d) It is given in literatue
Tc = -118.8°C

562. The police are looking___ the recent state of burglaries.
(A) into (B) to (C) at (D) for
Hints: a) into

563. If 1mand 2mare the slopes of two lines 1 Land 2Lrespectively, then the angle from 1 L to 2Lis given by:
(A) tan $\theta = \frac{m2-m1}{1+m2\ m1}$
(B) tan $\theta = \frac{m2+m1}{1-m2m1}$
(C) cot $\theta = \frac{m2-m1}{1+m2m1}$
(D) cot $\theta = \frac{m2+m1}{1-m2m1}$
Hints: a) m_1=slope of I_1
m_2=slope of I_2

564. Alkyl halide in which carbon atom to which halogen is attached is in turn bonded to one carbon atom. The alkyl halide is :
(A) Primary alkyl halide
(B) Secondary alkyl halide
(C) Tertiary alkyl halide
(D) None of the above
Hints: b)

565. A copper bearing material weighing 20g yielded 2.5g CuO. The percentage of copper (Atomic mass=63.55) in the sample is:

(A) $\frac{2.5\times100}{20}$
(B) $\frac{63.55\times2.5\times100}{79.55\times20}$
(C) $\frac{2.5\times79.55\times100}{40\times63.55}$
(D) $\frac{20\times79.55\times100}{2.5\times63.55}$
Hints: d) Actual yield = 139.G
Yield = 2.5 g of Cu
Formal
%age $= \frac{Actual\ Yield}{Theoritical\ Yield}$

566. Which is NOT true in Bohr's Theory?
(A) Cannot explain the fine structure of the hydrogen atom.
(B) Cannot explain spectrum of atoms other than hydrogen
(C) Cannot explain the Zeeman effect
(D) Is in accordance with Heisenberg's uncertainty principle
Hints: d) Because Bohr`s model is against of Hisengerg theory.

567. She said to him, ―where did you go yesterday‖ select the correct indirect speech.
(A) She asked him where he had gone the previous day.
(B) She told him where he had gone the previous day.
(C) She asked him where had he gone the previous day.
(D) She asked me where he had gone yesterday.
Hints: a) she asked him where he had gone the previous day.

568. Generally B-B^t is a:
(A) Symmetric matrix
(B) Skew symmetric matrix
(C) Singular matrix
(D) Additive inverse
Hints: b) Skew symmetric matrix

569. If ${}^nC_t = 36$ then n will be:
(A) n=9
(B) n=8
(C) n=7
(D) n=10
Hints: a) n=9

570. The numbers which have $\sqrt{-1}$ as one factor are called:
(A) Real numbers
(B) Complex number
(C) Irrational numbers
(D) Imaginary numbers
Hints: b) Complex numbers

571. In iso-thermal process there is no change in:
(A) Pressure (B) Work done
(C) Internal energy (D) Imaginary numbers
Hints: c) $\Delta Q = \Delta E^o + \Delta W$ Isotherm is a process in which the temperature is constant. Hence the internal energy is constant.

572. Cp> Cvare because in the case of Cp:
(A) More heat is required to do the external work
(B) Heat is needed to do external work
(C) No heat is required to increase the internal energy
(D) Heat is required to do external work against external volume
Hints: b) Heat required to the system to push the position against external pressure.

573. Which of the following color have greater wavelength?
(A) Red (B) Blue (C) Green (D) Orange
Hints: a) Because Red colour wavelength is greater from 620-750nm

574. Choose the correct sentence:
(A) One must not boast of his own success.
(B) One must not boast of her own success.
(C) One must not boast of one's own success.
(D) One must not boast of ones own success.
Hints: c) One must not boast of one`s own success.

575. If v denotes the velocity, then $\lim_{h\to0}\frac{v(t+h)-v(t)}{h}$ defines:
(A) Velocity (B) Distance
(C) Acceleration (D) Average velocity
Hints: c) 2a = $\frac{v2f-v2i}{S}$

576. mn, amx(log (a)nis the nthderivative of:
(A) mamx
(B) amx
(C) mnanx
(D) (mamx)n
Hints: b) a^{mx}

577. Anti derivative of zero is
(A) Zero (B) +1 (C) Any constant
(D) – 1
Hints: c) Anti – derivative of zero is any constant.

578. The dimension of self inductance is;
(A) MLT^2
(B) $ML^2T^{-2}A^{-2}$
(C) $M^2L^{-1}T^1$
(D) $MT^{-2}A^{-1}$
Hints: b) L = $\frac{\varepsilon\Delta t}{\Delta I}$

579. When an iron core is inserted in to coil, its coefficient of self –induction;
(A) Increases (B) Decreases
(C) Remains the same (D) Become zero
Hints: a) $L = u_o n^2 IA$

580. The e.m.f that appears in Faradays law is;
(a) Around a conducting circuit
(b) Around the boundary of the surface used to compute the magnetic field
(c) Throughout the surface used to compute magnetic flux
(d) Perpendicular to the surface used to compute magnetic flux
Hints: b) Around the boundy of the surface used to compute the magnetic field

581. Mass of 1molecule of oxygen is;
(A) 32g
(B) 16g

(C) $32/6.023\times10^{23g}$
(D) $32\times6.023\times10^{23g}$
Hints: a) Mass of molecule of O_2
(16 x 2=32) 32 g OF $O_2 = 6.022 \times 10^{23}$ molecule OR $32 \times 6.022 \times 10^{23}$g

582. Select the correct formula of chloropentaqua chromium (111) chloride;
(A) [Cr (H2O)5CL]CL3
(B)[Cr(H2O)5Cl]Cl2
(C) [Cr(H2O)5Cl2]
(D) [Cr(H2O)5Cl3]Cl
Hints: d) $[Cr(H_2O)_5CI_3]CI$

583. If a, b, care the sides of a triangle and a,β,γ are the respective angles, then area of the triangle is:
(a) ½ a^2 Sin$a$
(b) ½ b^2 Sinγ
(c) ½ c^2 Sinβ
(d) ½ bc Sin$a$
Hints: a) ½ a^2 sina

584. In a nuclear reaction 92U238□ h + the value of A and Z are
(A) A= 234, Z=94 (B) A=238, Z=94
(C) A=234, Z=90 (D) A= 238, Z= 90
Hints: c) 238-4=234=A92-2=90=Z

585. Possible units of entropy are;
(A) J (B) J/K (C) J-1 (D) Cal/K
Hints: b) $\Delta S = \frac{\Delta Q}{\Delta T} = \frac{J}{K}$

586. The specific heat at constant pressure of an ideal gas depend on;
(A) The temperature (B) The pressure
(C) Volume (D) None of the above
$\Delta Q_p = nC_p\,\Delta T$, $\Delta Q_p = constant\ \Delta T$
Hints: a)
$\Delta Q_p\ a\ \Delta T$

587. Choose the correct order of the rate of diffusion of the four gases;
(A) CO>NO2>CL2> SO2
(B) CO > SO2> NO2> CL2
(C) CO>NO2>SO2>CL2
(D) SO2>CL2>CO>NO2
Hints: c) Gases having lighter mass will diffuse more diffusion $a\frac{1}{\sqrt{d}}$

588. Nitrobenzene reacts with fuming HNO3 and H2SO4keeping temperature 100°c. The product formed is;
(A) (B)
(C) (D) All of the above
Hints: b) Nitrobenzene + fuming HNO_3+H_2SO_4

589. Anion of thioalcohol (C2H5S-) generally undergoes substitution unlike C2H5O- that favours elimination reaction. This is because
(A) C2HsO- is more nucleophile than C2HsS-
(B) C2HsS-is more nucleophile than
(C) C2HsO-
(C) Both are equally good nucleophile but C2HsS-is more basic
(D) The factor is the steric hindrance
Hints: b) $C_2H_5S^-$ is more nucleophile than

590. The poem ―The school boy‖ is written by:
(A) William Blake (B) William Blake
(C) John Keats (D) Tennyson
Hints: a) William blake

591. In purification of water the coagulant used is;
(A) NiSO4
(B) BaSO4
(C) CuSO4
(D) Potash Alum
Hints: d) potash Alum.

592. Which of the following is iso –electronic pair?
(A) Ne and Na
(B) Ne and Mg2+
(C) Al and C
(D) Ar and Ca
Hints: b) Iso electron means having same electron in valence shell Ne and Mg^{2+}

593. The correct sentence is;
(A) I came across a friend of yours the other day
(B) I came across a friend of yours‘ the other day
(C) I came across a friend of your the other day
(D) I came across a friend of your‘s the other day
Hints: a) I came across a friend of yours the other day.

594. What will be the equation of parabola having focus at F (0- 2) and directrix = 2 ?
(A)$x^2 = 2y$
(B) $y^2 = 2x$
(C) $x^2 = -8y$
(D) $y^2 = 8xy$
Hints: c) Equation of parabola x^2=-8y

595. If f (x, y, z) =e^x + sin y + z, then $\frac{\partial f}{\partial x} + \frac{\partial f}{\partial y} + \frac{\partial f}{\partial z}$at the point (0, 0,0) is
(A) 0
(B) 1
(C) 3
(D) 5
Hints:

596. For a homogenous function (z) of degree n if x $\frac{\partial f}{\partial x}$ + y $\frac{\partial Z}{\partial y}$, then this rule is
(A) Mean value theorem
(B) Euler theorem
(C) Taylor‘s theorem
(D) Mclaurin‘s theorem
Hints: b) Euler theorem

597. Stiff material is characterized by
(A) High ultimate strength
(B) High proportional limit
(C) High young modulus
(D) High breaking length

Hints: c) High young`s modulus

598. Two wires have the same diameter and length. One is made of copper the other is brass. The wires are connected to gather end to end when the free end are pulled in opposite direction then the two wires must have the same.
(A) Stress (B) Strain
(C) Elongation (D) Young's modulus
Hints: d) $y = \frac{T.stress}{T.stress}$
$y = \frac{F/A}{\Delta I/I}, = \frac{FI}{A\Delta I}$

599. Choose the major product of the following reaction:
$CH_3\ CH_2\ CONH_2 \xrightarrow[ether]{liAIH4}$ Product
(A) $CH_3CH_2NH_2$
(B) $CH_3CH_2\ CH_2\ NH_2$
(C) $CH_3CH_2\ NH_4$
(D) $CH_3CH_2CH_2NH_4$
Hints: b) $CH_3CH_2CONH_2 \xrightarrow[ether]{LiAIH4} CH_3 – CH_2 – CH_2 – NH_2$
2 bonds of oxygen remove and 2 H^- are added.

600. Artificial nails are usually made up of:
(a) Acrylic
(b) Nitrocellouse
(c) None of these
(d) Erythrosine
Hints: a) Acrylic is used in artificial nails.

601. The energy absorbed as heat by and ideal gas for an isothermal process is equal to:
a) The work done by the gas
b) The work done on the gas
c) Change in the internal energy of the gas
d) Zero, since the process in isothermal
Hints: a) as we know that
dq= dE + Pdv
dq = Pdv
The energy provided in isothermal process is totally consumed in work done by the gas.

602. It has been raining continuously last night.
a) Since
b) For
c) From
d) With
e) Hints: a) since

603. Termites eat wood with the help of enzyme produced by :
a) Trichonella
b) Tripanosoma
c) Trichonymph
d) Trichina
Hints: c) Trichonympha is a genus of parabasslid protists that lives in intestine of most of termite species to breakdown cellulose in wood and plant fibers which are eaten by their hosts.

604. CSF is found in between:
a) Pia mater and dura mater
b) Pia mater and arachnoid mater
c) Grey mater and pia mater
d) Dura mater and grey mater
Hints: b) cerebro spinal Fluid is found in Meninges layer of brain and spinal chord. Meninges is the system of 3 membranes i.e piamater, Dura Mater and Mracnoid mater. CSF is found between piamater and Arachnoid Mater.

605. Vernalization is the conversion of:
a) Spring variety to the winter variety
b) Winter variety to the spring variety
c) Winter variety to the summer variety
d) Summer variety to the winter variety
Hints: b) Vernalisation refers to the cooling of seed during germination in order to accelerate flowering. It shortens the vegetative periods of plants. So winter varieties of crop plants can be converted to spring varieties. It is mediated through vernalin which induce synthesis of Florigen.

606. Which region of electromagnetic spectrum is involved in nuclear magnetic resonance (NMR spectroscopy) ?
a) Micro wave
b) Radio wave
c) Infrared region
d) X-rays
Hints: b) High energy, short wavelengths
$f\ a\ \frac{I}{\lambda}$

607. The reduction of aldehydes and ketones in the presence of zinc amalgam and HCI is termed as:
a) Grignard reduction
b) Clemmenson reduction
c) Wolf-kishner reduction
d) Friedel-creft reduction
Hints: b) Clemmenson reduction

608. Aiman in laboratory dissolve 4g of NaOH in 250ml of water. The molarity of this solution is:
a) 0.4M
b) 4M
c) 0.2M
d) 0.1M
Hints: a) Amount taken by Aiman = 4g Molar mass of NaOH= 40g
No of moles = $\frac{amount\ taken}{molar\ mass}$
No of moles = $\frac{4}{40}$, = 0.1 mole
Molarity = $\frac{no\ of\ moles}{vol;of\ solution\ in\ lit\ or\ dm3}$
Molarity = $\frac{0.1}{0.25L}$
Molarity = 0.4

609. For all adiabatic processes:
a) The entropy of the system does not change
b) The entropy of the system increases
c) The entropy of the system decreases
d) The entropy of the system does not

change.

Hints: a) ΔQ=ΔU+ΔW ⇒ -ΔU = ΔW or Q=0

610. A bettery is permanently connected to a parallel plate capacitor and the energy stored is x joules. When one plate is moved so that separation of the plate is doubled, the energy now stored in joule is:
a) 4x
b) 2x
c) x/2
d) x/

Hints: b) $u = \frac{1}{2}\varepsilon_o E^2$ Ax
$U = \frac{1}{2}$ constant x
$u = x$
$u\ a\ x$
$2x\ a\ 2x$

611. Your friend proved more sympathetic that i expected he do.
a) Will
b) Shall
c) Would
d) Should

Hints: c) would

612. Human body thermostat is:
a) Medulla
b) Medulla Oblangata
c) Body fluid
d) Hypothalamus

Hints: d) Hypothalamus is a very small and important part of Diancephalon which governs the omeostasis of human body.

613. How many pairs of cranial nerves are mixed in nature?
a) 02 pairs
b) 04 pairs
c) 06 pairs
d) 08 pairs

Hints: b) Cranial nerves orginate or lead to the brain. There are 12 pairs which pass through foramen of skull. 3 pairs are sensory in nature, 5 pairs are motor and 4 pairs are mixed in nature.

614. 80 – S Ribosome is formed by the combination of:
a) 30S and 40S
b) 70S and 10S
c) 50S and 30S
d) 60S and 40S

Hints: d) 80S: Ribosome consist of small subunit and large subunit i.e 40S and 60S, respectively. It helps in protein synthesis.

615. The electronic transition that is involved in the visible region is:
a) σ- σ
b) d – d
c) π – π
d) π – σ

Hints: c) σ- σ^*Transition require high energy so, it occurs in UV.

π- π^* ouccurs in visible region, because it require less energy as compared to σ- σ^*

616. Hydrolysis of ester in the presence of KOH is called:
a) Estrification
b) Decarboxylation
c) Saponification
d) Neutralization

Hints: c) A process that produce soap.

617. Salts which dissolve in water with evolution of heat. The effect of temperature on their solubility will be:
a) Increased with increase in temperature
b) Decreased with increase in temperature
c) Solubility does not change
d) In some cases it increases while in others it decreases

Hints: b) The heat of reaction is negative therefore the solution may decrease.

618. Two long parallel wires x and y carrying a current of 3A and 5A respectively. The force per unit length experienced by x is 5 , 10^{-5} N to the right, the force per unit length experienced by wire y is:
a) 2 x 10-5 N to the left
b) 3 x 10-5 N to the right
c) 5 x 10-5 N to the right
d) 5 x 10-5 N to the left

Hints: d) current direction is same in both law 5×10^{-5} right=5×10^{-5}N left

619. The charged particle is situated in a region of space and it experience a force only when it is in motion, it can be deduce that the region of space and it experience a force deduce that the region encloses
a) Both electric and magnetic field
b) Both magnetic and gravitational field
c) A magnetic field only
d) An electric field only

Hints: c) F=qvB, magnitude motion depends on motion

620. The isotope which decay by β^{-1} emission to produce $_{48}Cd^{111}$ is:
a) $_{47}Ag^{111}$
b) $_{47}Ag^{110}$
c) $_{47}Ag^{112}$
d) $_{49}In^{111}$

Hints: a) with each β^{-1}emission the atomic number increase by one.

621. An eletron is projected with a velocity v into a region where there exists uniform electric field of strength E perpendicular to a uniform magnetic field of flux directly B. If the electron velocity is to remain constant, V must be:
a) Of magnitude B/E and parallel to B
b) Of magnitude E/B and parallel to B
c) Of magnitude B/E and perpendicular to both $\vec{E}$ and $\vec{B}$
d) Of magnitude E/B and perpendicular to both $\vec{E}$ and $\vec{B}$

Hints: d) V=E/B

622. The lady sitting me has an elegant style.
a) at
b) beside
c) about
d) around
Hints: b) beside

623. Sunken-stonata are found in the leaves of:
a) Hydrophytes
b) Xerophytes
c) Mesophytes
d) Gibberellins
Hints: b) sunken stomata are dound in Xerophytes surrounded by cuticle and hairs called as Trichomes. They are sunken below plain of epidermis.

624. Which of the following animals is not endothermic?
a) Salamander
b) Great white shark
c) Polar bear
d) Butterfly
Hints: b) Endotherms (warm blooded animals) maintain constant body temp (Independent of environment).

625. Embryonic mass can generate all of the following except:
a) Amnion
b) Chorion
c) Yolk sac
d) Allantois
Hints: b) the inner cell mass becomes embryonic disc which forms embryo and extra embryonic membranes except chorion (Trophoblast derivatice).

626. The aqueous solution of which one of the following compounds maintain its pH constant?
a) CH_3COOH and $(NH_4)_2SO_4$
b) NH_3NO_3 and KNO_3
c) NH_4OH and NH_4Cl
d) NH_4OH and NaCl
Hints: c) It is a basic buffer and can be prepared by mixing a weak base and it salt with strong acid. Its pH is greater then seven.

627. π- π electronic transition occurs in molecules that having
a) Double bond
b) Triple bond
c) Aromatic ring
d) All of the above
Hints: d) Unsaturation is necessary for π- π^* translation. Because it provide the π electron

628. Select alkene of the following hydrocarbons:
a) C_5H_{12}
b) C_5H_{10}
c) C_5H_8
d) C_4H_{10}
Hints: a) Apply the general formula for Alkane C_nH_{2n} + 2

629. The wave nature of electrons is suggested by experiments on
a) Line spectra of action
b) The production of x-rays
c) The photoelectric erect
d) Electrons diffraction by crystalline material
Hints: d) Diffraction of wlwctrons is similar to that of x-rays from crystal. Division and germer experinment.

630. Choose the correct reaction:
a) $PbO+4NaOH \rightarrow Pb(OH)_4 + 2Na_2O$
b) $PbO+2NaOH + H_2O \rightarrow Na_2[Pb(OH)_4]$
c) $PbO+NaOH + H_2O \rightarrow Na_4[Pb(OH)_6]$
d) $PbO+4NaOH + H_2O \rightarrow Na_4[Pb(OH)_6]$
Hints: d) $PbO+4NaOH + H_2O \rightarrow Na_4[Pb(OH)_6]$

631. The frequency of green light is 6×10^{14} Hz. Its wavelength is:
a) 50 nm
b) 500 nm
c) 5000 nm
d) 100 nm
Hints: b) As we know that
$C = u\lambda$
$\lambda = \frac{C}{v}$
$\lambda = \frac{3 \times 108\ m/s}{6 \times 1014\ Hz}$
$\lambda = 0.5 \times 10^{-6}\ m$
$\lambda = 0.5 \times 10^{-6} \times 10^{9}\ nm$
as one m = $10^9 nm$
$\lambda = 0.5 \times 10^{3} nm$
$\lambda = 500 nm$

632. One end of cylindrical pipe has a radius of 1.5 cm, water stream (density = 1.0×10^3 kg/m^3) steadily out at 7.0 m/s, the volume rate is:
a) 4.9×10^{-3} m^3/s
b) 4.9 m^3/s
c) 7.0 m^3/s
d) 49 m^3/s
Hints: a) $AV = \pi r^2 V$
$AV = (3.14),(1.5 \times 10^{-2})^2 \times 7$
$= 4.9 \times 10^{-3}$ m^3/s

633. An incompressible liquid flow along the pipe with area of cross section A, and A_2 with velocities $V_1$and V_2 respectively.
The ratio of the speed V_1/V_2 is:
a) A_1/A_2
b) A_2/A_1
c) $\frac{\sqrt{A1}}{A2}$
d) $\frac{\sqrt{A2}}{A1}$
Hints: b) A_1 $V_1=A_2V_2$, $V_1/V_2=A_2A_1$

634. Water flwos through a constriction is horizontal pipe as it enters the constriction, the water`s
a) Speed increases and pressure remains constant
b) Speed increases and pressure increases

c) Speed increases and pressure decreases
d) Speed decreases and pressure increases
Hints: c) $Va\ \frac{1}{A}$, $P.Ea\ \frac{1}{K.E}$

635. Will you give me your bicycle?
(passive form of the sentence is)
a) Will your bicycle be given to me by you?
b) Shall you be given your bicycle by you?
c) I shall be given your bicycle by you?
d) Your bicycle will be given to me by you?
Hints: a) will your bicycle be given to me by you?

636. The optimum pH of enzyme maltase is:
a) 4.5
b) 5.5
c) 6.1 – 6.8
d) 6.7 – 7
Hints: d) 6.7 – 7

637. Mature ovum in human beings is surrounded by:
a) Plasma membrane
b) Vitelline membrane
c) Corona radiate
d) All of the above
Hints: d) Mature ovum is surrounded by 3 layers. Vitelline membrane (Inner, thick and adjacent to plasma membrane), Zona pellucid (Middle, Thin) and Corona Radiata (Outer, thick).

638. In mitochondria UGA codon act to specify
a) Arginine
b) Glutamic acid
c) Tryptophan
d) Valine
Hints: c) UGA in mitochondria codes for tryptophan rather than as a chain terminator.

639. When an electron drop from any higher orbit i.e $n_2 \geq 3$ to the second orbit $n_1=2$, the spectral lines produced fall in the region:
a) Visible
b) Ultraviolet
c) Infrared
d) None of these
Hints: a) n=2, 3, 4, 5 to n=1 is UV
n=3,4,5 to n = 2 is visible
n=4,5 to n = 3 is IR.
Balmer series. Visible region
$\frac{1}{\lambda} = R\ (\frac{1}{(2)2} - \frac{1}{(3)2})$

640. Carotenoids pigments are:
a) NAD
b) FAD
c) NADP
d) ADP
Hints: d) coenzymes helps enzymes in metabolism e.g NAD, NADP, FAD helps in oxidation reduction reactions.

641. Carotenoids pigments are:
a) Yellow, Red, Green, blue
b) Orange, Yellow, Red, brown
c) Green, Yellow, Blue, Brown
d) Blue, Red, Green, Yellow
Hints: b) Carotenoids absorb light in blue, green violet region and reflect yellow, orange and red wavelengths.

642. Polio immunization vaccine is effective:
a) 50 %
b) 60 %
c) 80 %
d) 90 %
Hints: d) According to CDC 90% of polio vaccine receipents develop protective antibodies against polio virus.

643. $NH_4OH_{(aq)} \rightarrow NH^+_4 + OH^-_{(aq)}$
Consider the above ionization. Ammonium choride is added to the system.
Select the correct statement
a) The equilibrium will shift to the right
b) The equilibrium will shift to the left
c) The equilibrium remain undisturbed
d) The equilibrium will be attained quickly
Hints: b) The equilibrium will shift to left or backward because of common ion effect

644. Select molecule that has unpaired electrons in anti-bonding molecular orbitals:
a) N_2
b) Cl_2
c) H_2
d) O_2
Hints: d) O_2

645. Waxes are the esters of fatty acids with high molecular weight.
a) Monohydroxy alcohols
b) Dihydroxy alcohols
c) Trihydroxy alcohols
d) All of the above
Hints: a) waxes are long-chain saturated and unsaturated fatty acid esters with monohydroxy alcohols, which have high molecular weight. While fats and oils have esters of fatty acid having glycerol and trihydroxy alcohol.

646. The percentage error in the measurement of mass and speed are 5 % or 6 % respectively the maximum error in the measurement of K.E is:
a) 17 %
b) 30 %
c) 15 %
d) 90 %
Hints: a) measured value multiplied by power. K.E= ½ mv^2 = 5% + 12% = 17%

647. Weight rather than mass be used in calculating:
a) Moment of inertia of a body
b) The stress in a wire due to load hanging from it
c) The binding energy of the nucleus
d) The gravitational force between the two bodies
Hints: d) The attractive force of earth on body is weight.

648. A flat coil of wire having 5 turns has an

inductance L. the inductance of similar coil having 20 turns is:
a) 4L
b) L/4
c) Ml
d) L
Hints: a) $\frac{L1}{L2} = \frac{N1}{N2}$
$L_2N_2 = L_2N_1$
$L_2 = \frac{L1N2}{N1} = \frac{20}{5}$ L
$L_2 = 4L_1$

649. Semi-cinductor material have
a) Ionic bond
b) Covalent bond
c) Mutual bond
d) Metallic bond
Hints: b) Covalent bond

650. She does not wash clothes on Fridays. (*Passive form of the sentence is)*
a) Clothes are not being washed by her on fridyas.
b) Clothes were not washed by her on Fridays.
c) Clothes were not being washed by her on Fridays.
d) Clothes are not washed by her on Fridays.
Hints: d) Clothes are not washed by her on Fridays.

651. Misuse of cannabis results.
a) Psychosis
b) Euphoria
c) Paranoio
d) Photophobia
Hints: a) Cannabis known as marijuana causes Halucinations. So its abuse can result in psychosis which is a mental disorder.

652. Outer wall of Guard cells is:
a) Thin and elastic
b) Thick and elastic
c) Thin and non elastic
d) Thick and non elastic
Hints: a) Gaseous exchange in plants and protected by guard cells through diffusion.

653. The critical day length of a short-day plant is:
a) 11 :00 hours
b) 15 : 00 hours
c) 11 :1/2 hours
d) 15 :1/2 hours
Hints: d) short day plants need continuous 8.5 hours dark period for flowering.

654. Select ligand which is bidentate and can form chelates.
a) CH_3CH_2
b) PH_3
c) H_2O CH_2 NH_2
d) CH_2 NH_2
Hints: d)

655. The proton acceptor is:
a) NH_3
b) BF_3
c) HCl
d) H^+
Hints: a) Because the N in NH_3 molecule contain one lone pair of electron.

656. Which one of following acids has a strong conjugate base?
a) CH_3COOH
b) HCl
c) HNO_3
d) H_2SO_4
Hints: a) Because the CH_3COOH is a weak acid thereforce its conjugate base will be strong.

657. The behavior of ferromagnetic domains in an applied magnetic field gives rise to:
a) Hysteresis
b) Ferromagnetism
c) The curie law
d) Gauss`s law for magnetism
Hints: a) Hysterises topic Domain theory.

658. Which of the following electromagnetic radiation has photons with greatest momentum?
a) Blue light
b) Yellow light
c) X-rays
d) Radio wave
Hints: c) $f\ a\ \frac{1}{\lambda}$, $E\ a\ f$ As p = mv as x- ray have high velocity therefore has greater momentum.

659. A LASER beam can be sharply focused because it is:
a) Highly coherent
b) Intense
c) Place polarized
d) Highly directional
Hints: a) when coherent, then unidirection and intense.

660. Binding energy of nucleus is the energy that must be supplied to:
a) Remove nucleons
b) remove and *a*-particle
c) remove a β-particle
d) separate the nucleus into its constituent nucleons.
Hints: d) Binding energy required to separate the nucleous. $E=\Delta mc^2$

661. There are fish in this pond
a) many
b) much
c) any
d) more
Hints: a) many

662. Which of the following animal included in deuterostome?
a) Mytelus
b) Chaetopterus
c) Penguin
d) Jelly fish
Hints: c) There are four phyla of deuterostomes:

Phylum Chordata,
Phylum Echinodermata,
Phylum Hemichordata and
Phylum Xenacoelomorpha.

663. The chloroplast size is about,
a) 1-2 μM
b) 2-4 μM
c) 4-6 μM
d) 6-8 μM
Hints: d) Chloroplast is a type of plastid in plant cells. Its length ranges from 5-10 micrometer and 2-3 micrometer thickness.

664. Heterospory occur in:
a) Selaginella
b) Equisetum
c) Lycopodium
d) Lepidodendron
Hints: a) lycopodium is homosporous-all spores are equal in size. Selaginella and Isoetes are heterosporous-spores are of two distinct sizes, microspores and megaspores.

665. Select cresol out of the following benzene derivatives?
Hints: d)

666. Select the correct formula of chloropenta equa-chromium (iii) chloride.
a) $[Cr(H_2O_5)\ Cl]Cl_3$
b) $[Cr(H_2O5)5Cl]Cl_2$
c) $[Cr(H_2O)_5Cl_3]Cl$
d) $[Cr(H_2O)_5Cl_3]Cl_3$
Hints: a) $[Cr(H_2O_5)Cl]Cl_3$

667. The components of bronze alloy are:
a) Copper and zinc
b) Copper and tin
c) Zinc and tin
d) Chromium and tin
Hints: b) Cu-17-90% and Tin 25-10%

668. A larger water tank open at the top has small hole in the bottom when the water level is 30 m above the bottom of the tank the speed of the water leaking from the hole is:
a) 2.5 m/s
b) 24 m/s
c) 44 m/s
d) Cannot be calculated unles the area of the hole is give
Hints: b) v = $\sqrt{2\ gh}$, = $\sqrt{29.8\ m/s}$ × 30 m = 24 m/s

669. A 6.0 kg block is released from rest 80 m above the ground. When it has hellen 60 m its kinetic energy is approximately:
a) 4800 J
b) 3500 J
c) 1200 J
d) 120 J
Hints: b) K.E= ½ mv^2, $2gh=vf-vi^2$, *[vi=0, h=60 m]*

670. A science museum designs an experiment to show the fall of feather in a vertical glass vacuum tune. The time of fall from rest is too close to 0.5 s. What length of tube is required?
a) 1.3 m
b) 2.5 m
c) 5.0 m
d) 10.0 m
Hints: a) S= vit + ½ gt^2 [vi=0 s=?]

671. Two projectiles are in flight at the same time.
a) Fall flat upon a stranger,
b) Stay alive working hard
c) Unable to be successful
d) Disapprove of some body
Hints: d) Disapprove of some body

672. Two projectiles are in flight at the same time.
a) Is always 9.8 m-s^2
b) Can be horizontal
c) Can be large as 19.8 m-s^2
d) Is zero
Hints: d) Time of flight is zero.

673. A body is moving in a circle of radius (r) with a variable speed, the acceleration of the body is:
a) Centripetal acceleration
b) Tangential acceleration
c) Angular acceleration
d) All of the above
Hints: d) Satisfy all acceleration

674. He said to me, Why have you come late? [indirect form of the sentence is:]
a) He asked me why I had come late.
b) He asked me why I came late.
c) He asked me why I have came late
d) He told me as to why I had come late.
Hints: a) He asked me why I had come late.

675. The product of light reaction travels from:
a) Cristae to stroma
b) Stroma to hrana
c) Grana to cristae
d) Grana to stroma
Hints: d) As light reaction occurs in Grana and its products are: ATP and 2 NADPH while dark reaction completes in stroma of chloroplast.

676. In stomach the pepsinogen is synthesized and secreted by:
a) Mucus cells
b) Parietal cells
c) Hormonal cells
d) Chief cells
Hints: d) parietal cells secrete HCl, Chief cells secretes Pepsinogen, Mucus cells secretes Mucus and Hrmonal cells secretes Gastrin.

677. Amount of o_2 carried by red blood cells is:
a) 77%
b) 90%
c) 87%
d) 97%
Hints: d) 97% of O_2 is carried in the form of Oxyhaemoglebin while 3 % as dissolved plasma.

678. Chooses the correct relationship, when E=energy, h=planks constant, c=velocity of light, u = frequency, λ wavelength:
a) E=hvc
b) E=c/λ
c) E=hv
Hints: c) as E= hv(planks equation, quanta energy)

679. Choose reactants whose reaction product is ester:
a) CH_3OOH and CH_3OCH_3
b) CH_3COOH and C_2H_5OH
c) CH_3COOH and CH_3CHO
d) CH_3COOH and CH_3COCH
Hints: b) CH_3COOH and C_2H_5OH

680. Choose the IUPAC name of the following compound:
a) 4-methy1-2-pentne
b) 2-methyl-33pentene
c) 2-methyl-2-penten
d) 4,4-Dimethyl-2-pentene
Hints: a) 4-methyl-2-pentne

681. A particle of mass m has momentum p,its K.E will be:
a) mp
b) p^2m
c) p^2/m
d) $p^2/2m$
Hints: d) $K.E = \frac{p2}{2m}$, $K.E = \frac{1}{2}mv^2 \times \frac{m}{m} = \frac{1}{2}\frac{m2v}{m}$ $= \frac{p2}{2m}$

682. The first lionization energy of an atom depends on:
a) Charge on nucleus
b) Screening effect
c) Electronic configuration
d) All of the above
Hints: d) By definition ionization energy needs all.

683. For principle quantum number n=3 the value of magnetic qantum number will be:
a) 3
b) 6
c) 5
d) 7
Hints: c) l= n-1 →1=3-1=2, ml= 2l+1, 2 × 2 + 1=5

684. Fission fragments usually decay by emiting:
a) A-particles
b) Electrons and neutrons
c) Positron and neutrinos
d) Only neutrons
Hints: d) Only neutrons, fission reaction.

685. Nuclear fusion at the sun is increasing its supply of:
a) Hydrogen
b) helium
c) nucleons
d) neutron
Hints: b) helium

686. Any baryon is a combination of:
a) three quarks
b) two quarks
c) two quarks and an anti-quark
d) one quark and one anti-quark
Hints: c) Three quarks, proton + neutron = Baryan.

687. Choose the correct sentence:
a) as far as I know he bear a good moral character.
b) So far as I know, he bears a good moral character.
c) As long as I know, he bear good moral
d) Not that I know, he bear a good moral character.
Hints: b) so far as I know, he bears a good moral character.

688. The person is overweight ehen the body mass index is between.
a) 15 to 24.9
b) 17.5 to 24.9
c) 18.5 to 24.9
d) 25. To 29.9
Hints: d)

689. The blood flow in ml/minute during exercise to the brain is:
a) 1500 ml
b) 1600 ml
c) 1800 ml
d) 1900 ml
Hints: a) the normal blood flow to the brain in resting hours is 750 ml / minute and this flow doubles during exercise.

690. The number of hydrogen bond between guanine and cytocine are:
a) One
b) Two
c) Three
d) Four
Hints: c) IN DNA purine and pyrimidines are bonded by Hydrogen bonds i.e Guanine forms three Hydrogen bonds with Cystein, while Adenine form 2 Hydrogen bonds with thymine.

691. Choromium compound in which oxidation state is 6+ behave as:
a) strong oxidizing agent
b) strong reducing agent
c) very weak oxidinzing agent
d) very weak reducing agent
Hints: a) strong oxidizing agent

692. The shear modulus of elasticity G is:
a) $Al/F\vartheta$
b) $Fl/A\vartheta$
c) $F/A\vartheta$
d) $A\vartheta/F$
Hints: c) $\frac{F}{AQ}$, $\frac{F/A}{\tan\theta}$, $\tan\theta\ \theta$

693. In P type substances, the charge carriers in

minorities are:
a) Holes
b) Electrons
c) Proton
d) Positive ions
Hints: b) Electrons, number of negative charges are small.

694. The local inns are bursting at the seams and may not be able to accommodate anymore. [The underlined phrase means]:
a) Unhygienic
b) Overcrowded
c) Empty
d) Shutting Down
Hints b) overcrowded

695. The larva of balanoglossus (Hemichordate) is called:
a) Bipinnaria
b) Radiolaria
c) Tornaria
d) Trochophore
Hints: c) Toranaria larva was 1st described by J. Muller. Balanoglosus is an ocean dwelling worm and is hemichordate.

696. The oragans of excretion in crustacean are:
a) Iron
b) Copper
c) Zinc
d) Magnesium
Hints: c) Crustaceans are arthropdes and their waste materials are collected from the body by clusters of blunt, hollow tubes called am Malphigian Tubules.

697. All of the following are micronutrients except:
a) Iron
b) Copper
c) Zinc
d) Magnesium
Hints: d) Mg is a secondry micronutrient while Fe, Cu, and Zn are micronutrients.

698. What is true about modern methods used in the determination of the structure of compounds?
a) Accurate but more time consuming
b) Accurate, rapid but chemicals are used in large amounts
c) Accurate, rapid but sophisticated and complicated
d) Accurate, simple and less time consuming
Hints: c) Accurate, rapid but sophisticated and complicated

699. 100% transmission in IR spectroscophy means:
a) No absorption
b) 50 % absorption
c) 75 absorption
d) 100 % absorption
Hints: a) 100% transimission means no absorbence but it do not occurs usually.

700. The pH of 0.001 M aqueous solution of NaOH is:
a) 6
b) 13
c) 11
d) 12
Hints: c) PoH OF 0.001 = 10^{-3}
PoH=1g10-3
PoH=3
And we know
pH + PoH = 14
pH = 14-PoH
pH = 14-3
pH = 11

701. In an unbiased Pn junction:
a) The electric potential vanishes every where
b) The electric field vanishes every where
c) The diffusion current vanishes every where
d) The diffusion and drift currents cancel each other.
Hints: c) The diffusion current vanishes every where

702. Two vectors $\vec{A}$ and $\vec{B}$ are such that $\vec{A} + \vec{B} = \vec{A} - \vec{B}$ then select the correct statement:
a) $\vec{A}=0$
b) $\vec{B}=0$
c) Neither $\vec{A}$ nor $\vec{B}$ is zero
d) None of the above
Hints: b) $\vec{A} = \vec{A}$ by difination of $\vec{A} + 0 = \vec{A} - 0$
Subtraction of vectors.

703. He extolled the virtues of the Russian people. [*The underlined word means:]*
a) Admired
b) Praised
c) Censured
d) Adopted
Hints: b) praised

704. Balantidium coli lives in the intestinal tract of:
a) Pigs and rats
b) Pigs and monkeys
c) Rats and Dogs
d) Cat and sheep
Hints: a) Balautidium coli is a parasitics specie.

705. Excited electrons from photo system –II are captured by:
a) PC
b) PQ
c) Cytochrome-b
d) Cytochrom-f
Hints: b) PQ is Quiuone molecule involved in photosynthesis.

706. Dicotyledonous flowers are usually:
a) Dimerous
b) Trimerous
c) Tetramerous
d) Pentamerous

Hints: d) (There are two correct options c and In monocots, flowers are trimerous (number of flower parts in a whorl of threes), while in dicots the flowers are tetramerous or pentamerous (flower parts are n multiples of fours or fives).

707. Select mineral that is considered as macronutrint.
a) Phosphorus
b) Zinc
c) Iron
d) Iodine
Hints: a) phosphorus is a primary macronutreint (Required in large amount).

708. Two atoms A and B have the electronic configuration given below:
(x) $IS^2\ 2S^2\ 2P^6\ 3S^1$
(y) $IS^2\ 2S^2\ 2P^5$
Which of the following compounds are they likely to form?
a) Xy
b) Xy_2
c) X_2y
d) Xy_3
Hints: a) The X has on electron in last shell and Y has one electron deficient, so the compound likely to form XY.

709. Which of the following ions can act both as bronsted acid and base in solvent water?
a)
b)
c)
d) $PO^{-3}{}_4$
Hints: c) As base
$HCO^{-}{}_3 + H_3O^{+} + \rightarrow H_2CO_3 + H_2O$
As acid
$HCO_3 + OH^{-} + \rightarrow CO^{2+}{}_3 + H_2O$

710. Which of the following is the best evidence for the wave nature of matter?
a) The photoelectric effect
b) The Compton effect
c) The specteral radiation form cavity radiation
d) The reflection of electrons by crystal
Hints: d) Diffraction of electrons. Davission and germer expt.

711. The rotational analogue of mass in linear motion is:
a) Torque
b) Weight
c) Moment of inertia
d) Angular momentum
Hints: c) $I=mr^2$

712. The ration of inertial mass to the gravitational mass is equal to:
a) ½
b) 1
c) 2
d) No fixed number
Hints: b)
$F = ma,\ m = {}^{F}/_{a}\ m = {}^{w}/_{g},\ \frac{m}{m} = \frac{F/a}{w/g} = 1$

713. Choose the correct sentence:
a) He throwed it out the window
b) He threw it out the window.
c) He thrown it out the window.
d) He threwn it out the window.
Hints: b) He threw it out the window.

714. 6-NADH can yield:
a) 12-ATP
b) 39-ATP
c) 18-ATP
d) 36-ATP
Hints: c) 1 NADH in ETC produce 12 protons which helps ATP synthase to use this gradient for the formation of 3 ATPs.

715. Rhizobium belong to sub group of bacteria called:
a) Alpha-protobacteria
b) Beta-protobacteria
c) Gamma-photobacteria
d) Delta-protobacteria
Hints: a) Majority of Alpha protobacterias are phototrophic.

716. Bacteria living in the gut, forms the association of:
a) Mutualism
b) Peridation
c) Parasitism
d) Commensalism
Hints: a) Symbiosis/Mutualism refers to the association in which both members are benefited.

717. Which is the strongest acid?
a) CH_3COOH
b) $CH_2ClCOOH$
c) $CHCl_2COOH$
d) CCl_3COOH
Hints: a) CH_3COOH can easily donate a proton.

718. Choose the type of hybridization of carbon atoms in cyclopropane and the bod angle C-C-C
a) Sp3, 109.5^o
b) Sp3, 60^o
c) Sp2, 120^o
d) Sp2, 107^o
Hints: b) Sp3, 60^o

719. Hemicetl containing both:
a) Alcohol and aldehyde function groups
b) Alcohol and ether functional groups
c) Aldehyde and ether function groups
d) Alohol and carboxylic acid function troups
Hints: b) Alcohol and ether functional groups

720. A satellite is orbiting close to the surface of the earth, its speed is:
a)
b)
c) Rg/2
d) Rg

Hints: b) $v = \sqrt{gR}, g = v^2/R, v = \sqrt{gR}$

721. In an adiabatic process there is no:
a) Work done
b) Exchange of heat
c) Change in temperature
d) Change in internal energy
Hints: b) ΔQ=ΔU+Δw, 0=ΔU+Δw by difination of adiabatic process.

722. The quantity ½ $\varepsilon_o E^2$ has the significant of:
a) Energy / farad
b) Energy / coulomb
c) Energy / volume
d) Energy / volt
Hints: c) Energy density = energy / volume

723. The rising price of electricity has affected the less fortunate.
a) Positively
b) Not
c) Adversely
d) Slowly
Hints: c) Adversely

724. Smallest gametophyte is present in:
a) Adiantum
b) Funaria
c) Marchantia
d) Angiosperms
Hints: a) The Smallest gametophyte is the thallus (Heat shape body).

725. Incubation period of HCV is:
a) 2 weeks to 6 months
b) 4-10 weeks
c) 4-20 weeks
d) 4-26 weeks
Hints: a) The incubation period (the time between initial contact with the virus and the onset of the disease) for hepatitis C ranges from 2 weeks to 6 months, most commonly 6 to 9 weeks.

726. Osteopenia starts at the age of:
a) 30-40
b) 30-35
c) 40-45
d) 50-60
Hints: b) osteopenia refers to bone density that is lower than normal peak density but not low enough to be classified as osteoporosis. All people begin losing bone mass after they reach peak bone density at about 30 years of age. The thicker your bones are at about age 30, the longer it takes to develop osteopenia and orosteoporosis.

727. The order of reducing power of halide ion is:
a) $I^{-1} > Br > Cl^- > F^-$
b) $F^- > Cl^- > Br^- > I^-$
c) $I^{-1} > Cl^- > F^- > Br$
d) $Br > Cl^- > I^- > F^-$
Hints: a) $I^{-1} > Br > Cl^- > F^-$

728. Stable electronic configuration of Cu(29) is:
a) [Ar] $4S^2 3d^4$
b) [Ar] $4S^0 3d^{10}$
c) [Ar] $4S^1 3d^{10}$
d) [Ar] $4S^2 3d^7 4p^2$
Hints: c) an electron 4s transfer to d to get half filled and fully filled d.

729. The presence of microorganisms in drinking water is determined by:
a) COD
b) TOC
c) BOD
d) TDS
Hints: c) BOD

730. For ohmic substance, the electron drift velocity is proportional to:
a) Cross sectional of the sample
b) The length of sample
c) The mass of an electron
d) The electric field in the sample
Hints: d) $V_d \propto E$

731. The sum of the emf and potential differences around aclosed circuit is zero is a consequence of:
a) Ohm`s law
b) Newton`s law
c) Conservation of energy
d) Conservation of charge
Hints: c) KvL

732. Four wire meet at a junction. The first carries 4A in to the junction, the second carries 5A out of the junction, and third carries 2A out of the junction. The fourth carries:
a) 7 A out of the junction
b) 7 A into the junction
c) 3 A out of the junction
d) 3 A in to the junction
Hints: d)

733. The principle of a simple form of mass spectrometer ions are passes through a narrow slits S^1 and S^2 and into a velocity selector. The ions after passing through the slit S^3 are deviated by uniform magnetic field the quantities that must remain constant for all ions arriving ato photographic plate are:
a) Charged
b) Charged / mass
c) Kinetic energy
d) Mass
Hints: a) spectrometer velocity equation

734. The proper time between two events is measured by click at rest in a reference frame in which the two events:
a) Occurs at the same time
b) Occurs at the same co-ordinates
c) Are separated by the distance a light signal can travel during th time interval
d) Satisfy none of the above
Hints: b) X, Y, Z, t coordinates

735. He said to me, what a stupid fellow you are! [Indirect form of the sentence is]:
a) He exclaimed that I was a very stupid fellow.
b) He told me that ou were a stupid fellow.

c) He exclaimed that what a stupid fellow I was.
d) He did tell me that I had been a stupid fellow.

Hints: a) He exclaimed that I was a very stupid fellow.

736. A hormone that prevents senescence in leaves is:
a) Absisic acid
b) Photo nasty
c) Seisomonasty
d) Demonasty

Hints: a) Abscisic acid is plant growth inhibitor and promote senescence (leaf fall).

737. The following elements H.N.P and Mg are included in:
a) Macronutrients
b) Micronutrients
c) Trace elements
d) Minor elements

Hints: a) Macronutreints are required in larger amouts, so they are provided through fertilisers.

738. The only human disease caused by VIROID is:
a) Hepatitis A
b) Hepatitis B
c) Hepatitis C
d) Hepatitis D

Hints: d) Viroids are infectious agents composed exclusively of a single piece of circular single stranded RNA which has some double-stranded regions. The hepatitis D viroid causes liver cell death.

739. The cathode in lead storage battery is made of:
a) Lead
b) Lead oxide
c) Lead hydroxide
d) None of the above

Hints: b) $PbO_2 + 2e^- + 4H^+ + SO^{2-}_4 \rightarrow pbSO_4 + 2H_2O$

740. The oxidation state of carbon in Na_2C_2 is:
a) +4
b) +2
c) -1
d) -4

Hints: C) 2(+1) +2(x) =0
+2+2x=0
X=-1

741. Choose atom that having spin quantum number ½ :
a) ^{12}C
b) ^{15}N
c) ^{16}O
d) ^{32}S

Hints: b) $^{15}N_1$ having the odd number of electron.

742. If p is the momentum of an object of mass m, then expression p^2/m has the same unit as:
a) Acceleration
b) Energy
c) Force
d) Impulse

Hints: b) Energy W=FS, W=kgm^2/s^2

743. Conservation of linear momentum is equivalent to:
a) Newton`s 1st law of motion
b) Newton`s 2nd law of motion
c) Newton`s 3rd law of motion
d) None of the above

Hints: a) $F = \frac{\Delta P}{\Delta t}$, $0 = \frac{\Delta P}{\Delta t}$, $\Delta p=0$, $p_1 = p_f$

744. He was in bed all day yesterday.
a) Laying
b) Lying
c) Lieing
d) Lied

Hints: b) lying

745. All of the following are triploblastic animals except:
a) Amphibian
b) Mollusca
c) Coelenterate
d) Echinodermata

Hints: c) Triploblastic Animal phyla: Platyhelminthes, Nemathelminthes, annelida, Arthropda, Mollusca, Echinodermata and chordate.

746. Hermaphrodite phylum is:
a) Annelida
b) Arthropoda
c) Echinodermata
d) Mollusca

Hints: d) Hermophrodite refers to an organism that reproductive organs associated with both male and female sexes. e.g snail.

747. A hormone that helps in growing seed less grapes,
a) Auxins
b) Cytokines
c) Ethylene
d) Gibberellins

Hints: d) Most commercial seedless grapes are sprayed with gibberellin to increase the size of the fruit and also to make the fruit clustres less tightly packed.

748. Oligosaccharides class of carbohydrates contain monosaccharides of about:
a) 2 to 8 units
b) 2 to 9 units
c) 2 to 10 units
d) 2 to 11 units

Hints: c) Oligo Sacchrides means few sugars. Constant in Beer-lambert law is the characteristics of the:

749. Molar extinction coefficient (∈) a constant in Beer-lambert law is the characteristics of the :
a) Solute
b) Solvent
c) Concentration
d) All of the above

Hints: d) A=ε=A/cl

750. The energy difference between adjacent energy levels of the hyderogen atom:
a) Increases with increasing energy
b) Decreases with increasing energy
c) First increases and then decreases with increasing energy
d) First decreases and then increases with increasing energy
Hints: b) Energy increasing, difference between levels decreasing.

751. A parachute of mass 80 kg descends vertically at a constant velocity of 3.0 m-s^{-1} taking acceleration of free fall as 10 m-s^{-1}, what is the net force acting on him?
a) 800 N upwords
b) Zero
c) 240 N downwards
d) 360 N downwards
Hints: b) Velocity is constant F=0

752. He said, "May this chold live long." [Indirect form of the sentence is;]
a) He prayed that that child may live long.
b) He prayed that that child will live long.
c) He prayed that that child might live long.
Hints: c) He prayed that that child might live long.

753. Blood pressure towards the brain during rest hours is:
a) 850 mm / minute
b) 900 mm/minute
c) 750 mm/ minute
d) 730 mm/ minute
Hints: c) 750 mm/ minute

754. Photo-respiration can generate:
a) 4-ATP
b) 36-ATP
c) 32-ATP
d) NO-ATP
Hints: d) Breakdown of RuBP into PGA and Phosphoglycolic acid in the presecnce of O_2 is called as Photorespiration. It is not a respiration process.

755. Dark reaction gets completed by the regeneration of:
a) PGA
b) PGAL
c) RuBP
d) RUBISCO
Hints: c) 6 Riboluse Phosphate + ATP ---- > RubP (It is now available to start another Dark reaction).

756. Sucrose on hydrolysis yield:
a) Glucose
b) Glucose and fructose
c) Glucose and maltose
d) Maltose and fructose
Hints: b) Sucrose is OligoSacchride (Di saccharide).

757. $N_2+3H_2 \xrightarrow{T} 2NH_3$
In the above reaction the limiting reagent is:
a) N_2
b) H_2
c) Ammonia
d) None of these
Hints: a) N_2

758. If absolute temperature of the gas is boubled and pressure is increased 4 times, then the volume becomes:
a) Half
b) Boubled
c) 4 times
d) Unchanged
Hints: a) Half, $pv = nRT$, $v = \frac{nRT}{p}$, $= \frac{2nRT}{24p} = \frac{V}{2}$

759. Four 20 Ω resistors are connected in parallel and combination is connected to parallel and combination is connected to a 20 V emf device. The current in the devise is:
a) 0.25 A
b) 1.0 A
c) 4.0 A
d) 5.0 A
Hints: c) $\frac{1}{R} = \frac{1}{20} + \frac{1}{20} + \frac{1}{20} + \frac{1}{20} = \frac{1+1+1+1}{20}$, $= \frac{4}{20}$
$\frac{4}{20}$
$R = 5$
$V = 20v$
$I = ?$
$I = V / R$
$I = 20 / 5, = 4.0A$

760. An electron is moving north in a region when the magnetic field is south. The magnetic force exerted on the electron is:
a) Zero
b) Up
c) Down
d) East
Hints: a) F=q VB sin(80)=0

761. A 0-0.1 A moving coil meter of 5 Ω resistance can be converted in to A 0-2 a meter by a resistance r with the meter when R is:
a) 0.025 Ω in parallel
b) 0.025 Ω in series
c) 0.050 Ω in parallel
d) 0.050 Ω in series
Hints: a) r = $\frac{IgRg}{I-Ig}$

762. The ratio between the velocity of sound in air at 4 atm and that at 1 atm pressure would be:
a) 1:1
b) 4:1
c) 1:4
d) 3:1
Hints: a) V = $\sqrt{rP/\delta}$

763. His bad friend will ruin him.
[*passive form of the sentence:*]
a) He will ruin has bad friends.
b) He is ruined by his bad friends.
c) He will be ruined by his bad friends.

d) He is being ruined by his bad friends.
Hints: c) He will be ruined by his bad friends.

764. "Forminifera" helps to determine the:
a) Generation time
b) Geological age
c) Ecological time
d) Physiological age
Hints: c) Foramanifera helps to determine the climate.

765. Phytochrome "Pr" absorbs red light of wave length
a) 600 nm
b) 660 nm
c) 560 nm
d) 730 nm
Hints: b) Pr is a blue form that absorbs red light (660nm) and Pfr is a Blue green form that absorbs far red light (730nnm).

766. Basidiomycota is also called as:
a) Club-mosses
b) Club-fungi
c) Sac-Fungi
d) Bread mold
Hints: b) The Basidiomycota or Club fungi produce sexual spores (basidiospores) externally on a club shaped structure called as Basidium.

767. Choose group that cause solubility of the dye in acids.
a) -OH
b) $–NR_2$
c) $–SO_2H$
d) COOH
Hints: b) $–NR_2$

768. What is number of hydrogen atoms in 5 moles of water?
a) 3.0115×10^{24}
b) 6.023×10^{24}
c) 6.023×10^{23}
d) 5.0×10^{25}
Hints: b) The fomula of water is H_2O. One molecule contain two H atoms $5 \times 2 \times 6.023 \times 10^{23}$

769. In the main postulated of Bohr atomic theory the angular momentum of electron in hydrogen atom is given by the relationship.
a) $mv = \frac{h}{2\pi}$
b) $r = \frac{Ze2}{4\pi Eomv}$
c) $mvr = \frac{nh}{2\pi}$
d) hvc
Hints: c) $mvr = \frac{nh}{2\pi}$

770. Colors of thin film result from:
a) Dispersion
b) Interference of light
c) Absorption of light
d) Scattering of light
Hints: b) Constructive and destructive interference.

771. During a reversible adiabatic expansion of an ideal gas, which of the following is not true?
a) $PV\gamma$=constant
b) PV=constant
c) PV=nRT
d) $TV\gamma$=Constant
Hints: b) this is true for isothermal process.

772. If the direction of initial velocity of the charged particle is neither along nor perpendicular to that of magnetic field then the orbit will be:
a) Circle
b) Helix
c) Ellipse
d) Straight line
Hints: b) Spring type path

773. Choose the correct sentence:
a) If knew him better, I would have insisted that he change the hour of the lecture.
b) If I knew him better, I would habe insisted that he changed the hour of the lecture
c) If I knew him better, i would insist that he change the hour of the lecture.
d) If I knew him better, I would insist for him to change the hour of the lecture.
Hints: c) If I knew hom better, i would insist that he change the hour of the lecture.

774. The interval between two successive division of bacteria is called:
a) Ecological time
b) Population time
c) Growth time
d) Generation time
Hints: d) time taken by a cell to become two or period between two successive generations is refered as Generation time.

775. Most disease symptoms appear during:
a) Lag phase
b) Log phase
c) Decline phase
d) Stop phase
Hints: b) Rising bacterial population inflicts greater tissue damage in the host.

776. Exdotoxins are released only when bacteria:
a) Excert
b) Reproduce
c) Die
d) Secrete hormones
Hints: c) Antibiotics, antibodies and bacterial cell death may cause release of endotoxins (lipopolysaccharides).

777. The osmotic pressure of dilute solution is given by the formula:
a) $\pi = \frac{RTC}{m}$
b) $\pi = \frac{M}{RTC}$
c) $\pi = \frac{RTC}{M}$
d) None of the above
Hints: c) $\pi = \frac{RTC}{M}$

778. Select the test used for the estimation of

glucose in blood and urine?
a) Tollen`s reagent test
b) Fehling`s solution test
c) Benedict solution test
d) All of the above
Hints: c) Benedict solution test

779. Excess of ethanol is heated with conc: sulphuric acid keeping the temperature 140°C. The product formed is:
a) $C_2H_5C_2H_5+H_2O$
b) C_2H_4
c) C_2H_5OH
d) C_2H_6
Hints: b) Ethene will form, dehydration occurs.

780. The mechanical energy spent by the external agency is converted into electrical energy stored in the coil. This relates to:
a) Ohm`s law
b) Coulomb`s law
c) Lenz`s law
d) Newton`s law of motion
Hints: c) $\varepsilon = -\frac{N\Delta\emptyset}{\Delta t}$ –ive shows Conservation of energy.

781. If $\frac{\Delta v}{\Delta r}$ is potential gradient, then the intensity of electric field at a point is:
a)
b)
c)
d)
Hints: c) E = $-\frac{\Delta V}{\Delta r}$ potential gradient $\frac{\Delta V}{\Delta r}$

782. 'Be poles apart' means:
a) Either of the two poles,
b) Have nothing in common,
c) Leaking position in a race,
d) Affect somebody greatly
Hints: b) Have nothing in common,

783. Phosphodiester linkage is formed between,
a) Two nucleo bases
b) Two sugar molecules
c) Two phosphates
d) Nucleotides and phosphates
Hints: d) PHOSPHODIESER BOND

784. A condition of excessive thirst due to diabetes is called:
a) Polyuria
b) Glycosuria
c) Polyphagia
d) Phlydipsia
Hints: d) Increased thrist can occur as a result of high blood sugar levels in diabetes or to be diagnosed diabetes patients.

785. Implantation of zygote takes place in the:
a) 2nd week
b) 3rd week
c) 4th week
d) 5th week
Hints: a) After fertilization egg stays for 3-5 days in fallopian tube befor entering the uterus and begins to implant itself to the uterine wall.

786. The shape of $SnCl_2$ is:
a) Linear
b) Trigonal pyramidal
c) Trigonal planar
d) Angular
Hints: c) In $SnCl_2$ the central metal atom contain 3 electron pairs, one is lone pair and two are Bond pair. They arrange round the central atom is V shaped with angle of 120°.

787. Which is not true about Grignard reagent?
a) They are highly reactive compounds
b) They are very stable compunds and can be isolated easily
c) They have synthetic importance
d) They are represented by general formula RMgX
Hints: b) Grignard reagent cannot be isolated easily from ether medium in which it is prepared.

788. Conc: HCl is added to a metal salt and then subjected to flame test on platinum wire. It imparts crimson color to the flame. Which metal salt it is?
a) Sodium
b) Potassium
c) Strontium
d) Calcium
Hints: c) Sodium is intense yellow, potassium is Lilac, Strontium is Crimson and Calcium and Brick red.

789. The unit of the electric field is:
a) N/C
b) V/m
c) J/C.m
d) All of the above
Hints: d) All E = $^{F}/_{q}$, E = $^{\Delta V}/_{\Delta r}$

790. The electric field due to uniform distribution of charge on a spherical shell is zero.
a) Every where
b) Only at the center of shell
c) Only inside the shell
d) Only one side of the shell
Hints: c) q_{net} =0, E = 0 inside the conducter. 1st Application of Gauss`s Law.

791. The efficiency of a transformer which draws a power of 20 watt is 60 %, the power supplied by it is:
a) 5 W
b) 1.2 W
c) 6W
d) 12W
Hints: d) E = $\frac{P\ output}{P\ input} \times \frac{100}{100}$

792. A long solenoid has length l and total number of N turns, each of which has a cross sectional area A, its inductance:
a) $\mu_o N^2 Al$

b) $\mu_o N^2 A/l$
c) $\mu_o N^2 l/A$
d) $\mu_o Nl/A$

Hints: b) $L = \frac{N\emptyset}{I} \times \rightarrow \frac{NBA}{I} \rightarrow \frac{N\mu IA}{I} \rightarrow \frac{N2\mu oA}{l}$

793. I insist the withdrawal of your statement.
a) for
b) on
c) at
d) in
Hints: b) on

794. A protest that forms sea-weeds:
a) Red algae
b) Brown algae
c) Green algae
d) Diatoms
Hints: c) sea weed is technically a protists which is multicellular and can be green, brown or red algae but the most pravelant form is green algae.

795. Basidiocarp is fomed in the:
a) Secondary mycelium
b) Primary mycelium
c) Tertiary mycelium
d) Quaternary mycelium
Hints: a) The secondry mycelium alongwith pprimary mycelium forms fruting body called as Basidiocarp.

796. Best known "Apicomplex" is the
a) Obligate parasites
b) Facultative parasites
c) Malarial parasites
d) Pathogenic parasites
Hints: c) Sporozoa or Apicomplexes are spore like bodies. They belong to protozoans and majority of them are parasites.

797. First law of thermodynamics is expressed as:
a) q= ΔE + W
b) ΔE=q-W
c) q=ΔE-pΔV
d) All of the above
e) Hints: d) ΔQ= ΔE + ΔW, rearranged first law of thermodynamics

798. The rate law equation for reaction is given as $\frac{dx}{dt} = K[FeCl_2]^1[K]^2$ the reaction is:
a) First order
b) Second order
c) Third order
d) Pseudo first order
Hints: c) Just odd the power of reactants in yate equation in 1+2=3

799. Choose the correct order of reactivity of alkyl halides?
a) R-I>R-Br>R>Cl>R-F
b) R-Br>R-I>R-F>R-Cl
c) R-F>R-Cl>R-Br>R-I
d) R-Cl>R-I>R-Br>R-I
Hints: a) The C- X bond in alkyl halide is polar in nature. The strength of C-X bond decrease down the group.

800. Instantaneous emf at instant t is ε=20 sin (100πt). The frequency of alternative current is:
a) 100 Hz
b) 200 Hz
c) 50 Hz
d) 150 Hz
Hints: c)
$W = 2\pi f$
$100\pi = 2\pi f$
$100 = 2f$
$100/2 = f \rightarrow f = 50$Hz

801. A current of 20.0A flows through a battery with an emf of 6.20 V. If the internal resistance of the battery is 0.01Ω, what is the terminal voltage?
(A) 6.40V (B) 31.0V (C) 1.24V
(D) 6.00V
Hints:
Vt = IR
∈ = (R + r) I
∈ = IR + Ir
∈ = Vt + Ir
Vt =∈- Ir (*by putting values we get* 6.00*V*)

802. Both DNA and RNA are synthesize by the process of:
(A) Transcription (B) Replication
(C) Polymerization (D) PCR
Hints: Polymerization is the process during which small molecules combines to form large molecules, as DNA and RNA both are large molecules made up from small molecules or Nucleotids.
Trsncription process is the formation of mRNA from DNA
Replication is the duplication of DNA PCR, PCR is used to make lopes of DNA

803. The cross between two dissimillar individuals is called:
(A) Test cross (B) Interbreeding
(C) Eplstasls (D) Hybridization
Hints: Test cross: test cross is a cross during which dominant individual of Fl generation are cross with homozygous receissive parents.

804. 'CHUCKLE' mean:
(A) Bouquet of flowers
(B) displeasing manner
(C) suppressed laughter
(D) religious movement

805. Cell-well of gram positive bacteria is composed of:
(A) Glycolipids (B) Glycoproteins
(C) Lipoproteins (D) Peptidoglycan
Hints: Cell wall of all bacteria (Gram positive end gram negative) is made up form pedtidoglycan which is also called murein.

806. Shade loving plants are caleed:
(A) Hallophytes (B) Mesophytes
(C) Sciophytes (D) Xerophytes

Hints: Halophyts, mesophyts and xerophyts all these are groups of plant depend upon water availability Sclophyts. These are shade loving plants.

807. Which of the following is a lewis acid?
(A) CH3OH
(B) AlCl3
(C) NH3
(D) CH3OCH3
Hints: (b) $AlCl_3$ is lewis acid. The Al in $AlCl_3$ is short of two electrons for its complete actet and can accpt a pair of electrons from a base like NH_3.

808. Ethanol (CH3CH2OH) and dimethyl ether (CH3OCH3) are the best considered as:
(A) Structural isomers (B) Stereo isomers
(C) Enantiomers (D) Diasteromers
Hints: (a) CH_3CH_2OH and CH_3OCH_3 are functional group isomers (Structural isomers) which have the same molecular formulae but different structures.

809. A tertiary carbon is bonded directly to:
(A) 2 Hydrogens (B) 2 Carbons
(C) 3 Carbons (D) 4 Carbons
Hints: © A teriary carbon is directrly bonded with three other carbon atoms.

810. Which derived unit below is equlvalent to the SI unit for magnetic field strength, the tesla, T?
(A) Nm/A (B) NA/m (C) N/Am
(D) Am/N
Hints: Because we know that
$F = ILB$, $B = {}^{F}/_{IL} = {}^{N}/_{Am}$

811. A certain redionuclide decays by emitting an α-particle. What is the difference between the atomic
numbers of the parent and the daoughter nuclides?
(A) 1 (B) 2 (C) 4 (D) 6

812. A wire of resistance 3.0 Ω is stretched to twice its original length. The resistance of new wire will be:
(A) 1.5 Ω (B) 3.0 Ω (C) 6.0 Ω
(D) 32.0 Ω
Hints: Because we know that when length increses the resistance also increase. Therefore *RaL*

813. Any DNA molecule having foreign DNA is called:
(A) Mutant
(B) Recombinant
(C) Crossing over
(D) All of the above
Hints: Mutation and crossing over are the process which produce variation or changes is the DNA of the same organism. So mutation and crossing over are the processes not the DNA. Recombinant DNA is that DNA which have a segment of an atter DNA molecules or a foreign DNA molecules.

814. The theory of uniformitarianism was proposed by:
A) Hutton and tyell (B) lamarch
B) Jgeorge Cuvier (D) Darwin
Hints: Hutton and lyell proposed the theory of uniformitarnism lamak proposed. Theory of inheritance of acquired characters, Darwin proposed theory of origin of species by means of nature selection Geoage lawier proposed Catestropism of natural selection.

815. 'Money Grubbing' impllies:
(A) Money saving (B) Money making
(C) Money hunting (D) Money spending

816. ―Photo-phosph-rylation‖ is:
(A) ATP synthesis by food energy.
(B) ATP synthesis by solar energy.
(C) ATP synthesis by source of water.
(D) ATP synthesis by source of $NADH_2$
Hints: Photo phosphorylation
Photo-mean light
Phasphorylation is the process of ATP synthesis so photophasphorylation is the process of ATP synthesis with the help of light.

817. Light absorbing igments in photosystem first is:
(A) P 600 (B) P 680 (C) P 700
(D) P 760
Hints: Photosystem I absorbe light 700 nm while photosystem II absorbe light of 680 nm, therefore the correct option is 700.

818. When acetylene is passed through hot iron tube at 400 ^{o}C, it gives:
(A) Benzene (B) Toluene
(C) O-Xylene (D) Metaxylene
Hints: (a) When ecetylene is passed through hot iron tube at 400 ^{o}C, it undergoes cyclic polymerization to form benzene.

819. Which of the following compounds will react with methyl magnesium Iodide followed by acid hydrolysis to give ethyl alcohol?
(A) Ethylene (B) Acetone
(C) Acetaldehyde (D) Formaldehyde
Hints: (d) Formaldehyde reacts with methyle magnesium iodide to form an addition product which upon hydrolysis gives ethyl alcohol.
$HCHO + CH_3MgI \rightarrow CH_3CH_2O^{-}Mg^{+}I \xrightarrow{HCL/H2O} CH_3CH_2OH + MgI(OH)$

820. Diethyl ether and Methyl propyl ether are:
(A) Conformational isomers
(B) Meta mers
(C) Geometrical isomers
(D) Enantiomers
Hints: (d) Metamers are structural isomers which have the same functional groups but different groups are attached with the same multivalent atom (functional group).

821. Awire of resistance 4Ω is bent into a circle.

The resistance between the ends of a diameter of the circle is:
(A) 4Ω (B) 1 Ω (C) 1/4 Ω (D) 1/16 Ω
Hints: (c) when a wire of resistance 4 Ω is bent into a circle the resistance b/w the ends of a dimeter of the circle is lood the parallel combination so for parallel combination the resistance decreases.

822. The state of thermal equllibrium between two systems is determined by equality of:
(A) Pressure (B) Volume
(C) Temperature (D) Mass
Hints:

823. In the direction indicated by an electric field line:
(A) The potential must increase
(B) The potential must decrease
(C) The electric field strength must increase
(D) The electric field strength must decrease
Hints: (b) in the direction indicated by an electric field line the potential must decrease.

824. The enlarged lining epithelium cells connected with groups of developing spermatozoa in testes is:
(A) Somatic cells (B) Serkoli cells
(C) Stem cells (D) Totipotent cells
Hints: Sterloli cells are present in seminiferous tubes which helps in the development of spermatozoon.
Totipotent cell are a type of stem cell which have the ability to form a complete ornanism including the extra embryonic membrans and as option c and d are similar so they are wrong chromosomes as somatic cell and stem both have (2n) number of chromosome therefore option a is also incorrect.

825. The hormone released by the posterior pitultary. That stimulates the contraction of uterine and mammary gland muscles is called:
(A) Prolactin (B) IH (C) FSH
(D) Oxytocin
Hints: Protactin, leutinizing hormone and follical stimulating hormone all these are released by anterior pitultary. Oxytoein: Oxytoein is the only hormone released by poster pituitary.

826. 'Get into a soup' implies:
(A) Face a predicament
(b) play a game of cards
(C) Swallow a fly in soup
(d) go for hot spicy soup

827. A study of communities in relation to environment is called:
(A) Social ecology (B) Synecology
(C) Autoecology (D) Heteroecology

828. In Eukaryotes, DNA replication proceeds at the rate of:
(A) 50 base pairs per seconds
(B) 40 base pairs per seconds
(C) 20 base pairs per seconds
(D) 30 base pairs per seconds
Hints: In eukaryotes ornanisms the DNA polymerase enzymes can add 50 nitrogenous bases to the newly forming DNA molecule per second.

829. Fatty acids are:
(A) Linsaturated dicorboxylic acid
(B) Long chain alkanoic acid
(C) Aromatic carboxylic acid
(D) Aromatic dicarboxylic acid
Hints: (b) Fatty acids are long chain aliphatic carboxylic acids which are derived from fats or oils. These occur as esters of glycerol. For example stearic acid ($C_{17}H_{35}COOH$)

830. Saponification of a fat:
A) Always results in the formation of soaps.
B) Results in the formation of esters.
C) Results in the formation of waxes.
D) Results in the formation glycerol and soap.
Hints: (a) Saponification is the hydrolysis of triglycerides by alkalies to form glycerol and sodium / potassium salts of fatty acids called soaps.

831. Carbylamine test is given by:
(A) Primary amines (B) Secondary amines
(C) Tertiary amines (D) All of these
Hints: (a) primary amines upon warming with chlorogorm and alcoholic KOH give carbylamines. Carbylamines has an offensive smell. This reaction is given by only primary amines and can be used to distinguish primary amines from secondary and tertiary amines.
$R\text{-}NH_2 + CHCl_3 + 3KOH \rightarrow RNC + 3KCl + 2H_2O$

832. Of the following one particle belongs to lepton group:
(A) Neutrinos (B) Proions
(C) Neutrons (D) Mesons

833. Which of the following physical phenomena connot be described only be the wave theory of the electromagnetic radiation?
(A) Diffrations (B) Interference
(C) Photoelectric effect (D) Polarization
Hints: (c) The classical electromagnetic wave theory predicts that the energy of photoelectrons should increase with the increases in intensity of incident light and the emission of photoelectrons with the week intensity of beam of light can take place. But both these predictions are not in agreement with experimental are not in physics has no explanations for these predications.

834. Which of the following is the same unit as the farad?
(A) Ωs
(B) Ωs–1
(C) Ω–1s
(D) Ω–1s–1

Hints: (c) we know that $C = \frac{Q}{V} = \frac{It}{IR} = \frac{AS}{A\Omega} = \Omega^{-1}{}_S$

835. A complex form of learning that requires the manipulation of mental concepts to arrive at adaptive behavior is:
(A) Imprinting
(B) Insight learning
(C) Latent learning
(D) Trial & error learning
Hints: Insight learning: Insight lerarning is that type of learning in which ar organism shows correct response to a stimulus which is not seen previously. So the organism used his brain and mental power to show that response.

836. Which of the following is enzyme lacking disease?
(A) PKU (B) Alkaptunuria
(C) Anuria (D) Dluria
Hints: Phenylketonuria (Pku) is a disease during which an enzyme phenylalanine hydrolyase does not work and phenylalanine which is an amino acid is accumulated in the body.

837. I eagerly look forward _____ seeing you again.
(A) at (B) to (C) on (D) by

838. Acetic acid reacts with methyl alcohol in the presence of acid catalyst to give:
(A) Ethyl formate (B) Ethyl acetate
(C) Methyl formate (D) Methyl acetate
Hints: (d) Acetic acid reacts with methyl alcohol in the presence of acid catalyst to give methyl acetate.
$CH_3COOH + HO - CH_3 \rightarrow H_2O + CH_3COOCH_3$

839. The characteristic reaction of carboxylic acid is:
(A) Electrophillic substitutions
(B) Nucleophllic substitution
(C) Electrophillic addition
(D) Nucleophillic addition
Hints: (b) Characteristic reactions of carboxylic acids are nuclophilic substitution reactions during which OH group is replaced by halogen, alkoxy, amino etc groups to form acid halides, esters, acid amides etc.

840. Which of the following compounds does not give iodoform test on reaction with I 2and NaOH?
(A) Propanone (B) Ehtanol
(C) Butanone (D) 2-Propanol
Hints: a) All those primary and secondary alcohols give idoform test positive which produces methyl aldehydes and methyl ketones on oxidation.

841. The gravitational field strength on the surface of the Earth is g. The gravitational field strength on the surface of a planet of twice the radius and the same density is:
(A) 4g (B) 2g (C) g (D) g / 4
Hints: (d) we know that
g = $\frac{GMe}{r2}$ but G, Meis constant so
g = $\frac{constant}{r2} = g\ a\ \frac{1}{r2}$
But given that of twice the radius
g = $\frac{GMe}{(2r)2} = \frac{GMe}{4r2} = \frac{GMe}{4(r2)} = \frac{g}{4}$

842. Which experimental teachnique reduces the systematic error of the quantity being investigated?
(A) adusting an ammeter to remove its zero error before measufing a current
(B) Measuring several internodal distance on a standing wave to find the mean Internodal distance.
(c) Measuring the diameter 6f a wire repeatedly and calculating the average.
(d) Timing a large number of oscillations to find a period.

843. A basketball is thrown upward along a parabollic path. What is the ball‘s acceleration at its highest point?
(A) 0 (B) 1/2g, horizontally
(C) g, upward (D) g, downward
Hints: (d) the acceleration of the ball at the highest point is g which always down word.

844. Conversion of alternating current to direct current is called:
(A) amplification (B) rectification
(C) modulation (D) both B & C
Hints: (b)

845. Operational amplifiers can amplify:
(A) ac only
(B) dc only
(C) both ac and dc
(D) None of them
Hints: (d)

846. A medical lab has a 16g of sample of radioactive isotopes. After 6 hours it was found that 12g of a sample have decayed. The half life of the isotope is:
(A) 12 hours (B) 6 hours
(C) 2 hours (D) 3 hours

847. You will be the perfect in charge ____ this group.
(A) of (B) to (C) by (D) on

848. Which of the following substitutents is an Ortho and Para director and ring deactivating?
(A) –OH
(B) –NH2
(C) –Cl
(D) –OCH3
Hints: (c) is correct because helogen are orthopara directing and ring deactivation species.

849. Which of the following compounds undergoes nitration most readlily?

(A) Benzene (B) Toluene
(C) Benzoic acid (D) Nitrobenzene
Hints: (b) because alkyle are orthopara directing so nitration occur easily with toluene.

850. Which of the following is not ferromagnetic substance:
(A) iron (B) cobalt
(C) Nickel (D) Barium
Hints: (d) Intensely paramagnetic substances are called ferromagnetic. They behave like a magnet even after the removal of magnetic field. Iron, cobalt and nickel are fromagnetic.

851. The sound waves and light waves cannot be both:
(A) polarized (B) Refrected
(C) Reflected (D) Differacted
Hints: (a) Polarization is a property of waves that can oscillate with more than one orientation. EMwaves such as light exhibit polarization, as do some other types of waves, such as sound waves in a gas or liquid do not exhibit polarization since the oscillation is always in the direction the wave travels.

852. Diffraction is the name given to the:
(A) Addition of two coherent waves to produce a stationary wave pattern.
(B) Bending of waves round an obstacle
(C) Change of direction when waves cross the boundary between one medium and another.
(D) Splitting of white light into colours.
Hints: (a)

853. Two forces having magnitudes 3.5N and 5.5N are acting on a body. Which one of the following cannot be the resultant of their possible sum?
(A) 1.5 N (B) 2.5 N (C) 4.5 N
(D) 6.5 N
Hints: (a)

854. Which of the following play role in Biorhythm?
(A) MSH (B) I.H (C) ADH
(D) Melatonin
Hints: Melatonine is a hormone which controle the day / night eyed of living organism. (Biorythem): Those process which prpeates in the body peroodicily, annualy, seasonaly, Monthly, day etc.
MSH: Control the pigmentation (colour of skin)

855. Hypothalamus is a part of:
(A) Diencephalon
(B) Myelencephalon
(C) Metencephalon
(D) Telencephalon
Hints: Forebrain is divided into two parts, telencephalon and Diencephelon, Telencephelo is divided into o/factory bulb and cerebrum while diencephalon is divided into thalamus, Hypothalamus, lippocampus and amagdela. So the correct option is Diencephaion.

856. _ARABLE‘ means:
(a) Not grown since long
(b) Recently ploughed field
(c) watered the night before
(d) Fit for cultivation

857. Blue green algae, besides chlorophyll also possess another pigment known as:
(A) phycocyanin (B) phycoerythrin
(C) phycobillirubin (D) Phycobilliprotein
Hints: Beside chlorophyll Blue green algae lontain phycoeyanin and phycoerythrin

858. Milk sugar is pasteurized by heating for 15 seconds at
the temperature of:
(A) 60 ^{o}C
(B) 71 ^{o}C
(C) 50 ^{o}C
(D) 80 ^{o}C
Hints: Milk can be pasturized by exposing milk to 72^{o}C for 15 second this process in called highy Temperature short time pasteurization (HTST).

859. Which one of the following is most ionic?
(A) NaCl
(B) MgCl2
(C) KCl
(D) AlCl3
Hints: (c) KCl is the most ionic among the given ionic compounds due to largest difference b/w the metal (K) and non-metal (Cl).

860. The compound used in borax bead test for the detection of basic redicals to form colored bead is:
(A) H_2BO_2
(B) $(C_2H_5)_3BO_3$
(C) $Cu_2B_6O_{11}5H_2O$
(D) $Na_2B4O_710H_2O$
Hints: (d) in borax bead test, powdered borax ($Na_2B_4O_7$. $10H_2O$) is heated on loop of platinum on flame. The borax swells up and then melts into a colorless glass – like bead on the loop. Then little amount of substance is placed on the bead and heated in oxidizing and then is reducing flame. The basic radicals are identified from the colors of the beads.

861. Milk of magnesia is used for treatment of acidity instomach, its formula is:
(A) $Mg(OH)_2$
(B) $MgSO_4$
(C) $Ca(OH)_2$
(D) $CaSO_4$
Hints: (a) Milk of magnesia ($Mg(OH)_2$) is basic in nature and is uded for treatment of acidity is stomach.

862. A battery is marked 9.0V. What does this mean?
(A) Each coulomb of charge from the battery

supplies 9.0J of electrical energy to the whole circuit.
(B) The battery supplies 9.0J to an external circuit for each coulomb of charge.
(C) The potential difference across any component connected to the batttery will be 9.0V.
(D) There will always be 9.0V across the battery terminals
Hints: (d)

863. Using monochromatic light, interference fringes are produced on a secreen placed a distance D from a pair of slits of separation a. the separation of the fringes is x. both a and Dare nouw doubled. What is the new fringe separation?
(A) 2x (B) x (C) 3x (D) 4x

864. Select the true statement about the amerphous solids:
(A) The amorphous substances have sharp melting point
(B) The amorphous substances do not have fixed melting point
(C) The amorphous substances have proper geometrical shapes.
(D) The particles in amorphous substance are arranged in an orderly manner.
Hints:(b) The amorphous substances do not have fixed melting points due to lack of regular and orderly arrangement of praticles and lack of identical bonding throughout among the particles.

865. Both $NaNO_3$ an $CaCO_3$ crystallize in Rhombohedral
forms therefore they are:
(A) Allotropes (B) Polymorphous
(C) Isomorphous (D) None of these
Hints: (c) Isomorphs have different chemical compositions but the same crystalline forms / shapes. Both $AgNO_3$ and $CaCO_3$ are different chemical compounds but have rhombohedral forms.

866. Pure water freezes at 0 ^oC and boils at 100 ^oC at standard conditions. Calcium chloride was added to pure water. What do you expect about its freezing point and boiling point.
(a) No change in its freezing point and boiling point
(b) Freezing point increases and boiling point decreases.
(c) Freezing point increases and boiling point increases
(d) Freezing point decreases and boiling point increases
Hints: (d) when a solute is added into a pure solvent, the freezing point of resulting solution is decreased and boiling point is increased.

867. The internal energy of a fixed mass of an ideal gas depends on:
(A) Pressure but not volume or temperature.
(B) Temperature but not pressure or volume.
(C) volume but not pressure or temperature.
(D) Pressure and temperature but not volume.
Hints: (d) When a solute is added into a pure solvent, the freezing point of resulting solution is decreased and boiling point is increased.

868. A spring obeying Hook's law has an unstretched length of 50mm and a spring constant of 400 Nm–1. What is the tension in the spring when its overall length is 70mm?
(A) 8.0N (B) 28N (C) 160N (D) 400N
Hints: $F=K(L_1-L_2)$

869. Which thermodynamic temperature is equivalent to 501.85 ^oC?
(a) 775.00 K
(b) 774.85 K
(c) 228.85K
(d) 228.70K
Hints: (c)

870. Which of the following ions play important role in the transport of carbon dioxide?
(A) Sodium
(B) Potassium
(C) Bicarbonate
(D) Chloride

871. Incomplete double circulation is found in:
(A) Aves
(B) Fishes
(C) Amphibians
(D) Mammals
Hints: Amphibians have incomplete double circulation because they have a single veutricle which receive both, oxygenated and deoxygenated blood.
Fishes: Fish have single circulation. Aves and mammals have complete double circulation.

872. Choose the correct sentence.
(A) We bought some new clothing.
(B) We bought some new clothing.
(C) We bought some new piece of clothing
(D) We bought some new pieces of clothing.

873. If a hole is bored through the center of the earth and a pebble is dropped in it. Then it will:
(A) Execute SHM
(B) Drop to the other side
(C) Stop at the center of the earth
(D) None of the above
Hints: (a)

874. Which of the following animal is included in protostome?
(a) Sea horse (b) Sea mouse
(c) sea cucumber(d) Sea lion
Hints: Protostomes are those organisms in which the first opening in the embryo is mouth which develops from blastophere.

(Annelids, mollusks, arthropods) The correct option is sea mouse (Aphrodite) which is belongs to annelids.
Seahorse-fish-deuterostomes.
Sea cucumber-echinoderms-deutorostomes
Sealion-mamal-deuterostomes

875. How many waling legs are present in arachnids?
(A) 4 (B) 6 (C) 8 (D) 10
Hints: Arachnids is a class of arthropods which have eight legs, like spider, scorpion etc.

876. A _____ child, she was soon bored in class; she already knew more mathematics than her junior school teachers.
(A) Contemporary (B) Lethargic
(C) Obdurate (D) Precocious

877. Sea-fungi is related to:
(A) Zygomycota (B) Ascomycota
(C) Basidiomycota (D) Deutromycota
Hints: Ascomycota are fungi which form sac like Structure called ascus in which sexual spore therefore these fungi are called sec fungi.

878. Blac bread mold is:
(A) Rhizopus
(B) Penicillium
(C) Mucor
(D) Yeast
Hints: Rhizopus is the black mold or fungi which develops on bread.

879. Which of the statements about paper chromatography is not correct:
(A) Paper chromatography is an example of partition chromatography.
(B) Paper chromatography greatest use is in the separation of biological active systems.
(C) Paper chromatography is also applicable for the separation of some inorganic cations.
(D) Paper chromatography is always used for quantitative analysis.
Hints: (d) Paper chromatography is generally used for both quantitative and qualitative analysis.

880. Equal volume of different gases under same condition of temperature and pressure contain the same number of particles. The above statement is of:
(A) Avogadro‘s law
(B) Graham‘s Law
(C) Dalton‘s law
(D) hund‘s rule
Hints: (a) Avogadros`s law

881. Which is the correct statement?
(a) The average kinetic energy of the molecules depends on the volume in which the gas is enclosed
(b) The average kinetic energy of the molecules in the gaseous state is proportional to the pressure.
(c) The average kinetic energy of the molecules in the gaseous state is proportional to the temperature.
(d) All of the above
Hints: (c) According to kinetic Molecular Theory, “The average kinetic energy of the molecules in the gaseous state is proportional to the absolute temperature.

882. In a vibrating cord the point where the particles are stationary is called:
(A) Crest
(B) Anti-node
(C) Node
(D) Trough

883. The minimum frequency of incident light required to emit photoelectrons from the metal surface is called:
(a) Critical frequency
(b) Intermedicate frequency
(c) Work function
(d) Threshold frequency
Hints: (d) The minimum frequency of incident light required to emit photoelectrons from the metal surface is called threshold frequency.

884. A racing car accelerates uniformly through three gear changes with the following average speeds: 20ms–1for 2.0s, 40ms–1for 2.0s and 60ms–1for 6.0s.
What is the overall average speed of the car?
(A) 12ms–1
(B) 13.3ms–1
(C) 48ms–1
(D) 40ms–1
Hints: $Vav = \frac{total\ distance}{total\ time} = 12m$ /sec

885. In octopus, the foot is modified into:
(A) Disc (B) Arm (C) Foot (D) Siphon

886. Which of the following is include in deuterestome?
(A) Brittle star (B) Scorpion
(C) Chaelopterus (D) Unio
Hints: Brittle star belong to echinoderms therefore it is Deuterostomas. Deuterostpmas means the first opening develops into anus.

887. Choose the correct sentence:
(a) The lecture was long a bore and uninspired.
(b) The lecture was long a bore and uninspiring.
(c) The lecture was long boring and uninspiring
(d) The lecture awas a long a bore and an uninspiring

888. Murein cell-wall is composed of:
(A) Sugar and amino acids
(B) Calcium pectate.
(C) Glycoprotein
(D) Peptidoglycan
Hints: All bacteria wall are made up from peptidoglycan which is also called mairien.

889. The genome of the most animals and higher

plants is:
(A) DNA
(B) RNA
(C) Both DNA and RNA
(D) Either DNA or RNA
Hints: Genome mean the total number of genes in complete set of chromosome as most animal and hicher plants have DNA as hereditry material therefore their Genome consists of DNA.

890. Which statement is wrong about the fourth state of matter known as plasma?
(a) The plasma contain equal amount of positive and negative charges and are almost neutral as a whole
(b) Plasma exists in the atmosphere of stars
(c) Plasma exists in the region around the sun
(d) There is less amount of matter in plasma state than the familiar, solid, liquid and gaseous states.
Hints: (d) About 99% of the universe is made up of plasma.

891. Hydrogen bonding do not exist in the molecule of:
(A) Hydrogen (B) Proteins
(C) Carbohydrates (D) Ammonia
Hints: (a) Hydrogen bonding can occur b/w partial positively charged hydrogen atom and lone-pair of partial negatively charged F, O or N atom only when hydrogen is already. Covalently bonded to another F, O or N atom.
For example among water, ammonia and hydrogen fluoride molecules etc.

892. Deficiency of which of the following causes diuresis?
(A) LH (B) ACTH (C) FSH (D) ADH
Hints: Diuresis means increase amount of urine as ADH (antidiuretic hormone) control the water levels of urine, there fore when deficiency of ADH causes increase amount of urine or diuresis.

893. 'ACQUAINTANCE' means a person whome:
A) One loves but whome one cannot marry.
B) One knows but who is not a close friend.
C) One can depend on for help in hour of need.
D) One can hire for attempting a question paper.

894. In angiosperms the megaspore develops into:
(A) Embry-Sac (B) Embryo
(C) Seed (D) Male gametophyte
Hints: Megaspore inside the ovule developes into 7 cell structure call embryo sac or female gametophyte.

895. All of the following plants posses hermaphrodite flowers except:
(A) Lathyrusodoratus (B) Solanum-nigrum
(C) Zea-mays (D) Avena-sativa
Hints: Haermophrodite are the flowers having both male and female struacture in the same flower, ziamays is a plant having separate male and female structures.

896. Choose the correct relation about the percent yield. It is equal to:
(A) $\frac{actual\ yield}{theoritical\ yield} \times 100$
(B) $\frac{theoritical\ yield}{actual\ yield} \times 100$
(C) $\frac{actual\ yield}{theoritical\ yield} \times 10^6$
(D) $\frac{actual\ yield}{theoritical\ yield} \times 10^3$
Hints: (a)
% yield = (Actual yield/ Theoretical yield) x 100

897. Vapour pressure of a liquid can be measured by the Barometric method and Manometric:
(a) Barometric method is more accurate than Manometric method.
(b) Manometric method is more accurate than Barometric method.
(c) Both are equally accurate and applicable.
(d) Both methods are in use but are not reliable.
Hints: (b) Manometric method is more accurate and applicabl as the chances of errors can be minimized and controlled.

898. Which is incorrect about ionization energy?
(a) Ionization energy Depends upon the magnitude of nuclear charge.
(b) Ionization energy depends upon the atomic radius
(c) Ionization energy depends upon the shielding effect.
(d) Ionization energy does not depend upon the Penetration effect of the inner orbital.
Hints: (d) Ionization energy depends upon the penetration effect of the inner orbitals. It increases with increase in the penetrating effect of an orbital. The order of penetrating power and ionization energy of different orbitals is; s > p > d > f.

899. Several resistors are connected in parallel the resistance of their equivalent resistor will:
(A) Increase (B) Decrease
(C) Not change (D) None of these
Hints: (b) $\frac{1}{Req} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3} + \ldots..$

900. Which of the following series lie in the visible region?
(A) Lyman (B) Paschen
(C) Balmer (D) Pfund
Hints: (c) Balmer series of spectral lines lies in the visible region. This series of spectral lines is produced when electron jumps from $n_2 = 3, 4, 5, 6, 7$ to $n_1=2$

901. Kirchoff's fist law (KCL) is based upon the law of conservation of:
(A) Charge (B) Energy
(C) Mass (D) momentum

Hints: (b) Kirchof`s 1st law is based upon the law of conservation of charge. According to which the flow of charge is conserved and does not deposit at the junction.

902. Accessory pigments are:
(A) Red-Yellow-Green
(B) Red-Orange-Blue
(C) Orange-Blue-Green
(D) Red-Orange-Yellow
Hints: Accessory pigments in phtotsynthesis are the different form of carotenoids which are red-orange-yellow.

903. Chemiosmosis occurs in the:
(A) Grana (B) Stroma
(C) Thylakoids (D) InterGrana
Hints: Chemiosomosis is the process of ATP synthesis inside the mitochondria. Therefore no one of the given option is correct.

904. Select the incorrect Statement:
A) Molecule may gain electron to form molecular anion.
B) Molecule may lose electron to form molecular cation
C) Molecular cations are less abundant than molecular anions
D) These molecular ions can be formed by passing high energy electron beam through a gas.
Hints: (c) Molecular cations are more abundant than molecular anions. Molecular cation are formed by removal of electron from molecular by bombardment with high energy particles in mass spectrometry.

905. Choose the correct Statement:
A) The most direct and accurate method for determining atomic masses uses mass spectroscopy.
B) The indirect but accurate method for determining molecular masses uses mass spectroscopy.
C) Collision between the electrons and the atoms produces negative ions by absorption of electrons by atoms or moecules.
D) The first application of the mass spectroscopy was the demonstration to detect various isotopes of Argon.
Hints: (a) Mass spectroscopy is the most accurate and method for determining atomic masses.

906. The partition coefficient of Iodine distribution between two immiscible liquids, water and carbon (tetrachloride is give below:

$K = \frac{I-1\,(aq)\ in\ CCl\ 4}{I2\ as\ I3-1\,(aq)} = 1.17\times10^{-2}$

Choose the correct statement about the system
a) Iodine is extracted from CCl_4 layer by water
b) Iodine is extracted from aqueous layer by CCl_4
c) Iodine is more soluble in water than CCl_4
d) The value of K depends on the amount of idine added
Hints: (b) Iodine is extracted from aqueous layer by CCl_4. The distribution is a reversible process and a dynamic equilibrium is established as follow.
$I_2 + I_{(aq)}\ I_{3\ (aq)}$

907. During the experiment one measured the mass of Mosquito and fount it 1.20×10–5 Kg. The numbers of significant figures in this case are:
(A) Five (B) One (C) Two (D) Three
Hints: (c)

908. The vectors A and B are such that |A + B| = |A – B| then the angle between the two vactors is:
(A) 0^o
(B) 90^o
(C) 60^o
(D) 180^o
Hints: (b) |A + B| = |A – B|
$= 90^o$

909. If two interozygous tall plants are crossed together the proportion of Phenolypically tall plants will be:
(A) 50% (B) 25% (C) 75% (D) 100%
Hints:

910. A spore of Fern plant develops into:
(A) Zygote (B) Sporophyte
(C) Gametophyte (D) Prothalus
Hints: The spore of fern develops into gametophyts which again develops into sporophytes to complete the alternation of generation.

911. Choose the correct Statement:
A) $_2Li^7 + {}_2He^4 \rightarrow {}_5B^{10} + {}_1n^0\ {}_2Li^7 + {}_2He^4 \rightarrow {}_5B^9 +$
(B) $_4Be^9 + {}_2He^4 \rightarrow {}_6C1^2 + {}_0n^1\ {}_4Be^9 + {}_2He^4 \rightarrow {}_6C^{12} + {}_1p^1$
Hints: (a) $_3Li_7 + {}_2He^4 \rightarrow {}_5B^{10} + {}_1n^o$

912. Select the correct relation between wave and particle nature of radiation?
(A) $E = \frac{hc}{\lambda}$
(B) $E = \frac{hc}{c}$
(C) $E = \frac{\lambda c}{h}$
(D) $E = h\lambda c$
Hints: (a) According to pland`s theory equation
E = hv
$E = hc/\lambda \quad (v = c/\lambda)$

913. Change in concentration of a reactant is plotted against time and the slope determined. The value of are ploted against (a – x)2a straight line is obtained. It may be concluded that the reaction is:
(A) First order

(B) Second ordger
(C) Third order
(D) Zero order
Hints: (b) For second order reaction, the plot of dx/dt against $(a-x)^2$ is a straight line.

914. Which statement correctly describes a nucleon?
(a) Any atomic nucleus (b) A radioactive atomic nucleus
(c) A neutron or a proton.
(d) A neutron proton or an electron.
Hints: (c)

915. An object travels at constant speed arround a circle of radius 1.0m in 1.0s. What is the magnitude of its acceleration?
(A) Zero
(B) 1.0 ms–1
(C) 2π ms–1
(D) 4π–2ms–21
Hints:

916. An alternating current'1/A varies with time _t/s according to the equation I = 5 sin (100π t). What is the mean power developed by the current in a resistive load of resistance 10Ω?
(A) 250W (B) 500W (C) 125W (D) 160W
$I_o = 5$
Hints: (a)
$P = I^2 R = (5)^2 \times 10 = 250$ *watt*

917. The oxygen carrying capacity of hemoglobin inhuman when the blood is 100% oxygenated is:
(a) 19.4 ml
(b) 19.6 ml
(c) 20 ml
(d) 21 ml
Hints: Maximum oxygen carrying capacity or 100 ml of Blood is 20 ml oxygen.

918. Which of the following fish have 14 pairs of gill slits?
(a) Dog fish
(b) Lamprey
(c) Cat fish
(d) Ray fish
Hints: No one of the following have 14 pairs of gils slits. Only lamprey have 7 pairs or 14 gill slits.

919. Liquid crystelline substances are used to locate tumors in the body because:
A) These parts of the body are warmer than the surroundings
B) These parts of the body are cooler than the surroundings
C) These parts of the body are constantly increasing and decreasing with the temperature.
D) None of the above.
Hints: (a) These parts of the body are warmer than the surroundings and can be detected by change in the behavior of liquid crystals which are sensitive to temperature change.

920. The potential difference between a pair of similar. Parallel conducting plates is known. What additional information is needed in order to find the electric field strength between the plates?
A) Separation of the plates.
B) Separation and dres of the plates.
C) Permitivity of the medium separation of the plates.
D) Permitivity of the medlum separation and area of the plates.
Hints: (c) permittivity of the medium separation of plates.

921. In an AC capacitive circuit current and voltage phase relation is:
(A) In-phase
(B) curent leads voltage by 90^o
(C) Voltage leads current by 90^o
(D) Current leads voltage by 180^o
Hints: (a) In an AC capacitive circuit current and voltage phase relation is in – phase.

922. A capacitor which has a capacitance of 1 farad will:
(a) E fully charged in 1 secon by a current of 1 apmere.
(b) Store 1 coulomb of charge at potential difference of 1 volt
(c) Gain 1 joule of energy when 1 coulomb of charge is stored on it.
(d) Discharge in 1 second when connected across a resistor of resistance 3 ohm.
Hints: (b) $Q = CV$, $C = {}^{Q}/_{V}$, $= \frac{1coulomb}{1\ volt}$

923. In which of the following pharynx opens directly into Intestine?
(A) Planaria (B) Earthworm
(C) Cockroach (D) Snail
Hints: Only in planaria the pharynx directly open into intestine, while in all other pharynx into oesophagous.

924. Bile is released from the gall bladder by the action of:
(A) Gastrin (B) Chlecyslokinin
(C) Secretin (D) Renin
Hints: Cholecystolxinin control the secretion of bile from gall bladder.
Secretin control panereatic Juice.
Gastin control stomach secretion or gastric juice

925. Choose the correct sentence:
(A) He will reach in two hour time.
(B) He will reach in two hour time.
(C) He will reach in two hour time.
(D) He will reach in two hour time.

926. To decrease the salt potentially the Guard cells absorb:
(A) Sodium Ions (B) Megnesium ions
(C) Potassium ions (D) Calcium ions

927. The product of light dependent reactions are:
(A) RUBP + ATP (B) RUBP + PGAL
(C) NADPH + ATP (D) PGAL + ATP

Hints: During light reaction from sun light and H_2O using PSI and PSII ATP and pGAL is produced.

928. The committee dissented from the report's conclusions. The underlined word means:
(A) Differed (B) Joined
(C) Deliberated (D) Agreed

929. All of the following are gametophytes except:
(A) Club Mosses
(B) Funaria
(C)Liver-Worts
(D) Horn-Worts
Hints: Funeria, liver worts, horn-wrots all these are bryophytes which are gametophytes while club mosses are sporophyts which produce spores.

930. All of the following are dioecious except:
(A) Ulva (B) Funaria
(C) Marchantia (D) Polytricum

931. The van der waals equation of state for no-ideal gases differs from the ideal gas law in that it accounts for:
I) The mass of each molecule of the gas.
II) The volume of each molecule of the gas.
III) The attractive forces between molecules of the gas
(A) I , II and III (B) I and II only
(C) I and III only (D) II and III only
Hints: (d) Vander waal introduced pressure correction term and volume correction term in the ideal gas equation to account for the deviation of real gases from ideal behavior due to volume of gas molecules and intermolecular forces.

932. The statement that heat cannot spontaneously flow from a colder to a hotter body is a result of:
(A) Henry's law
(B) The first law of thermodynamics
(C) The second law of thermodynamics
(D) The third law of thermodynamics.
Hints: (d) is correct because it is direct statement of second law of thermodynamics

933. Ruther ford';s scaltering experiment demonstrate:
(A) The existence of X-rays.
(B) The existence of α-particles.
(C) The mass to charge ratio of electron.
(D) The nuclear model of the atom.
Hints: (d) Rutherford`s *a*- particles scaterring experiment demonstrated the presence of nucleus in an atom.

934. What is the relationship between the intensity _I and the amplitude _a of a wave?
(A) I a = constant
(B) l a2 = constant
(C) l/a = constant
(D) l/a2 = constant
Hints: (d) The relationship between the intensity "I" and the amplitude "a" of a wave we know that

$I\ a\ a^2\ I = constanta^2, \frac{I}{a2} = constant$

935. Which is a statement of the principle of conservation of momentum?
(a) Momentum is the product of mass and velocity.
(b) Momentum is conserved only in elastic collisions
(c) Momentum is conserved by all bodies in a collision
(d) Momentum is conserved providing no external forces act.
Hints: (c) momentum is conserved by all bodies in a collision.

936. A projectile is launched at 45^o to the horizontal with initial kinetic energy E. Assuming air resistance to be negligible, what will be the kinetic energy of the projectile when it reaches tit highest point?
(A) 0.50 E (B) 0.71 E (C) 0.87 E (D) E
Hints: we know that

$$\text{K.E} = \frac{1}{2}mv^2 = \frac{1}{2}m(\text{v}\cos\theta)^2$$
$$\frac{1}{2}mv^2(\cos\theta)^2\ \frac{1}{2}mv^2(\cos 45^o)$$
$$E = \text{E}(\cos 45^o)$$

937. Coelentrates have hydrostatic skeletion except:
(A) Coral (B) Sea anemone
(C) Hydra (D) jelly fish
Hints: In all coelenterates the skeleton is made up from the pressure of water inside the body which is called hydrostatic skeleton, only corals have a skeleton which is made up from calcium carbonate so the correction option is corals.

938. Lungs are _____ in origin.
(A) Ectodermal
(B) Endodermal
(C) Mesodermal
(D) Preformed

939. The particular array of chromosomes that an individual possessed is called its:
(A) Genotype (B) Phenotype
(C) Karyotype (D) Genome
Hints: The complete set of chromosome which are present in an organism is called karyotype.

940. 'APPRAISE' means:
A) Praise a man out of place
B) (B) Tell a story at bed time.
C) Evaluate the equality of
D) Do shopping in a bazar

941. An Accuse develops:
(A) 2-Ascospores (B) 4-Ascospores
(C) 6-Ascospores (D) 8-Ascospores
Hints: Accuse are the sec like structure of Ascomycota in which eight (8) asco-spores develops.

942. The cell wall of fungus like protista is composed of:
(A) Chitin (B) Cellulose

(C) Murein (D) Lignin
Hints: The cell wall of fungus like protista is made up gram cellulose not fungi.

943. Which is incorrect statement?
(a) The ionic bonds are no directional in character.
(b) The crystals of covalent compounds are made up of molecules.
(c) The covalent bonds are regid and no directional.
(d) Ionic ompounds have high melting point and
Boiling point.
Hints: (c) Covalent bonds are always rigid and directional in nature. The covalent bonds around a central atom in a molecule lie at definite angles.

944. In which compound the bond angle is maximum?
(A) Methane (B) Beryllium chloride
(C) Ammonia (D) Boron trifluoride
Hints: (b) Beryllium chloride molecule is linear and the bond angle b/w the two bonds is 180^o. In methane, ammonia and boron trifluride, the bond angle are 109.5^o and 120^o respectively.

945. Which is not used in calculating the lattice energy of crystalline solids?
(A) Haber process (B) Born Haber cycle
(C) Hess's law (D) Enthalpy changes
Hints: (a) Haber-process is not used to calculate the lattice energy of crystalline solids. It is the method of preparation of ammonia.

946. A mass accelerates uniformily when the resultant force acting on it:
(a) Is zero
(b) Is constant but not zero
(c) Increases uniformily with respect to time.
(d) Is proportional to the displacement of the mass from a fixed point.
Hints: (c)

947. The prefix _pico' stands for:
(a) 10^6
(b) 10=
(c) 10–12
(d) 1012
Hints: (c) 10^{-12}

948. The first artificial radioactive substance was made by bombarding aluminum 15Al27, with α-particle. This produced an unstable isotope of phosphorus, 15P30, What was the by product of this reaction?
(A) An α-particles (B) A β-particles
(C) A -ray (D) A neutron

949. Which species has no net charge?
(A) An α-particles (B) An electron
(C) A proton (D) A neutrino
Hints: (d) A neutrino has no net charge because they are not effected by the electro-magentic forces.

950. If the coding sequence on the dna is AATIGCT, the sequence in the mRNA will be:
(A) AAUOCGT (B) UUAACGA
(C) TTAACGA (D) UUTTCGT
Hints: Both DNA and RNA are made up from nitrogenous bases but the RNA have uracil instead of Thtamine. Therefore AATTGCT on DNA is will be UUAACGA on RNA.

951. Gene and chromosomes show parallel behavior except:
(A) Number (B) Inheritance
(C) Heredity (D) Composition
Hints: Both gene and chromosome shows similer behavior in inheritance, heredity and cronposition only difference is in their number as chromosome are few in number while gene a large in number. So the correct option is (a) number.

952. 'Mortal stay' implies:
A) Life that a man will have after death.
B) Life spent in the company of friend.
C) Life passed in hostel without studying.
D) Life in this world which is short lived.

953. Chlorophyll is protected from intense light by:
(A) Phytochrome (B) Phytokinin
(C) Phytocyanin (D) Carotenoids
Hints: Caroteniod is the accessory pigment which helps in photosynthesis and protect the chlorophyll from damage by intense light.

954. Replication of DNA occurs during:
(A) Interphase (B) Prophase
(C) Metaphase (D) Anaphase
Hints: Replication of DNA is process during which DNA duplicate itself this dublication or replication occurs during s-phase of interphase. So correct option sis Interphase.

955. Which of the following compound is assigned the octane number of 100?
(A) n-heptane
(B) n-octane
(C) 2,3,3-trimethyl pentane
(D) 2,2,4-trimethyl pentane
Hints: (d) An octane number of 100 is assigned to 2,2,4-trimethyl pentane (iso-octane-Trade name) on rating scale. A fuel comprising of iso-octane molecules is the best fuel.

956. The major product of acid catalysed dehydration of 3-pentanol is:
(A) 1-pentane
(B) 2-Pentene
(C) 2-Methyle butane
(D) 3-Methyle butane
Hints: (b) $CH_3CH_2CH\ (OH)\ CH_2CH_3$
$CH_3.CH_2.CH\ (OH)\ CH_2.CH_3 \xrightarrow{H2SO4}$
$CH_3.CH_2.CH{=}OH.CH_3$

957. Which of the following compound will react

most readily with bromine in CCl4?
(A) 1-pentane
(B) 2-pentane
(C) 2-Methyle-1- butane
(D) 3-Methyle-1- butane
Hint: (c) Br_2 readily adds across the C=C bond of alkene to give dibromoalkane

$CH_3 - CH = CH_2 + Br_2 \xrightarrow{CCl4} CH_3 - CH - CH_2$

958. The lalf life of 22 Na is 2.6 years. If X grams of this sodium isotope are initially present how much is left after 13 years.
(A) X/32 (B) X/13 (C) X/8 (D) X/5

959. Monochromatic light passes through two parallel slits in a secreen and falls on a place of film. The patteren produced is an example of:
(A) refraction and diffraction
(B) Interference and reflection.
(C) Interference diffraction
(D) Diffraction and polarization.

960. The senator is opposed _____ this new legistation.
(A) at (B) to (C) try (D) on

961. Sodium chloride crystal structure is:
(A) Hexagonal (B) Body centered cubic
(C) Face centered cubic (D) Tetragonal
Hints: (c) Sodium chloride has face centered crystal structure in which o –ordination number of each ion is six i.e each Cl^{-1} ions.

962. An acid is a suhbstance which accepts:
(A) An electron pair
(B) Proton
(C) An electron
(D) Pair of proton
Hints: (a) Lewis acid is an electron-deficient species which accepts or tends to accept an electrons- pair.

963. Carbon-14 is used in carbon dating. Which of the following species has both same number of neutrons and same number of electrons as in atom of c-14?
(A) $^{14}_{7}N^{+1}$
(B) $^{16}_{8}O^{2+}$
(C) $^{17}_{9}P^{+1}$
(D) $^{20}_{10}Si$
Hints: (b) $^{16}{}_{8}O^{+2}$ contain 8 protons and 8 neutrons as present in C^{-14} atom.

964. A student connect a 6 volt battery and a 12 volt battery in series and then connects this combination across a 10Ωresistor. What is the current is the resistor?
(A) 0.8 A (B) 1.8 A (C) 0.9 A (D) 2.6 A
Hints: (b) We know that
$V = IR, \frac{V}{R} = I, I = \frac{V_1+V_2}{R} = \frac{18}{10} = 1.8A$

965. A step-up transformer is one that:
(A) Increase the power
(B) Increase the current
(C) Increase the voltage
(D) Increase the energy

966. The waves which do not require any medium for their propagation are called:
(a) Mechanical waves
(b) Sound waves
(c) Tidal waves
(d) electromagnetic waves
Hints: (d) Electromagnetic waves do not require medium for thir propagation.

967. Add some milk and sugar _____ the afternoon tea.
(A) with (B) in (C) on (D) to

968. In vacuum all electromagnetic waves have the same:
(A) Speed (B) Energy
(C) Frequence (D) wavelength

969. Human arm is homologous with:
(A) Sea flipper (B) Octopus Tntade
(C) Bird wing (D) Both A and C
Hints: Homologous structure are those structures which have similar structures but different in function-human arm, birds wing a eal flipper have similar structure. Therefore the correction option is (d) both (a) and (c)

970. A specific nudeotide sequence on DNA molecule to which RNA polymerase attaches to initiate transcription of mRNA from a gene is called:
(A) Poly genes (B) Genome
(C) Promoter (D) Pletoropy
Hints: Promotor is a short segment of DNA which control the transcription of mRNA from DNA. Promoter is the part of which RNA polymerase attaches.

971. 'Break the ice' implies:
(A) Walk on ice-sheet
(B) Swallow ice-cube
(C) Chisel an ice-block
(D) to make beginning

972. All of the following belong to phylum Protista except:
(A) Protomycota (B) Gymnomycota
(C) Oomycota (D) Deutromycota
Hints: Deutromycota is class / sivision of imperfect fungi not like protists.

973. A special protein carriesr in plasma membrane is:
(A) Catalase (B) Lipase
(C) Permease (D) Arginase
Hints: Permease are the protein carrier which helps during the movement of material into the cell.

974. Reduction of acetaldehyde with H2/Ni gives:
(A) Ethanol (B) Ethanoic acid
(C) Ethane (D) Ethylene
Hints: (a)

$H - \overset{O}{\overset{\|}{C}} - CH_3 + H_2 \xrightarrow{Ni} \overset{OH}{\underset{CH^2}{|}} - CH_3$

975. Which of the following compounds will give a positive test with Fehling's solution?

(A) Acetone (B) Ethyl acetate
(C) Formaldehyde (D) Acetic acid
Hints: (c) Fehling`s solution ($CuCl_2$+NaOH+tartaric acid) is a weak oxidizing agent and can oxidize only more reactive carbonyl compounds like aldehydes and can`t oxidize ketones, carboxylic acids and esters etc. It forms red precipitate of Cu_2O with aldehydes.

976. Choose the compound in which hydrogen bonding is not possible:
(A) H_2O
(B) HCl
(C) CH_3COOH
(D) CH_3OCH_3
Hints: d) Hydrogen bonding is possible among molecules in hydrogen is covalently bonded to F, O or N atom. Among HCl molecules, the intermolecular forces are dipole – dipole interaction which are weaker than H-bonding.

977. A ball is dropped from the roof of a very tall building. What is its velocity after falling for 5.0s?
(A) 1.96 m/s
(B) 9.80m/s
(C) 49.0m/s
(D) 98.0m/s
Hints: $vf = 0 + (9.8)(5) = 49m/s$

978. In liquid metal fast breeder reactor the moderator used is:
(A) Graphite (B) Heavy water
(C) Boron rods (D) Not required.

979. The de-Broglie wavelength of a rifle bullet of mass 0.02kg which is moving at a speed of 300ms–1is
(where h = 6.63×10–34Js)
(A) 7.3 × 10–34m
(B) 1.1 × 1034m
(C) 1.8 × 10–35m
(D) 9.9 × 10–34m
Hints: (b) From de-Broglie`s equation, we have
$\lambda = h/mv$
$\lambda = 6.63 \times 10^{-34}/(0.02 \times 300)$
$\lambda = 1.105 \times 10^{-34}$m

980. The theory of new creation was compposed by:
(A) George Cuvier (B) James Hustion
(C) Lovis Agassix (D) Wallace

981. The bone dissolving cells are called:
(A) Osteoclast (B) Osteoblasts
(C) Osteocytes (D) Fibroblast
Hints: Osteoclast are the cells which dissolve the old bone cell by the cysosomal enzymes ostercytes and osteoblast are bone forming cells Fibroblast are muscle forming cell.

982. An 'elegy' is a poem written:
(A) In the memmory of little child
(B) On the death of someone dear.
(C) On the sighting of an old tutor
(D) In the love of dear sweetheart.

983. The temperature required for vernalization is approximately:
(A) 2^oC
(B) 3^oC
(C) 4^oC
(D) 10^oC
Hints: vernalization is the process during which seed is exposed to low temperature usualy at 4^oC.

984. The response of a plant related to the length of the day and night is called:
(A) Photo-receptor (B) Photo-taxis
(C) Photo-tropism (D) Photo-Periodism
Hints: Photo-Periodism is response of plant to the changes in the relative length of day and night.

985. Whihch of the following polymers contain nitrogen?
(A) PVC (B) Terylene
(C) Nylone (D) Teflon
Hints: (c) is correct because Nylon formula – $(NH – (CH_2)_6 – NH – CO – (CH_2)_4 – CO)_n$

986. Which one of the following does not exist?
(A) HBO_2
(B) HFO_2
(C) $H3PO_3$
(D) $HBrO_2$
Hints: (b) Fluorine can`t form oxyacids as it is unable to show positive oxidation state.

987. Select the strongest acid the Pka values are given:
(A) HI, Pka = -10
(B) HCN, Pka = +9.4
(C) $H2SO_4$, Pka = +1.8
(D) HNO_3, Pka = -3.0
Hints: (a) Lower the pKa – value for an acid, higher is the Ka – value and hence stronger is the acid.

988. An electron in a hydrogen atom makes a transition from an energy level with energy E1, to one with energy E2and simultaneously emits a photon. The wavelength of the emitted photon is:
(a) $\frac{hc}{(E1-E2)}$
(b) $\frac{h}{(E1-E2)}$
(c) $h/c\ (E_1 - E_2)$
(d) $(E_1 - E_2)/hc$
Hints: (a) $E = \frac{hc}{\lambda}$, $\lambda = \frac{hc}{E}$

989. The electric field between the plates of an isolated air-spaced parallel- plate capacitor is E. What is the field between the plates after immersing the capacitor in a liquid of relative permitivity 10?
(A) $\sqrt{10E}$
(B) $E/\sqrt{10}$
(C) 10E
(D) $E/10$

Hints: (d) $E = \frac{1}{4\pi \in o \in r} \frac{q}{r2} = \frac{E}{\in r} = \frac{E}{10}$

990. He was arrested and charged _____ murder.
(A) with (B) into (C) over (D) about

991. Providing heat to the following reaction causes it shift to the right Co2(2)+ 2H2O(g) CH4(g)+ 2O2(g) The reaction can therefore be described as:
(A) Spontaneous (B) Adiabatic
(C) Endothermic (D) Exothermic
Hints: (c) Heating favors an endothermic reaction.

992. The major sources responsible for the presence of NO, N2O, NO2in the atmosphere is / are:
(A) Fertilizers
(B) Biological decay of deadly organism
(C) Fossil fuel combustion
(D) All of these
Hints: (c) The main sources of oxides of nitrogen are combustion of fossil fuels (coal, oil and natural gas).

993. Polyhydroxy aldehydes or ketones are known as:
(A) Carbohydrates
(B) Proteins
(C) Lipids
(D) Vitamins
Hints: (a) Carbohydrates are polyhydoxy aldehydes and ketones.

994. A shot is fired at an angle of 60^o to the horizontal with kinetic energy E. if air resistance is ignored, the kinetic energy at the top of the trajectory is:
(A) Zero (B) E/8 (C) E/4 (D) E/2
Hints: (c)
K.E = $\frac{1}{2} mv^2$
K.E = $\frac{1}{2}$ m$(v_X)^2$, = $\frac{1}{2} m(\text{vcu } \theta)^2$
K.E = $\frac{1}{2} mv^2(\text{cu } \theta)^2$, = E$(\text{cu } 60^o)^2$
= E $\times \frac{1}{4} = \frac{E}{4}$

995. The displacement _x'of a particle at time 't' is given by x = 10 sin 4t. the particle oscillates with period.
(A) π/10s (B) π/5s (C) π/4s (D) π/2s
Hints: (d) $W = 4, \frac{2\pi}{T} = 4$ or T = $\frac{2\pi}{2} \frac{\pi}{2} s$

996. By how many times does doubling the diameter of a wire and making it 10 times longer increase its resistance?
(A) 2.5 times (B) 5 times
(C) 10 times (D) 30 times
Hints: (c) *R a L*

997. _____ second thoughts 1 opted for a cold drink
(A) At (B) By (C) On (D) For

998. Sucrose is considered as:
(A) Monosccharides (B) Disaccharides
(C) Polysoccharides (D) None of these
Hints: Sucrose is a diasaecharide made up from two monosaccharides
(Glucose + Fructose) So option (b) is correct.

999. High molecular mass compound was hydrolyzed the product was analyzed and found to be amino acid The compound is:
A) Protein Carbohydrate
B) Lipid Vitamins
Hints: Protein is polymer of amino acids held together by peptide linkages.

1000. The enzymes functions are optimum at:
(A) Specific Temperature (B) Specific PH
(C) Specific co-enzyme (D) All the above
Hints: Optimum function mean maximum activity which is shown by enzymes at their specific pH, temperature and co-enzymes, Therefore option (d) is correct.

1001. Which of the following ions water is colories?
a) Fe^{3+}
b) Zn^{2+}
c) Cu^{2+}
d) Co^{2+}
Hints: Zn^{+2}ion is colorless in water.

1002. The rate of evaporation of gasoline is greater than that of ethanol at the rame temperature because:
a) The gasoline molecules does not have hydrogen bonds.
b) The gasoline molecules are comparatively of small size.
c) The gasoline molecules are of linear shape.
d) The gasoline molecules are optically active.
Hints: Rate of evaporation increases with decrease in intermolecular forces. Gasoline has higher vapor pressure than ethanol at same temperature due to absence of H-bonding among gasoline molecule

1003. If A and B are two sets, Then A`∩ B` =
a) (A∩B)
b) A`∩B`
c) (A∪B)`
d) (B∩A)`
Hints: A`∩B` = (A∪B) De Morgan`s Law

1004. (cos ecθ -1)(co sec + 1) =
a) $\tan^2 \theta$
b) $\cot^2 \theta$
c) $\sec^2 \theta$
d) $\sin^2 \theta$
Hints: (cos ecθ – 1)(co sec + 1) = cos $ec^2 \theta$-1 = $\cot^2 \theta$

1005. Modulus of comples number 4 – 3 is:
a) –5 b) 7 c) 1 d) 5
Hints: Modulus of complex number *4-3i* is $\sqrt{(4)^2 + (-3)^2} = 5$

1006. Which of the following quantities is a vector?
a) Density
b) Mass

c) Strain
d) Weight
Hints: (d) weight . weight always directed towards earth.

1007. An athlete throws a javelin just as it hits the ground the javelin has a horizontal velocity component of 20 ms–1and a vertical velocity component of 10ms–1. The magnitude of the javelin's velocity as it hits the ground is:
a) 10 ms^{-1}
b) 15 ms^{-1}
c) 22 ms^{-1}
d) 30 ms^{-1}
Hints: (c) $\sqrt{vf^2x + vf^2y} = \sqrt{(20)^2 + (10)^2}$ = $\sqrt{500}$ = $22ms^{-1}$

1008. How much electrical energy is required to move 4.00mC of charge through a potential difference of 35.0V?
a) 111×10–4 J
b) 0.144 J
c) 144 J
d) 9000 J
Hints: (b) $V = \frac{W}{q}$, $W = qV$
= 4.00×10^{-3} c×36.0v = 0.144J

1009. Aboriginal means:
a) Alley
b) Native
c) Migrate
d) Displaced

1010. The wave nature of electron is illustrated by its:
a) Photelectric effect
b) Compton effect
c) Penetrating effect
d) Diffraction
Hints: (d) Diffraction of electron as demonstrated by division and germer proof of wave nature of electron.

1011. Layers of carbon atoms in graphite are held together by:
a) Vander Waals forces
b) Covalent bonds
c) Coordinate covalent bonds
d) All of the above
Hints: Layers of carbon atoms in graphite are held together by weak vander waal`s forces. Graphite is soft because the layers can slide over each other.

1012. The broglie's relation between momentum and wavelength for an electron is given by:
a) p = $h\nu$
b) $\lambda = \frac{h}{p}$
c) p = $\frac{\lambda}{h}$
d) E = $h\nu$
Hints: (d) de- Borglie`s equation showed the dual nature of electron.
$\lambda = \frac{h}{mv}$ OR $\lambda = \frac{h}{p}$

1013. Sin 40cos 50 + cos 40sin50 =
a) 1 b) –1 c) 0 d) ∞
Hints: Sin 40^ocos 50^o + cos 40^osin 50^o = sin(40^o + 50^o) = sin 90^o = 1

1014. The Concept of complex numbers as a + b was given in 1795 by: _____
(a) Gauss (b) Archimedes
(c) George Cantor (d) Rene Descartes
Hints: The concept of complex number as a +ibwas given is 1795 by Gauss.

1015. (-1) $\frac{-33}{2}$ is equal to:
(a) –1
(b) i
(c) 1
(d) –i
Hints:
(-1) $\frac{-33}{2}$ = -i: since (-1) $\frac{-33}{2}$ = $\sqrt{-1}^{-33}$
= $i^{-33} = \frac{1}{i33} = \frac{1}{i32.i} = \frac{1}{1.i} = -I$

1016. Which of the following statements about standing waves is true?
(a) Particles immediately either side or a node are moving in opposite directions
(b) Particles between adjacent nodes all have the same amplitude.
(c) Particles undergo no disturbance at an antinode.
(d) Particles between adjacent nodes zreout of phase with each other.
Hints: (a) Particles wave up and down at antinodes.

1017. Electromagnetic ways are produced by oscilating charges. Sound waves are produced by oscillating tuning faris. How are these waves similar?
(a) They are both longitudinal waves.
(b) They are both transverse waves.
(c) They both have the same frequency as their respective sources.
(d) They both require a medium to travel through.
Hints: (c) EMW and sound waves have same frequency of their respective sources.

1018. Which of the following is the same unit as the farao?
(a) Ω^{-1}s
(b) Ωs
(c) Ωs^{-1}
(d) $\Omega^{-1}s^{-1}$
Hints: (a) Ω^{-1}s , we know that
RC = t, c = t/R, s/Ω = Ω^{-1}s

1019. 'Commencement' means:
(a) the beginning (b) the conclusion
(c) The impending (d) The interloping

1020. The addition of a catalyst to achemical reaction changes:
(a) the enthalpy
(b) the entropy
(c) The activation energy
(d) The free energy
Hints: A catalyst increases the rate of a

chemical reaction by lowering the activation energy.

1021. TlCl3is used as catalyst mainly for the:
(a) Manufacture of ammonia
(b) Manufacture of methanol
(c) Oxidation of ethanol to acetaldehyde
(d) Polymerization of ethene to polythene
Hints: $TiCl_4$ is used as catalyst mainly for polymerization of ethane to polythene.

1022. When temperature of 30.0 cm3of nitrogen gas is change from 27 oC to 57 oC at constant pressure of 760 mm. the volume of gas becomes closest to which one of the following?
(a) 11.5 cm3 (b) 21.5 cm3
(c) 33.0 cm3 (d) 60.0 cm3
Hints: V1= 30cm3, T1=27+273 +300 K
V2=? T2=57+273+330 K
From Charles law
$\frac{V1}{T1} = \frac{V2}{T2}$, $V_2 = \frac{V1}{T1} \times T_1$,
$V2 = \frac{30 \times 330}{300}$, = 33 cm^3

1023. Which of the following is false?
(a) The cancellation laws hold in a group
(b) Each element in a group has a unique inverse.
(c) A group can be an empty group
(d) None of the above

1024. If α and β ae the roots of the equation 5x2 + 5x + 4 = 0 than α β =
(a) $\frac{4}{3}$
(b) $\frac{5}{3}$
(c) $\frac{2}{3}$
(d) $\frac{1}{3}$
Hints: If *a* and β are the roots of the equation $3x^2 + 5x + 4 = O$ then $a\,\beta = \frac{4}{3}$

1025. If $f(x) = \frac{2x}{3x+1}$ then = $[f(2)]^{-1}$ =
(a) $\frac{4}{7}$
(b) $\frac{7}{4}$
(c) $\frac{-7}{4}$
(d) $\frac{-4}{7}$
Hints: If $f(x) = \frac{2x}{3x+1}$ then $[f(2)^{-1} = \frac{7}{4}$
Since $f(2) = \frac{2(2)}{3(2)+1} = \frac{4}{7}$
And $[f(2)]^{-1} = \frac{7}{4}$

1026. A valid sec of units for specific heat catpcity is:
(a) $KgJ^{-1}k$
(b) $KgJ^{-1}k^{-1}$
(c) $KgJk^{-1}$
(d) $Kg^{-1}k^{-1}$
Hints: (d) $C = \frac{\Delta Q}{m\Delta T} = {}^{J}/_{Kg\ k} = kg^{-1}\ J\ K^{-1}$

1027. The gravitational field strength on the surface of the Earth is g. the gravitational field strength on the surface of a planet of twice the radius and the same density is:
(a) 4g (b) 2g (c) g (d) g/4
Hints: (d)
$G = \frac{GMe}{r2}$, g $a\ \frac{1}{r2}$
$g` = \frac{GMe}{(2r2)} = \frac{GMe}{4r2} = {}^{g}/_{4}$

1028. A metal sphere of radius _s' is dropped into a tank of water. As it sinks at speed. It expriences a drag force'F' given by F2= k r v, where _k' is a constant. What are the SI base units of k?
(a) kg $m^2 s^{-1}$
(b) kg m^{-2} s^{-2}
(c) kg m^{-1} s^{-1}
(d) kg m s^{-2}
F = Krv, D = $\frac{F}{rv} = \frac{N}{mms}$
Hints: (c)
$= \frac{kgms}{s2m2}$ = $kgm^{-1}s^{-1}$

1029. 'Endowed' means:
(a) Checked or corrected
(b) Betrayed or decived
(c) Alarmed or disturbed
(d) Awarded or gifted

1030. Electro negativity of aluminium is nearly equatto that of:
(a) Be (b) B (c) Mg (d) K
Hints: The electronegativity of both aluminum and beryllium is "105".

1031. Gypsum has the chemical formula:
(a) $CaCO_3$
(b) $CaSO_4\ 2H_2O$
(c) $Na_2CO_3\ 10H_2O$
(d) $Na_2B4O_7\ 10H_2O$
Hints: The chemical formula of gypsum is $CaSO_4.\ 2H_2O$

1032. Select the ligand which is bidentate:
(a) EDTA
(b) Water
(c) Ammonia
(d) Ethylenediamine
Hints: Ethylenediamine
(H_2 N – CH_2 – CH_2 – N H_2) is a bidentate ligand due to presence of two line-pairs of electrons an two nitrogen atoms. $CaSO_4.\ 2H_2O$

1033. For what value of k will equation x 2 + kx – 5 = 0 have the sum of roots equal to the product of roots?
(a) 3 (b) – 5 (c) – 2 (d) 5
Hints: Sum of the roots $\frac{-K}{1}$ = -K
Product of roots = $\frac{-5}{1}$ = -5
Bothe are equal = -k=-5, k=5

1034. 15 ^{o} =
(a) $\frac{\pi}{6}$ radians
(b) $\frac{\pi}{12}$ radians
(c) $\frac{\pi}{18}$ radians

(d) $\frac{\pi}{24}$ radians

Hints: $15^o = \frac{\pi}{12}$ rad : since$180^o = \pi$ rad

$1 = \frac{\pi}{180}$ rad , $15^o = 15 \times \frac{\pi}{180}$ rad = $\frac{\pi}{12}$ rad

1035. Which of the following is not a quadratic equation?

(a) $5^{x2} + 3x = 0$

(b) $3x^2 - 27 = 0$

(c) $x + 3 = {}^{5}/_{x}$

(d) $3 - 1/x = 5$

Hints: (d) is correct

1036. To trave a …….. constat speed a car engirie provides 24 kW or usefull power. The driving force on the car is 500 N. at what speed does it travel?

(a) 40 ms^{-1}

(b) 2.5 ms^{-1}

(c) 4.0ms^{-1}

(d) 25 ms^{-1}

Hints:

1037. For a given liquid at atmospheric pressure which process can occur at any temperature?

(a) Boiling (b) Evaporation

(c) Melting (d) Solidification

Hints: Evaporation of liquid can occur at all temperature above ok (-273^{o}C)

1038. A wire is stretched by 8 mm. When a load of 60 N is applied. What will be the extension of a wire of the same material having four times the cross sectional area and twice the original length when
the same load is applied?

(a) 8 mm (b) 16 mm (c) 2 mm (d) 4 mm

1039. "Archive" means:

(a) A model of building behind museum.

(b) A sequential statement of inventions.

(c) A collection of record about the past.

(d) A chronological order of discoveries.

1040. Select the correct formula of potassium hexacyanoferrate…..

(a) $K_3[Fe(CN)_6]$

(b) $K_4[Fe(CN)_6]$

(c) $K_2[Fe(CN)_6]$

(d) K $[Fe(CN)_6]$

Hints: The correct formula of potassium hexacyanoferrate is $K_3[Fe(CN)_6]$

1041. Select an ionic complex of the following

(a) [Ag(NH3)2Cl

(b) Ca2[Fe(CN)6]

(c) [Cu(NH3) (H2O)Br2

(d) [Cr(NH3)Cl2

Hints: [Cr(NH3)4]Cl3 is an ionic complex which is ionizes into $[Cr(NH_3)_4]^{+3}$ and $3Cl^1$ Ions

1042. HCl and not HNO3is used to prepare H2S gas from FeS:

(a) HNO3is less reactive than HCl

(b) HNO3renders the FeS passive

(c) HNO3oxidizes H2S to sulehur

(d) HNO3is expensive than HCl

Hints: HNO_3 is not used to prepare H_2S gas from FeS because HNO_3 is a strong oxidizing agent which oxidizes H_2S to sulphur.

1043. The period of tan x is:

(a) 2π (b) – 2π (c) π (d) –π

Hints: The period of tan x is π so (c) is correct

1044. Tan 2θ =

(a) $\frac{2\tan\theta}{1-\tan 2\theta}$

(b) $\frac{1-\tan 2\theta}{2\tan\theta}$

(c) $\frac{2\tan\theta}{1+\tan 2\theta}$

(d) $\frac{1+\tan 2\theta}{2\tan\theta}$

Hints: $\tan 2\theta = \tan(\theta + \theta) = \frac{\tan\theta+\tan\theta}{1-\tan\theta\tan\theta} = \frac{2\tan\theta}{1-\tan 2\theta}$

1045. Distance of point of (4 ,– 3) from the line $2x - 5y + 3 = 0$

(a) 4/5

(b) 26/5

(c) $\frac{4}{\sqrt{7}}$

(d) $\frac{26}{\sqrt{7}}$

Hints: Distance of a point p(l,3) from the line 2x-5y+3+o is $\frac{|2(1)-5(3)+3|}{\sqrt{(2)^2+(-5)^2}} = \frac{10}{\sqrt{29}}$

1046. Two Progressive waves of frequency 300. Hz are superimosed to produce a stationary wave in which adjacent nodes are 1.5 m apart. What is the speed of the progressive waves?

(a) 100ms^{-1}

(b) 200ms^{-1}

(c) 450ms^{-1}

(d) 300ms^{-1}

Hints: distance between adjacent nodes $\lambda/2$, $\lambda/2 = 1.3$, $\lambda = 2.6$m

$v = f\lambda = 300 \times 2.6 = 780$m/s

1047. The ratio of strain to stress is:

(a) Alastic modulus

(b) Bulk modulus

(c) (Elastic modulus) –1

(d) Young modulus

1048. The unit of work the joule may be defined as the work done when the point of application of a force of 1 newton is moved a distance of 1 meter in the direction of the force Express the jole. In terms of the base units of mass, length and time the kg, m
and s.

(a) kg m s^{-2}

(b) kg m^2 s^{-2}

(c) kg m^2 s^{-1}

(d) kg s^{-2}

Hints: (b) J = Nm = kg $\frac{m}{s2}$ m = kgm^2s^{-2}

1049. "Incipient" means

(a) In coma due to accidental injury

(b) Just starting to be or happening.

(c) The recipient of gallantry award.

(d) Practitioner of domestic recipes.

1050. Helium gas is used in filling balloons but not hydrogen, through hydrogen is lighter than helium. Why?
(a) Pure hydrogen is not easily available
(b) Helium is ractive than hydrogen
(c) Helium is chaper than hydrogen
(d) Hydrogen is inflammable.
Hints: H_2 gas is not used in filling balloons because H_2 gas inflammable.

1051. Electrons are distributed among the orbittals in such a way to give maximum multiplicity (no of unpaired electrons) which is according to:
(a) Pauli exclusion principle
(b) Hund's rule
(c) Aufbau Principle
(d) Octat rule
Hints: Hund`s rule gives the maximum number of unpaired elections.

1052. What is the atomic number of an element that has four unpaired electrons in its ground state?
(a) 6 (b) 14 (c) 22 (d) 56
Hints: Z = 26, $|Ar|$, $4s^2$, $3d^6$ (4-unpaired es in 3d-orbitals)

1053. Which of the following sets has closure property with respect to multiplication?
(a) {–1}
(b) {–1, 0}
(c) {0 , 2}
(d) {–1,0 , +1}
Hints: Closure property with respect to multiplication. The product of any two elements of a set is also an element of a set.

1054. The sum of the squares of two numbers is 65 the sum of the numbers is 11 the numbers are
(a) 2,9 (b) 4,7 (c) 3,8 (d) 5,6
Hints: 4, 7: since 4+7=11 and $4^2+7^2=65$

1055. The reflexive property of equality of real numbers is that
(a) $a = a$ (b) $a \neq a$ (c) $a \leq a$ (d) $a \geq a$
Hints: Reflexive property of equality : a=a

1056. Which experimental tedinlque reduces the Systemati cerror of the quantity eing investigated?
(a) Adjusting an ammeter to remove its zero error before measuring a current.
(b) Measuring several internodal distances on a standing wave to find the mean internodal distance.
(c) Measuring the diameter of a wire repeatedly and calculating the average.
(d) Timing a large number of osciliations to find a period.

1057. The velocity 'V' of a particle at a dispacement 'x' from the origin is give by V = ax2+ bx + c Where a, b and c are constants which of the following statements must be correct for the equation to be homogeneous?
(a) a,b and c must have the same units.
(b) A x2, bx and c must have the same units.
(c) A , b and c are constants and have no units.
(d) Ax2bx2must have units of ms–1but c has not units.
Hints: (d) For equation to be homogeneous, right side dimension must equal to lift side dimension.

1058. A basketball is thrown upward along a parabolic path. What is the ball's acceleration at its highest point?
(a) 0 (b) 1/2 g, horizontal
(c) g, downward (d) g, upward
Hints: (c) "g" downward. In projectile motions the only acceleration is "g" which is always downward.

1059. Mr. Ferozwould rop the dull and wayward students across the knuckles. The Italicized idiom means __
(a) Reprove (b) Scold
(c) admire (d) amuse

1060. Which of the following is the strongest reducing agent?
(a) Ar
(b) K+
(c) Cl +
(d) Ca2+
Hints: Chloride ion (Cl^{-1}) is the strongest reducing agent by losing electron more readily.

1061. Which of the following molecules have molecular shape like AlCl3?
(a) NCl_3
(b) BCl_3
(c) PCl_6
(d) PH_3
Hints: Both $AlCl_3$ and BCl_3 have planar trigonal shapes

1062. BeCl2has the hybride orbital of the type: (a) Sp
(b) sp2
(c) sp3
(d) dsp2
Hints: In $BeCl_2$, Be is sp-hybridized and $BeCl_2$ has linear structure.

1063. Identity matrix is always:
(a) rectangular (b) symmetric
(c) Singular (d) Non-singular
Hints: Identity matrix is always symmetric and non-singular i.e. both (b) and (d) are correct. Becuasue question is not well settled in oringal paper.

1064. If set A has 3 and set B has 2 elements then how many ordered pairs are there in B × A?
(a) 9 (b) 6 (c) 5 (d) 34
Hints: set A has 3 and set B has 2 elements then B × A has 2 × 3 = 6 elements

1065. If A = {c ,d} and B = {e ,f} then {(c,f), (d,e), (c,e), (d,f)} is
(a) Not a function

(b) an onto function from A into B
(c) An onto function from B into A
(d) On to one function.
Hints: A={c, d} and B={e, f} then {(c, f), (d, e), (c, e), (d, f) } is not a function. Since is paired with two distinct elements.

1066. Which of the following statements reisting to the Newton's third law is NOT correct?
(a) Action and reaction must be of the same type.
(b) Action and reaction are always in opposite direction.
(c) Action and reaction are at all times equal in magnitude.
(d) Action and reaction must act on the same body.

1067. Which one of the following is not a unit of energy?
(a) kg m s^{-3}
(b) kg m^2 s^{-3}
(c) N m
(d) W s
Hints: (a) The unit of energy is Joule=Kgm^2s^{-2}=Nm=watt s

1068. A short …. At an angle of 60^o to the horizontal with kinetic energy E. if air resistance is igncred the kinetic energy at the top of the trajectory is:
(a) Zero (b) E/8 (c) E/4 (d) E/2
Hints: (c) The K.E at top is
$E` = \frac{1}{2} m(v \cos 60^O)^2$
$E` = \frac{1}{2} m^2(v \cos 60^O)^2$
$E` = E \times \frac{1}{4} = E / 4$

1069. The part of the newspaper in which letters to the aditor arepublished is generally called the agory column. The underlined word most nearly means:
(a) Hilarious jokes (b) gaggerated problems
(c) Intense excitement (d) acute pain

1070. Which of the following is a lewis acid?
(a) H_2O
(b) NH_3
(c) H^+
(d) Cl^-
Hints: H^+ is electron deficient and can act as a lewis acid by accepting a pair of electron from a base.

1071. Purification of common salt by passing by HCl as is based on:
(a) ……. (b) Common ion effect
(c) Ionization (d) None of these
Hints: During purification of commercial NaCl, solubilty of NaCl is decreased by passing HCl gas due to common ion effect and pure NaCl crystallizes out.

1072. The formula of Bauxile is:
(a) Al_2O_3
(b) $Al_2O_34H_2O$
(c) Al_2O3H_2O
(d) $Al_2O_32H_2O$
Hints: The formula of bauxite is Al_2O_3. $2H_2O$

1073. Let * and o be the two binary operations in a non-empty set S. The operation * is said to be left distributive over if:
(a) a * (bo,c) = (a* b) o (a * c)
(b) (b o c) * a = (b * a) o (a * c)
(c) ao (b *c) = (ao b) * (a o c)
(d) (b * c) o a = (b o a) o (a o c)
Hints: a * (boc) = (a * b)o(a * c)

1074. The matrix $*\begin{bmatrix} 0 & \frac{1-2i}{0} \\ -1-2i & \end{bmatrix}$ + is :
(a) Hermitian Matrix
(b) Skew Hermitian Matrix
(c) Symmetric Matrix
(d) Skew Symmetric Matrix
Hints: The matrix $\begin{bmatrix} 0 & \frac{1-2i}{0} \\ -1-2i & \end{bmatrix}$ is skew Hermitions Matrix. So (b) is correct. By def $(M)^t$ = -M, where M is the given matrix.

1075. Which of the following is not property of fourth roots of unity?
(a) Complex fourth roots of unity are conjugate of each other.
(b) Sum of the fourth roots of unity is 0.
(c) Product of fourt roots of unity is a.
(d) Real fourth roots of unity are addjtive inverse of each other.
Hints: Fourth roots of unity are 1, -1, I, -I and the product is not equal to 1

1076. A ball of mass 'm' is attached to a string of length 'r' and is swing in a horizontal circle with constant angular velocity. What is the work one on the ball by the tension in the string?
(a) 2 π m r2
(b) π m r2
(c) 2 L m r
(d) Zero
Hints: (d) In this case tension is equal to centripetal force no work is done by tesion or centripetal force.

1077. Two indental objects A and B move around separate circles of indentical diamention. The is
(a)1/4 (b) 1/2 (c) 2 (d) 4
Hints: (a)
$F_c = \frac{mv2}{r} = \frac{mr2w2}{r} = mr^2w^2 = \frac{4\pi mr}{T2}$
SO $F_c = \frac{1}{T2}, \frac{FA}{FB}, = \frac{1}{(2TA)2} \times T^2$ B = $\frac{1}{4}$

1078. A satellite of weight w, on the surface of the earth of radius R, is projected into a circular orbit or radius 2R. the gravitational force acting on the satellite in orbit is:
(a) W/2 (b) W/4 (c) 4W (d) W
FG = W = $\frac{GMem}{R2}$
Hints:
`FG = W` = $\frac{GMem}{(2R)2} = \frac{GMm}{4R2} = \frac{w}{4}$

1079. Some government officials have an irritating Habit of throwing their weight aroun

everywhere. The italisized idiom means:
(a) To redress public grievances.
(b) To deliver satisfactory services.
(c) To use power and influence.
(d) To Avail facilities.

1080. Lime water is saturated solution of:
(a) Mg(OH)2
(b) Ca(OH)2
(c) Ba(OH)2
(d) KOH
Hints: Lime water is saturated solution of $Ca(OH)_2$

1081. Goldberg and Waage stated:
(a) Acid base equilibria
(b) Periodic law
(c) Lao of mass action
(d) Rule maximum multiplicity
Hints: Gulberg and waag stated "lawa of mass action" or "Law of chemical equilibrium".

1082. Silicones are:
(a) Synthetic polymers
(b) Natural polymers
(c) Non polymeric compound
(d) None of the above
Hints: Silicones are synthetic polymers containing si-o-si-o-si linkages along with alkyl groups as side chains.

1083. Which of the following is a factor of:
$x^3 + 2x^2 – 5x – 6$?
(a) x – 1 (b) x – 2
(c) x + 2 (d) x – 3
Hints: (x-2) is the factor of
$x^3 + 2x^2 – 5x – 6$ Since
$(2)^3+2(2)^2-5(2)-6=0$ 2 is a root.

1084. The quadratic equation having 3, –4 as its roots is:
(a) $x^2 + x – 12= 0$
(b) $x^2 – x –12= 0$
(c) $x^2 + x + 12= 0$
(d) $x^2 – x + 12= 0$
Hints: $x^2 + x – 12=0$
(x+4)(x-3)=0 , x=4, x=3

1085. Roots of x2 – x –12= 0 are:
(a) unequal and complex
(b) Equal and real
(c) unequal and irrational
(d) Unequal and rational
Hints: Roots of x2-x-12=0 are unequal and rational since disc:
$B^2 – 4ac = (-1)^2 – 4(1)(-12)$
$= 1 + 48 = 49$ *a perfect square*

1086. Two objects of different masses falling freely from the same heights above the earth's surface will experience the same:
(a) Change in momentum per unit time.
(b) Change in velocity per unit time.
(c) Decrease in gravitational potention energy
(d) Increase in kinetic energy
Hints: (b) Change in velocity per unit time means a=g, g is independent of masses.

1087. Which one of the following hanges when an object moves with simple harmonic motion:
(a) Angular frequency (b) Total energy
(c) Acceleration (d) Amplitude

Hints: (c) As $a\ a\ x \Rightarrow aec$ .Changes during SHM due to chaning of displacement from mean positions.

1088. A particle oscillates with simple harmonic motion. The acceleration of the particle.
(a) Decreases as the potential energy decreases.
(b) Is always in the opposite sense to the velocity of the particle.
(c) Varies linearly with the frequency of oscillation.
(c) Has the smalles magnitude when the kinetic energy is the smallest.
Hints: (a) $P.E\ a\ x^2$ and $a\ a\ x$

1089. The boys loved the zoo. They _____ wild:
(a) have never seen (b) never saw
(c) had neverseen (d) All of the above are correct

1090. Liquid crystals have a structure:
(a) Like liquids
(b) Like crystalline solids
(c) Like amorphous solids
(d) Between solids and liquids
Hints: Liquid crystals have structures and properties in between crystalline solids and liquids.

1091. With increase in 10^oC temperature, the rate of reaction almost doubles. The increase is due to:
(a) Decrease in activation energy of reaction.
(b) Increase in activation energy of reaction.
(c) Decrease in the number of collision.
(d) Increase in the number of effective colision.
Hints: An increase in temperature increase the rate of chemical raction by increasing the number of effective collisions among the reacting molecules.

1092. If the salt bridge is not employed between two half cel's in the Galvanic cell. Then the effect on the voltage would be:
(a) Decrease rapidly (b) Decrease slowly
(c) Drops to zero (d) Increase slowly
Hints: When salt bridge is not employed between two half cells in Galvanic cell, the circuit is not completed and voltage drops to zero.

1093. In the from of partial fractions the rational function $\frac{x}{(x-1)2(x+1)}$ can be written as:
(a) $\frac{A}{x+1} + \frac{B}{(x-1)^2}$
(b) $\frac{A}{(x-1)^2} + \frac{Bx+C}{x+1}$
(c) $\frac{A}{(x-1)} + \frac{B}{(x-1)^2} + \frac{D}{x+1}$
(d) $\frac{A}{(x-1)} + \frac{Bx+C}{(x-1)^2} + \frac{D}{x+1}$

Hints: $\frac{x}{(x-1)^2} = \frac{A}{(x-1)} + \frac{B}{(x-1)^2} + \frac{D}{x+1}$

1094. If A and B are two matually exclusive events, then P(A B) =
(a) *P(A) P(B)*
(b) *P(B) A*
(c) *P(A) + P(B)*
(d) *P (A∩B)*
Hints: p(AUB)=P(A)+P(B) since P(A∩B)=0

1095. Which of the following is true:
(a) AM > GM > HM
(b) AM < GM < HM
(c) GM > AM > HM
(d) AM > HM > GM
Hints: AM > GM > HM

1096. The displacement 'x' of a particle at time 't' is given by x = 10 sin 4t. the particle oscillates with period:
(a) $\frac{\pi}{10}$ s
(b) $\frac{\pi}{5}$ s
(c) $\frac{\pi}{4}$ s
(d) $\frac{\pi}{2}$ s
X = 10 sin 4*t* → (1)
Hints: (d)
$X = X_o \sin wt$ → (2)
Comparing eq (1) and (2) which shows that
W = 4, $\frac{2\pi}{T} = 4$, $T = \frac{2\pi}{4} = \frac{\pi}{2}$ s

1097. The internal energy of a system is:
(a) The total change in momentum of all the molecules in the system.
(b) The sum of kinetic energies and the potential energies of the system.
(c) The thermal energy required to raise the temperature of the system by 1K.
(d) The total potential energies of the system.
Hints: (b) Internal energy = sum of K.E and P.E of all the molecules of a system.

1098. The energy of a wave pulse is proportional to its:
(a) Amplitude squared
(b) Amplitude
(c) Square root of the amplitude
(d) Velocity Squared.
Hints: (a) Energy of waves is directly proportionaly to amplitude squared ($E\ a\ x^2_o$)

1099. Some one is walking behind us. I think:
(a) We are being followed
(b) We have been followed.
(c) We are followed.
(d) We were being followed.

1100. A solution of Glucose is 10%. What will be the volume of solution in which one gram mole of it is dissolved?
(a) 1.0 dm^3
(b) 1.8 dm^3
(c) 2.8dm^3
(d) 1.5 dm^3
Hints: 10 % glucose solution means 10 g glucose in = 100 mL solution
180 *g glu cos e will bein* = $\frac{181 \times 100}{10}$ *mL solution*
= 1800 *mL solution*
= 1.8 *L solution*
= 1.8 dm^3 *solution*

1101. The compounds have the same composition and have the same atoms linkages, but with difference orientation in space. The compounds are considered as:
(a) Stereo isomers (b) Structura isomers
(c) Position isomers (d) Identical
Hints: Compounds having the same composition same structure but different relative arrangement of atoms / graphs in space are called stereo isomers.

1102. Hydrocarbons are composed of:
(a) Carbon, hydrogen and oxygen
(b) Carbon and hydrogen
(c) Carbon and nitrogen
(d) Carbon and oxygen
Hints: Hydrocarbons are carbon-hydrogen compounds

1103. Sum of first 100 natural numbers =
(a) 50050 (b) 5005
(c) 5151 (d) 5050
Hints: Sum of first 100 natural number = 5050
$\frac{100}{2}(1 + 100) = 5050$

1104. G.M of 4 and 64 is:
(a) 34 (b) 16 (c) 8 (d) 2
Hints: GM of 4 and 16 is 8
$\sqrt{4 \times 16} = \sqrt{64} = 8$

1105. If a, b, c are the lengths of the sides of a triangle and α, β, are its included angles then
(a) sin α (b) cos α (c) cos β (d) cosγ
Hints: $\frac{b^2 + c^2 - a^2}{2bc}$ = cos *a* : *Law of* cosines

1106. A wave front of a progressive wave is one. Where every point on it:
(a) Is vibrating with the same frequency.
(b) Is moving in the same direction.
(c) Is vibrating in phase with the other points.
(d) moves with the same speed.
Hints: (c) wave front is the locus of all points in the medium having same phase with all the points.

1107. In Young's double slit expriment the slits are 0.500 mm apart and placed at a distance of 1.50 m from a screen. When light of wavelength 600 nm passes through, the fringe spacing is:
(a) 2.0 × 10–7mm
(b) 1.8 × 10–6mm
(c) 0.18 mm
(d) 1.8 mm
$\gamma = \frac{\lambda D}{d} = \frac{600 \times 10-9 \times 1.5}{.5 \times 10-3}$
= 1800 × 10^3 × 10^{-9}m = 1.8*mm*

1108. Which one of the following is not

characteristic of stationary waves?
(a) Energy of the stationary waves travels outwards
(b) Wavelength is twice the distance between the adjacent nodes.
(c) Amplitude is not the same
(d) Phase is the same between two adjacent node.
Hints: (a) stationary wave do not transmit energy.

1109. In Pakistan, the more electricity you use, ____ you bill will be:
(a) The more high (b) The more highly
(c) The highest (d) Ther higher

1110. Which formula is of 2-methylpentane?
(a) C_5H_{12}
(b) C_5H_{10}
(c) C_6H_{10}
(d) C_5H_{14}
Hints: The fomula of 2-Mathlpentane is C_6H_{14}

1111. Which halogen does not appreciably react with methane in free radial substitution reaction?
(a) Florine (b) Chlorine
(c) Iodine (d) Bromine
Hints: Iodine reacts with methane reversibly. To casuse forward reaction, strong oxidizing agent like HNO_3 is used to remove the resulting strong reducing agent HI and stop the reverse reaction.

1112. Octane number is associated with:
(a) Gassoline (b) Kerosene oil
(c) Diesel oil (d) Tubricating oil
Hints: Octane number shows the % volume of 180-octane in gasoline. Higher the octane number, better is the quality of gasoline and vice versa.

1113. $\int \cos ec^2 kx\, dx =$
(a) $-\frac{\cos kx}{k} + c$
(b) $-\frac{\sin kx}{k} + c$
(c) $-\frac{\cot kx}{k} + c$
(d) $-\frac{\tan kx}{k} + c$
Hints: $\int \cos ec^2\, kx\, dx = -\frac{\cot kx}{k} + c$

1114. $\int \cosh kx dx =$
(a) $\frac{\sin kx}{k} + c$
(b) $\frac{\cosh kx}{k} + c$
(c) $\frac{\tanh kx}{k} + c$
(d) $\frac{\operatorname{sech} kx}{k} + c$
Hints: $\int \cosh kx\, dx = \frac{\sin kx}{k} + c$

1115. The radius of the circle passing through the point (6.2) and two of whose diameters are x + y = 6 and x + 2y = 4 is:
(a) 4 (b) 5 (c) 20 (d) $\sqrt{20}$
Hints: First find center of the circle which is the common point of the two diameters x+y=6 and x+2y=4, then find the distance between, the center and the point lying on the circle (6,2). As a result we get the radius$\sqrt{20}$

1116. Sound waves of frequency 100 Hz are transmitted into a cylindrical tuve that is closed at one end. The stationary waves formed in the tube produced adjacent nodes that are 1.5 m apart. What is the speed of sound waves?
(a) 6.5 m s^{-1}
(b) 160 m s^{-1}
(c) 320 m s^{-1}
(d) 640 m s^{-1}
$\frac{\lambda}{2} = 1.6m \Rightarrow \lambda = 3.2m$
Hints: (c)
$V = \lambda f = 3.2 \times 100 = 320$ms^{-1}

1117. A positive charge of magnitude 4.0 × 10 –6C is placed at a point in an electric field where the potential is + 1.0 kV. What is its electric potential energy?
(a) 4.0×10^{-9}J
(b) 4.0×10^{-3}J
(c) 4.0×10^{-6}J
(d) 2.5×10^{8}J
Hints: (b)
$V = \frac{W}{q} \Rightarrow W = qV$
$W = E = 4.0 \times 10^{-6}$ c1.0×10^{3} $V = 4 \times 10^{-3}$J

1118. When the separation _r' between a positive test charge and a positive point charge is increased the electric force F acting on the test charge is:
(a) Directly proportional to 'r'
(b) Inversly proportional to 'r'
(c) Directly proportional to 'r2'
(d) Directly proportional to '1/r2'
Hints: (d) Force between two charges is
F = k $\frac{qqo}{r^2}$, $Fa\ \frac{1}{r^2}$
Force is directly proprtial to $\frac{1}{r^2}$

1119. If you ____ well for the entrance test, you would have scored a lot:
(a) studied (b) had studied
(c) would studied (d) will study

1120. Which of the following hydrocarbons has acidic hydrogen?
(a) 1-Butyne (b) 2-Butyne
(c) 2-Butene (d) 1-Butene
Hints: A H-atom attached to triple bonded carbon is partial +vely charged and cab be removed as proton. Hence 1-alkynes (1-Butyne) have acidic H-atoms and show acidic behavioue.

1121. Select the compount that is considered as causing more depletion of ozone layer in the upper stratosphere:
(a) CH_4
(b) CF_4
(c) CH_2Cl_2

(d) CCl_2F_2
Hints: CCl_2F_2 Causes more depletion of ozone layer. Chloroflurocarbons are used inn regrigerants and as aerosol sprays etc. These produce chloride free radicals in stratosphere by the action of UV –radiations. The chloride free radicals react with ozone and change it into oxygen.
$Cl + O_3 \rightarrow ClO + O_2$
$ClO + O \rightarrow Cl + O_2$
A single chloride radical can destroy upto 100, 000 ozone molecules.

1122. Alkyl halides undergo:
(a) Electrophilic substitution reactions.
(b) Electrophilic addition reaction.
(c) Nucleophile substitution reaction.
(d) Nucleophile addition reaction.
Hints: Alkylhalides undergo Nucleophilic substitution reactions during which halide ion is replaced by another nucleophile.

1123. If (0,0) and (0 ,– 3) are respectively the vertex and focus of a parabola then its equation is:
(a) $y^2 = 12x$
(b) $y^2 = -12x$
(c) $x^2 = 12y$
(d) $x^2 = -12y$
Hints: $x^2 = -12y$

1124. For the ellipse 16x2 + 25y2 = 400 the eccentricity, e =
(a) $\frac{2}{5}$ (b) $\frac{3}{5}$ (c) $\frac{4}{5}$ (d) $\frac{1}{5}$
Hints: $16x^2+25y^2=400$ can be written as
$\frac{x^2}{25} + \frac{y^2}{16} = 1$, $a^2 = 25$, $b^2 = 16$: $b^2 = a^2 (1 - e^2)$
$E^2 = \frac{a}{25}$, $e = \frac{3}{5}$

1125. When e = 1 the conic is a/an
(a) Circle (b) Ellipse
(c) Hyperbola (d) Parabola
Hints: When e=1 : parabola

1126. The force between two charged bodies is 'F'. If the charge on each body is doubled and the distance between them is haved, the force ading on each charged body is:
(a) 2F (b) 4F (c) 8F (d) 16F
Hints: (c) `F = $\frac{k(2q1)(2q2)}{\left(\frac{r}{2}\right)2} = 16\frac{kq1q2}{r^2} = 16F$

1127. Which one of the following represents the relationship between the resisance 'R' of a wire and its diameter 'd'?
(a) R α d
(b) R α d2
(c) R α 1/d2
(d) R α 1/d
$Ra\ \frac{1}{A} \Rightarrow Ra\ \frac{1}{\pi r^2} \Rightarrow Ra\ \frac{1}{\pi\frac{d^2}{4}}$
Hints: (c)
$Hence\ Ra\ \frac{1}{d^2}$

1128. By how many …. Does doubling the diameter of a wire and making it 10 times longer increase its reisistance?
(a) 2.5 times
(b) 5 times
(c) 10 times
(d) 20 times
Hints: (a)
$R = P\frac{L}{\pi\frac{d^2}{4}}$, R` = $\frac{10pL}{4\pi\frac{d^2}{4}} = 2.5R = 2.5times$

1129. The flat be alright. If the people above us ____ not so noisy
(a) are
(b) would be
(c) were
(d) will be

1130. Which one of the following compounds would react most rapidly in an SN2 reaction?
(a) $(CH_3)_3Cl$ (b) CH_3CH_2l
(c) $CH_2 = CH$ (d) $(CH_3)_2CH$
Hints: Primary alkylhalides (CH_3CH_2I) readily undergo SN^2 reactions in a non-polar solvent.

1131. Ketones react with Grignard reagent to form an addition product on Hydrolysis gives a:
(a) Primary alcohol (b) Secondary alcohol
(c) Tertiary alcohol (d) Acetone
Hints: Ketones react with Grignard`s reagent to give an addition product whoch on hydrolysis give tertiary alcohol.

1132. Methanol is also known as:
(a) Wood spirit (b) Denatural alcohol
(c) Grain alcohol (d) Rectified spirit
Hints: Methanol is known as "wood spirit" because for the first time obtained by the destructive distillation of wood.

1133. If ${}^nC_6 = {}^nC_{12}$ then n =
(a) 18 (b) 12 (c) 0 (d) 4
Hints: If ${}^nC_6 = {}^nC_{12}$ *then* $n = 6 + 12 = 18$

1134. $\int_1^2 xdx =$
(a) 3 (b) 2 (c) 2/3 (d) 3/2
Hints: $\int_1^2 xdx = \frac{x}{2}\int_1^2 = \frac{3}{2}$

1135. Letus rectum of the parabola $3x^2 = 4y$ is:
(a) 4/3
(b) -4/3
(c) 3/4
(d) -3/4
Hints: Latus rectum of the parabola 3x2=4y is $\frac{4}{3}$, $x^2 = \frac{4}{3}y$

1136. Wire A has the same length and resistance as wire B. the diameter of A is three times that of E. what is the ratio of the resistivity of wire A to that of wire B?
(a) 1 : 9 (b) 9 : 1 (c) 3 : 1 (d) 1 : 27
Hints: () Resistivity is independent of area so ratio should be 1 : 1

1137. A 100 watt lamp is connected to a 240 V terminal. What is the number of electrons leaving the lamp every second?
(a) 2.5×10^{15} (b) 1.5×10^{19}
(c) 6.3×10^{20} (d) 1.5×10^{23}

Hints:

1138. Three resistors of resistances 2Ω, 4Ω and 6Ω are connected in parallel across a D.D supply. The ratio of the current through the 2Ω resister to the current through the 4Ω resistor is:
(a) 1 : 2 (b) 2 : 1 (c) 1 : 4 (d) 1 : 6
$I = \frac{V}{R} \Rightarrow I_1 = \frac{V}{2} and \frac{V}{4} = I_2$
Hints:
$\frac{I1}{I2} = \frac{V}{R} \times \frac{4}{V} = 2 : 1$

1139. I shall see you tomorrow ____ I have to work late_____
(a) in case (b) unless (c) if (d) as

1140. Which of the following will give yellow crystalline precipitate of iodoform with iodine and sodium hydroxide solution?
(a) 2-methyl-2-propanol (b) 2-Propanol
(c) 1-Butanol (d) 1-Propanol
Hints: All those primary and secondary alcohols which on oxidation give methyl ketones or CH_3CHO, give yellow ppt of CHI_3 with I_2 and NaOH.

1141. Which of the following compounds will not be easily oxidized?
(a) Adehyde (b) Primary alcohol
(c) Secondary alcohol (d) Tertiary alcohol
Hints: Tertiary alcohols are difficult to oxidize primary alcohols give aldehydes while secondary alcohols give ketones on oxidation.

1142. Ethers are considered as:
(a) Lewis acids (b) Lewis bases
(c) Neutral (d) Amphoteric
Hints: Ethers are considered as lewis beses due to presence of two lone-pairs of electrons on oxygen.

1143. Radius of a circle whose equation is x2 + y2 – 6x + 8y + 21 = 0 is:
(a) 79 (b) 20 (c) $\sqrt{4}$ (d) 5
Hints: Radius of a circle whose equation is $X^2 + y^2$ -6x + 8y + 21 = 0 is 2
$R = \sqrt{g^2 + f^2 - c}$: g = -3, f = 4, c = 21

1144. A Vector which is used to represent the direction of a given vector is called:
(a) Position vector (b) Unit vector
(c) Null vector (d) Zero vector
Hints: (b) Unit vector is used to represent the direction of a vector.

1145. The line y = mx + c be the tangent to the parabola y2 = 4ax if:
(a) c = $\frac{a}{m}$
(b) a = cm
(c) m = $\frac{a}{c}$
(d) All of these
Hints: The line y =mx+c be the tangent to the parabola y^2=4ax if c=a/m
$(mx+c)^2$=4ax has equal roots gives c=a/m

1146. …… voltage law is based upon the law of conservation of:
(a) Momentum (b) Current
(c) Charge (d) Energy
Hints: (d) conservation of energy

1147. When resistors are connected in parallel the combined or equalent resistance is always:
(a) Greater than the greatest individual resistance.
(b) Equal to the smallest individual resistance.
(c) Smaller than the smallest individual resistance.
(d) None of the above
Hints: (c) smaller than the smallest individual resister.
$\frac{1}{Req} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3}$

1148. A thermistor is a semiconductor device whose resistance:
(a) Increase as its temperature increases.
(b) Decreases as its temperature decreases.
(c) Decreases as its temperature increases.
(d) Increases as its temperature decreases.
Hints: (c) thermistor is –ive coefficient of temperature.

1149. Blot and smudges implies:
(a) Spot of ink and dirty marks
(b) Foul smelling polluted water
(c) Bracelet and bangles of gold
(d) Beautiful neat way of writing.

1150. Which statement about the carbon,1 group is not true?
(a) The caronyl carbon is sp2 hybridized.
(b) The bond angle among the three atoms attached to the carbonyl carbon are 120^o.
(c) The three atoms attached to the carbonyl carbon from atom planar geometry.
(d) The carbonyl group forms resonating structures.
Hints: A carbonyle carbon is sp^2-hybridized . The bond angle between any two atoms is 120^o all the atoms attached to carbonyle carbon are in the same plane.

1151. In the conversion of wine to vinegar:
(a) Ethanol is oxidized to acetic acid.
(b) Ethanol is reducing to acetic acid.
(c) Methanol is oxidized to acetic acid.
(d) Methanol is reduced to acetic acid.
Hints: Ethanol is oxidized to acetic acid during conversationof wine to vinegar. Vinegar is a dilute solution of acetic acid.

1152. Choose the amphoteric oxide:
(a) Rubidium oxide (b) Sulphur trioxide
(c) Barium oxide (d) Antimony oxide.
Hints: Oxides of less electropositive metals like antimony oxide etc. are amphoteric in nature.

1153. If n is even, then the middle term in the expansion (a + b)nis:

(a) $\left(\frac{n+1}{2}\right)th$
(b) $\left(\frac{n+2}{2}\right)th$
(c) $\left(\frac{n}{2}+1\right)th$
(d) Both B. and C
Hints: If n is even, then the number of terms is odd so middle term = $\frac{n}{2}$ + 1, = $\frac{n+2}{2}$

1154. $\int e^{10x}\, dx$ =
(a) e^{10x} + C
(b) $\frac{e10x}{10}$ + C
(c) $10e^{10x}$ + C
(d) $(10e)^{x}$ + C
Hints: $\int e^{10x}\, dx = \frac{e10x}{\frac{d}{dx}(10x)} = \frac{e10x}{10}$ + c

1155. $\frac{d}{dx} \sin^{-1}x$ =
(a) $\frac{1}{\sqrt{1-x2}}$, $x \in (-1, 1)$
(b) $\frac{1}{\sqrt{x2+1}}$, $x \in R$
(c) $\frac{1}{\sqrt{1-x2}}$, $x \in (-1, 1)$
(d) $\frac{-1}{\sqrt{x2+1}}$, $x \in R$
Hints: $\frac{d}{dx} \sin^{-1}x = \frac{1}{\sqrt{1-x2}}$, $x \in (-1, 1)$

1156. A wire loop is placed in a magnetic field. The magneti flux passing through the loop is maximum when the angle between the field lines and the normal to the surface area of the wire is:
(a) 0^o
(b) 45^o
(c) 90^o
(d) 270^o
Hints: (a) $\emptyset = \underset{B}{\rightarrow} . \underset{A}{\rightarrow}$ = BA cos θ = BA cos θ^o = BA

1157. Conversion of alternating current to direct current is called:
(a) amplification (b) Rectification
(c) Both a. & B (d) None of them
Hints: (b) diode acts as a rectifier

1158. The minimum energy necessary to remove an electron from the surface of the emitter material is called:
(a) Thershold frequency
(b) Stopping potential
(c) Stopping energy
(d) Work function
Hints: (d) work function =*foh* – (*fo=threshold frequency*)

1159. 'Get hold or oneself' implies:
(a) To feel exheusted
(b) To start running
(c) To chach a chief
(d) To become calm

1160. Sodium reacts with water more vigorously than Li due to the reason that:
(a) $AlCl_2$
(b) HCl/ $ZnCl_2$
(c) $SOCl_2$
(d) HCl
Hints: Carboxylic acids can be converted into acid halides by reactin with phosphorus halides or thinly chlorides.
$CH_3 - COOH + SOCl_2 \rightarrow CH_3 - COCl + SO_2 + HCL$

1161. Which is monosaccharide?
(a) It is more electropositive
(b) It is more electronegative
(c) It has higher atomic mass
(d) It is a metal
Hints: The reactivity of metals increases down tehe group due to increase in then electro positivity. Na metal s more reactive than Li due to more electropositive character of Na.

1162. Which is monosaccharide?
(a) Maltose (b) Cellulose
(c) Sucrose (d) Fructose
Hints: Carbohydrates which can`t be decomposed by hydrolysis to give simple carbohydrates.

1163. Derivative of e–3x =
(a) $-3e^{-3x}$
(b) e^{-3x}
(c) $-e^{-3x}$
(d) $3e^{-3x}$
Hints: $\frac{d}{dx} e^{-3x} = e^{-3x} \frac{d}{dx}(-3x) = -3e^{-3x}$

1164. If $y = (3x^2 - 6x + 4)–1$, then =
(a) $\frac{6(x-1)}{(3x2-6x+4)2}$
(b) $\frac{-6(x-)}{(3x2-6x-4)}$
(c) $\frac{-6(x-)}{(3x2-6x-4)2}$
(d) $\frac{-6(x-)}{(3x2-6x+4)}$
Hints:
If $y = (3x^2 - 6x + 4)^{-1}$, the $\frac{dy}{dx} = \frac{-6(x-)}{(3x2-6x+4)2}$

1165. A vector is called zero vector if:
(a) It has magnitude and no arbitrary direction.
(b) It has no magnitude but has arbitrary direction.
(c) It has only magnitude and direction
(d) It has direction only.
Hints: (b) is correct

1166. The ionization energy for a particular atom is 30eV. How much energy is required to move an electron from its ground state to an excited energy level of E = –18eV?
(a) 12eV
(b) 18eV
(c) 30eV
(d) 48eV

1167. These cells of 2 volts each are connected in series. The net voltage due to combination of cell is:
(a) 5 volts (b) 1/3 volts
(c) 6 volts (d) 1/5 volts
Hints: (c) 6 volt (v=2v+2v+2v=6volt)

1168. The region of pn-junction diode where p-type material annihilates n-type side electrons and n-type side electron annihilate p-type side holes is called:
(a) depletion region (b) Potential barrier
(c) Pn-junction (d) All of them
Hints: (d) is correct

1169. 'No Wonder' implies:
(a) Not surprising (b) Traffic mishap
(c) Nothing weird (d) Seeing strange

1170. Coal-tar is considered as the main source of:
(a) Aliphatic compounds
(b) Aromatic compounds
(c) Heterocyclic compounds
(d) All of the above
Hints: Coal-tar is considered to be a mixture of different aromatic hydrocarbons.

1171. Boric acid cannot be used:
(a) as antiseptic in medicine
(b) For enamels and glazes
(c) In soda bottle
(d) For washing eyes
Hints: Boric acid can be used for washing eyes, as antiseptic in medicines, for enamels and glazes in pottery but can`t be used in soda bottles.

1172. When toluene is oxidized the product form is:
(a) Benzyl alcohol (b) Phenol
(c) Benz aldehyde (d) Benzoic acid
Hints: The oxidation of toluene with acidified $KMnO_4$ or $K_2Cr_2O_7$ produces Benzoic acid.
$C_6H_5 - CH_3 + 3[O] \rightarrow C_6H_5 - COOH + H_2O$

1173. Let a and b be the position vectors of the point A and B. if C divides AB internally in the ratio p : q then the position vector c of C is given by:
(a) C = $\frac{qb+pa}{q+p}$
(b) C = $\frac{qb+pa}{q-p}$
(c) C = $\frac{qb-pa}{q+p}$
(d) C = $\frac{ap-qb}{q+p}$
Hints: (a)

1174. If a. (b + c) = a.b + c…. then
(a) Scalar product is distributive over addition.
(b) Scalar product is distributive over Multiplication.
(c) Vector product is distributive over Multiplication.
(d) Vector product is associative over addition.
Hints: (a)

1175. Gives the vectors a = a1i + a2i + a3k and b= b1i + b2i + b3k, the vector product a × b can be written in determinant form as:
(a) $\begin{matrix} i & j & k \\ a1 & b1 & a3 \\ a2 & b2 & b3 \end{matrix}$
(b) $\begin{matrix} i & j & k \\ a1 & b1 & b1 \\ a2 & b2 & b3 \end{matrix}$
(c) $\begin{matrix} i & j & k \\ a1 & a2 & a3 \\ b1 & b2 & b3 \end{matrix}$
(d) $\begin{matrix} i & j & k \\ b1 & b3 & b2 \\ a1 & b3 & b2 \end{matrix}$
Hints: (a)

1176. The part of electromagnetic spectrum in which Paschen series lies is:
(a) Visible range (b) Infrared region
(c) Ultraviolet region (d) x – rays
Hints: (b) is correct

1177. Operational amplifiers can amplify:
(a) ac only (b) dc only
(c) both ac and dc (d) None of them
Hints: (c) is correct

1178. The resistance between + ve and – ve inputs of an ideal op-amp is:
(a) high (b) low (c) infinite (d) moderate
Hints: (a) no current flow through inputs

1179. Select the correct sentence:
(a) She possesses some small charming silver ornaments.
(b) She possesses some charming small silver ornaments.
(c) Some charming small silver ornaments she possesses.
(d) Some small silver charming ornaments the possesses.

1180. Which of the following is used in the reaction of benzene with acetyl chloride to form acetopheone?
(a) V2O3 catalyst (b) AlCl3 catalyst
(c) Platinum catalyst (d) Al2O3 catalyst
Hints: Lewis acid ($AlCl_3$) is used as catalyst in the reaction of benzene with acetyl chloride to f0rm acetophenone.

1181. Which one of the following will undergo Substitution. In the Roth and Para position.
(a) Phenol (b) Nitrobenzene
(c) Benzoic acid (d) Benz aldehyde
Hints: The OH group present on benzene ring in phenol is opposite directing, hence phenol will undergo substitution at opposite directions.

1182. Teflon is prepared by the polymerization of:
(a) Ethylene (b) Vinyl chloride
(c) Tetrafluroethylene (d) None of them
Hints: Teflon is prepared by the polymerization of: tetrafluoroethylene.
$nC_2F_4 \rightarrow (C_2F_2)_n$

1183. If A(x1 , y1, z1) and B(x2 , y2, z2) by any two points in space then distance |AB| =
(a) $\sqrt{(x1+x2)2+(y1+y2)2+(z1+z2)2}$
(b) $\sqrt{(x2-x1)2+(y2-y1)2+(z2-z1)2}$
(c)

$\sqrt{(x1-x2)2+(y1-y2)2+(z1-z2)2}$

(d) $\sqrt{(x2-x1)2-(y2-y1)2-(z2-z1)2}$

Hints: option (b) and (c) are Becuasue question is not well settled in oringal paper.

1184. If |a| = 3 , |b| = 4 and $\theta = 60^o$ than $a.b$ =

(a) ½

(b) $\sqrt{\frac{3}{2}}$

(c) 2

(d) 6

Hints: If |a| = 3 , |b| = 4 and $\theta = 60^o$ than $a.b$ =|a||b| cos 60^o

= 3 (4) $\left(\frac{1}{2}\right)$ = 6

1185. Equation of the normal at (x1 , y1) to the circle x2 + y2 + 2gy + 2fy + c = 0 = is:

(a) $y_1 - y = \frac{y1-f}{x2-g}(x + x_1)$

(b) $y_1 + y = \frac{y1-f}{x2-g}(x - x_1)$

(c) $y_1 - y = \frac{y2-f}{x2-g}(x + x_1)$

(d) $y_1 - y = \frac{y1+f}{x2+g}(x + x_1)$

Hints: Equation of the normal at (x1,x1) to the circle is $y_1 - y = \frac{y1+f}{x1+2}(x + x_1)$

1186. A medical lab has a 16g of sample of radioactive isotopes. After 6 hours it was found that 12g of sample have decayed the half life of the isotope is:

(a) 12 hours

(b) 6 hours

(c) 2 hours

(d) 3 hours

Hints: (a) 4g decay in 64, then 8 g. half of 16g will decay in 12h

1187. The first artificial radioactive substance was made by bombarding aluminium 27Al23 with α-particles. This produced an unstable isotope of phospherus, 30P15. What was the by-product of this reaction?

(a) an α-particles (b) a β-particles

(c) a -ray (d) a neutron

1188. The period of a simple pendulum can be increased by:

(a) Decreasing the length of the pendulum.

(b) Increasing the length of the pendulum.

(c) Increasing the mass of the bob.

(d) Decreasing the mass of the bob.

Hints: (b) $T = 2\pi\sqrt{\frac{L}{g}} \Rightarrow T\ a\ \sqrt{L}$

1189. Select the correct sentence:

(a) Across the rooftop the thief silently crept.

(b) The rooftop across silentlycrept the thief.

(c) The thief crept silently across the rooftop.

(d) Silently the thief crept across the rooftop.

1190. Adipic acid react with hexamethylenediamine to form:

(a) Nylon-6, 6 (b) Bakelite

(c) Nylone-6, 8 (d) Terylene

Hints: Adipic acid reacts with hexamethylenediamine to form $H_2N-(CH_2)_6-NH_2 + HOO-(CH_2)_4-COOH \rightarrow [-HN-(CH_2)_6-NH-CO-(CH_2)_4-CO-]$

1191. The C – C bond length in benzene is:

(a) Greater than the C – C bond length in ethane.

(b) Shorter than the C – C bond length in ethane.

(c) Shorter than the C – C bond length in ethylene.

(d) Shorter than the C – C bond length in acetylene.

Hints: The carbon-carbon bond length in bezene is 1.39A^o which shorter than carbon-carbon single bond (1.54 A^o)

1192. Denatured spirit is mainly used:

(a) As a good fuel

(b) For drinking purposes

(c) For lubricating machines.

(d) As solvent in preparing varnishes.

1193. If m1 and m2 are the slopes of two lines l1 and l2 respectively then the angle from l1 to l2 is given by:

(a) $\tan\theta = \frac{m2+m1}{1-m2m1}$

(b) $\cot\theta = \frac{m2-m1}{1+m2m1}$

(c) $\tan\theta = \frac{m2-m1}{1+m2m1}$

(d) $\cot\theta = \frac{m2+m1}{1-m2m1}$

Hints: (c)

1194. The coordinates of the midpoint of the line segment whose end points are: $P_1(-10, 4)$, P_2 (7 – 5) =

(a) $\left(4, \frac{-1}{2}\right)$

(b) $\left(\frac{-3}{2}, \frac{-1}{2}\right)$

(c) $\left(\frac{3}{2}, \frac{1}{2}\right)$

(d) None

Hints: $\left(\frac{-10+7}{2}, \frac{4-5}{2}\right) = \left(\frac{-3}{2}, \frac{-1}{2}\right)$

1195. If (x , y) are the co-ordinates of a point 'P' then the 1st component of the order pair is called:

(a) Abscissa (b) Y-coordinate

(c) Ordinate (d) XY-coordinate

Hints: (x,y) : then x is called abscissa so (a) is correct.

1196. If the power produced by a circuit is tripped the energy used by the circuit in 1 seconded will be:

(a) Multiplied by 3 (b) Divided by 3

(c) multiplied by 9 (d) Divided by9

Hints: (a) $P = \frac{E}{t} \Rightarrow 3P = {}^{3E}/_{Is} = 3E$

1197. Which property is constant for a body in free fall?

(a) Acceleration (b) Displacement

(c) Velocity (d) Speed.
Hints: (a) Acceleration in free fall =g which is constat.

1198. At what angle should a projectile be fired in order for its range to be at maximum?
(a) 30^o
(b) 45^o
(c) 90^o
(d) 60^o
Hints: (b)
$R_{max} = \frac{V2 \sin 2\theta}{g} = \frac{V2 \sin(2 \times 45o)}{g} = \frac{V2}{g}$

1199. Do you like this shirt?" he said to his friends. Select the correct indirect speech:
A) He asked his friends if they liked that shirt.
B) He asked his friends if they did liked the shirt.
C) He asked his friends if they likened the shirt.
D) He asked his friends if they may like theshirt.

1200. Forces of 3N, 4N and 5Nact at one point on an object. The angles at which the forces act can vary. What is the value of the minimum resultant force of these forces?
A) 2N B) Between 2N and 4N
C) 0 D) Between 0 and 2N

1201. The sum of the squares of two numbers is 100.One number is 2 more than the other. The numbers are:
A) 4, 6 B) 6, 8 C) 8, 10 D) 10, 12
Hints:

1202. Select the correct product formed when xenon hexafluoride reacts with water:
XeF6 + H20
A) Xe02+ HF B) XeE4+ HF + O2
C) Xe + HF + O_2 D) Xe0F4+ 2HF

1203. A source of e.m.f. of 9.0 mV has an internal resistance of 6.0 □. It is connected across a galvanometer of resistance 30 □. What will be the current in the galvanometer?
A) 250 □A B) 300 □A
C) 1.5 mA D) 2.5 mA

1204. A groupoid (S, *) is called a semi group, if _*‘ is:
A) Commutative in S B) Associative in S
C) Distributive in S D) Transitive in S
Hints:

1205. Which of the following would you expect to be more soluble in water?
A) CH_3 C CH_3 B) CH_3 – C OCH_3
C) CH_3CH_2OH D) CH_3CH_2CH

1206. In the absence of air resistance, a stone is thrown from P and follows a parabolic path in which the highest point reached is T. The stone reaches point Q just before landing
The vertical component of acceleration of the stone is:
A) Zero at T B) Larger at T than at Q
B) Larger at Q than at T
C) The same at Q as at T

1207. Sin 20° cos 70° + cos 20° sin 70° =
A) 1 B) –1 C) $\frac{1}{\sqrt{3}}$ D) $\frac{2}{\sqrt{3}}$

1208. Isopropyl alcohol on oxidation with sodium dichromate in presence of sulphuric acid gives:
A) Acetaldehyde B) Ethanoic acid
C) Acetone D) Propanoic acid

1209. ALL BYONESELF' implies:
A) keeping aloof not joining anybody 'scompany
B) in company and all those present joininghands
C) passing one's life singly like a chronicbachelor
D) completely alone with no help fromsomeone else

1210. For any natural number n,
1 + 3 + 5 + ---+ (2n – 1) =
A) $\frac{n\,(n+1)}{2}$ B) $\frac{n2\,(n+1)2}{4}$ C) $\frac{n\,(n+1)(n+2)}{2}$ D) n_2

1211. The de-Broglie wavelength of a rifle bullet of mass 0.02kg which is moving at a speed of 300 ms-1 is (where h= 6.63 x 10-34J s):
A) 7.3 × 10-34 m
B) 1.1 × 10-34 m
C) 1.8 × 10-34 m
D) 9.9 × 10-34 m
Hints:

1212. Select proper IUPAC name of the following compound:
H_3 C CH_2 CH_3
C==C
H_3 C CH_2 CH_3
A) 2-methyl-3-ethyl-2-butene
B) 3-ethyl-2-methyl-2-butene
C) 2, 3-Dimethyl-2-pentene
D) 2, isopropyl butane

1213. The electric field between the plates of an isolated air-spaced parallel-plate capacitor is

E. What Is the field between the plates after Immersing the capacitor in a liquid of relative permittivity 10?
A) 10E B) E/10 C) $\sqrt{10E}$ D) E/ $\sqrt{10}$

1214.
If C and D are two matrices, then (C + D)t
A) Ct + Dt B) CtDt C) Dt Ct D) (CD)t
Hints:

1215.
Which one of the following best represents the Haber process for the production of ammonia?
A) $N_2(g)+ 3H_2(g) \square 2NH_3(g)$
B) $NH+_4(aq) + OH \square NH_3(aq)+ H_2O(I)$
C) Mg_3N_2+6H2O □ 3Mg (aq) + 2NH3 (g)
D) H_3N+ NH2O □ NH2 + 1OH + NH3 (g)

1216.
What is its mean angular speed?
A) 1.4 x 10-4 rad s-1 B) 1.7 x 10-3 rad s-1
C) 5.2 x 10-3 rad s-1 D) 3.0 x 10-1 rad s

1217.
If a, b, c are sides of a triangle and s= $\frac{a+b+c+}{2}$ then area of the triangle is:
a) $\frac{2}{\sqrt{2s(s-a)(s-b)(s-c)}}$
b) $\sqrt{s(s+a)(s+b)(s+c)}$
c) $\frac{}{\sqrt{2s(s-a)(s-b)(s-c)}}$
d) $\sqrt{s(s+a)(s+b)(s+c)}$
Hints:
Area of triangle =$\frac{}{\sqrt{2s(s-a)(s-b)(s-c)}}$

1218.
The oxidation number of Nitrogen in Nitrite ion is:
A) +1 B) +2 C) +3 D) +4

1219.
Traffic constables direct traffic.
Select the correct passive voice:
A) Directed by traffic constables is traffic.
B) By traffic constables is directed traffic.
C) Traffic by traffic constables is directed.
D) Traffic is directed by traffic constables.

1220.
In the Hydrogen spectrum, Balmer series lies in the:
A) ultra-violet region B) visible region
C) infra-red region D) X-rays region

1221.
If a, b, c □ R a>b, b>c > a > c, then this property is called:
A) Multiplicative property of inequality
B) Additive property of inequality
C) Transitive property of inequality
D) Trichotomy property of inequality

1222.
CH_3
CH – CH CH_3 + Mg X Y
CH_3 Br
In the above creation Compound Y will be an:
A) Alkane B) Alkene
C) Alcohol D) Alkyl halide

1223. The phase change of 180o is equivalent to a path difference of:
A) □/2 B) □ C) 2□ D

1224.
The domain of principal since function is:
a) $[0,\frac{\pi}{2}]$
b) $[-,\frac{\pi}{2}, ,\frac{\pi}{2}]$
c) $[0,\frac{3\pi}{2}]$
d) $[0,2\pi$
Hints:

1225.
What will happen if a block of copper metal is dropped into a beaker containing a solution of 1M FeSO4?
Cu2+ + 2e □ Cu 0.34 V
Fe2+ + 2e □ Fe -0.44 V
A) The copper will dissolve with no other change
B) The copper will dissolve and Fe will be precipitated out
C) The copper will dissolve with the evolution of H2 gas
D) No reaction will occur

1226.
What are the base St units of force?
A) Kg m s0 B) Kg m s1
C) Kg m s2 D) Kg m

1227.
Tan = $\frac{0}{2}$
a) $\frac{\pm\sqrt{1+cos\theta}}{1-\cos\theta}$
b) $\frac{\pm\sqrt{1-cos\theta}}{1+\cos\theta}$
c) $\frac{1-cos\theta}{1+cos\theta}$
d) $\frac{1+cos\theta}{1-cos\theta}$
Hints:

1228.
Thebest known fuel cell and the most highly developed is the hydrogen/oxygen fuel cell known as the:
A) Proton ceramic cell
B) Molten carbonate fuel cell
C) Bacon cell
D) Direct methanol fuel cell

1229.
_INNUMERABLE‘ means:
A) In equal numbers B) Numerically scant
C) Not in a formation D) Too many to count

1230.

A body of mass m, moving at velocity v, collides with a stationary body of the same mass and sticks to it. Which row describes the momentum and kinetic energy of the two bodies after the collision?

	Momentum	Kinetic energy
A)	*mv*	$^{11}mv^2$
B)	*mv*	$_{11}\ mv^2$
C)	2*mv*	$^{12}\ mv^2$
D)	2*mv*	mv^2

1231.

If a system of linear equations has no solution, it is called:
A) Invertible B) Indeterminate
C) Consistent D) Inconsistent

1232.

An organic compound having molecular formula C2H60 can exhibit functional group isomerism. Select the correct isomers:
A) Methanol and methoxy methane
B) Ethanol and ethoxy ethane
C) Ethanol and methoxy methane
D) Methanol and ethoxy ethane

1233. Which of the following pairs contains one vector and one scalar quantity?
A) Displacement :acceleration
B) Force : kinetic energy
C) Momentum : velocity
D) Power :speed

1234. The period of sin x is:
A) 2□ B) –2□ C) □ D) –□

1235. Those substances which are attracted in a magnetic field are called:
A) Ferromagnetic substances
B) Diamagnetic substance
C) Antiferromagnetic substances
D) Paramagnetic substances

1236.

If a force of 10N makes an angle of 60o with y-axis, its x-component is:
A) 0.776N B) 8.66N C) 7.76N D) 5.0N

1237.

If A and B are any two events defined in a sample space, then P(A – B) =
A) P(A) – P(A □ B) B) P(A □ B) – P(A)
C) P(A) – P(A □ B) D) P(A □ B)

1238.

Which type of hybridization carbon atom can undergo in the formation of ethyne molecule?
A) Sp B) Sp2 C) Sp3 D) Dsp2

1239.

Select the correct sentence:
A) Last night we watched a barbaric movie.
B) Last night we watched a turmeric movie.
C) Last night we watched a agnostic movie.
D) Last night we watched a fantastic movie

1240.

Which statement is not valid?
A) Current is the speed of the charged particles that carry it
B) Electromotive force (e.m.f.) is the energy converted to electrical energy from other forms, per unit charge
C) The potential difference (p.d.) between two points is the work done in moving unit charge from one point to the other
D) The resistance between two points is the p.d. between the two points, per unit current

1241. $^{n}p_r$
A) $\frac{n(n-1)!}{n-r}$
B) $\frac{n(n-1)!}{n+r}$
C) $\frac{n!}{(n-r)!}$
D) $\frac{n!(n-r)!}{n-r}$
Hints= $^{n}p_r = \frac{n!}{(n-r)!}$

1242.

Methanol reacts with sodium. The product formed is sodium meth oxide and hydrogen gas.
2CH3OH + 2Na □ CH3O Na + Na + H2 (g)
In this re action methanol acts as:
A) Weak base B) Weak acid
C) Strong base D) Weak oxidizing agent

1243. In the direction indicated by an electric field line:
A) The potential must decrease
B) The electric field strength must increase
C) The electric field strength must decrease
D) The potential must increase

1244. In the form of partial fractions the rational function
$\frac{x2}{(x-1)3-(x+1)}$ can be written as:
a) $\frac{A}{x+1} + \frac{B}{x-13}$
b) $\frac{A}{(x-1)} + \frac{Bx+c}{x+1}$
c) $\frac{A}{(x-1)} + \frac{B}{x-1}^2 + \frac{C}{(x-1)3} + \frac{Dx+E}{x+1}$
d) $\frac{A}{(x-1)} + \frac{B}{x-1}^2 + \frac{C}{(x-1)3} + \frac{D}{x+1}$
Hints: $\frac{x2}{3} = \frac{A}{x-1} + \frac{B}{(x+1)2} + \frac{C}{(x-1)} + \frac{D}{x+1}$
(x-1) (x+1)

1245.

CH3COCI + 2NH3□
Considering the above reaction which one is the true product?
A) CH3COO NH4 B) CH3 CO NH2
C) H2N COO NH4 D) CH3CI

1246.

In a photoemission experiment, the wavelength of the light incident on the target material is increased. What is the effect of this change of wavelength on the kinetic energy of the photoelectrons produced?
A) The average kinetic energy increases

B) The maximum kinetic energy increase
C) The average kinetic energy decreases
D) The minimum kinetic energy increases

1247.

A circle passing through the vertices of any triangle is called:
A) Semi circle B) Circumcircle
C) Inctrcle D) Escribed circle

1248.

The impurities in water are expressed by unit, parts per million (PPm) which is equal to:
A) $\frac{wt\ or\ volume\ of\ solute}{wr\ or\ volume\ of\ solution}$ x10^6

B) $\frac{wt\ or\ volume\ of solution}{wr\ or\ volume\ of\ solute}$ x10^6

C) $\frac{wt\ or\ volume\ of\ solute}{wr\ or\ volume\ of\ solvent}$ x10^6

D) $\frac{wt\ or\ volume\ of\ solvent}{wr\ or\ volume\ of\ sloute}$ x10^6

1249.

Marvin was arrested and charged… murder.
A) Into B) Over
C) With D) Near

1250.

What is the internal energy of an object?
A) It is the energy associated with the object's movement through space
B) It is the energy associated with the random movement of the molecules in the object
C) It is the energy due to the attractions between the molecules in the object
D) It is the sum of all the microscopic potential and kinetic energies of the molecules in the object

1251.

If A and B are two sets, then A/□ B/ =
A) (A □ B)/ B) (A □ B)/
C) A‘ □ B‘ D) (B □ A)/

1252.

The reduction of 2-butyne to n-butane in laboratory involves:
A) The use of an oxidizing agent such as Cr2O7-2 in the presence of acids.
B) The use of strong base such as KOH along with NaNH2
C) The use of hydrogen gas in the presence of Nickel as catalyst
D) The use of Al2O3 as catalyst and water in the
form of steam

1253.

Which of the following physical phenomena cannot be described only by the wave theory of the electromagnetic radiation?
A) Diffraction B) Interference
C) Polarization D) Photoelectric effect

1254.

If A is a non-singular matrix, then A-1
A) $\frac{A}{A}$ adj A B) $\frac{A-1}{}$ A-1 adj A C) $\frac{1}{A-1}$ adj A
D) $\frac{A}{Adj\ A}$

Hints: $A^{-1} = \frac{1}{A}$ .Adj A

1255.

Acetic acid reacts with thionyl chloride. The product obtained is:
A) CH3COCI + SO2 + HCI
B) CH3CI + CH3COCI + SO2
O
C) CH3CO CH3 + SO2
D) None of the above

1256.

Which statement about nuclel is correct?
A) Different isotopic nuclei have different proton numbers
B) Bucleon numbers of nuclel are unchanged by the emission of □ particles
C) For some nuclel, the nucleon number can be less than the proton number
D) In some nuclear processes, mass-energy is not
conserved

1257.

Let Z be the set of all integers and —o‖ is defined as a aob = 3a – b∀ a, b □ Z, then _o‘ is not:
A) Commutative B) Associative
C) Distrubutive D) All of the abo

1258.

Which of the following is not an electrophile?
A) H3O+ B) AICI3
C) CN D) BF3

1259.

_CHUCKLE‘ means:
A) Bouquet of flowers B) Displeasing manner
C) Suppressed laughter D) Religious movement

1260.

A wire of resistance 3.0□ is stretched to twice its original length. The resistance of new wire will be:
A) 1.5□ B) 3.0□
C) 6.0□ D) 12.0□

1261.

The distance d from the point P(x1, y1) to the line ax + by + c = 0 is given by d =
A) $\frac{ax-by+c}{\sqrt{a2-b2}}$
B) $\frac{ax1+by1+c}{\sqrt{a2-b2}}$
C) $\frac{ax+by+c}{\sqrt{a2-b2}}$
D) $\frac{ax1+by1+c}{\sqrt{a2-b2}}$
E) Hints: d = $\frac{ax1+by1+c}{\sqrt{a2-b2}}$

1262.

Which mixture can be separated by filtration?
A) Sand and water B) Petrol and water

C) Salt and sugar D) NaCl and water

1263.

In vacuum all electromagnetic waves have the same:
A) speed B) energy
C) Frequency D)wavelength

1264.

□□sec2 10xdx =
a) $\frac{cosec2\ 10x}{10} + c$ b) $\frac{ten\ 10x}{10} + c$ c) $\frac{sec\ 10x}{10} + c$
d) $\frac{sec\ 10x + \cos ec10x}{10} + c$
Hints: $\frac{ten\ 10x}{10}$

1265.

The hydrolysis of urea into ammonia and CO2 takes place in the presence of a catalyst Urease as shown below
A) Homogenous catalysis
B) Heterogeneous catalysis
C) Enzyme catalysis
D) None of the above

1266.

The density of d steel ball was determined by measuring its mass and diameter. The mass was measured within 1% and the diameter within 3%. The error in the calculated density of the
A) 2% B) 4%
C) 8% D) 10%

1267.

In quadratic equation axe + bx + c = 0,, product of the roots is:
a) $\frac{b}{a}$ b) $\frac{-c}{a}$ c) $\frac{c}{a}$ d) $\frac{-b}{a}$
Hints: ax^1+ bx + c = 0,a.β = c/a

1268.

Concentrated sulphuric acid is added to a mixture of potassium dichromate and metal chloride in solid state. On heating brown fumes of chromyl chloride are formed. Its formula is:
A) CrOCI2 B) CrO2CI2
C) CrO2CI D) CrOCI3

1269.

Select the correct sentence:
A) She possesses some small charming silver ornaments.
B) Some charming small silver ornaments she possesses.
C) Some small silver charming ornaments she possesses.
D) She possesses some charming small silver ornaments

1270.

The minimum number of equal forces that keep the body in equilibrium are:
A) Two B) Three
C) Four D) Five

1271.

If nC6 = nC12, then n =
A) 6 B) 18
C) 12 D) 4

1272.

Fewer the number of carbon atoms in an alkane the lower will be the boiling point and will be:
A) Basic B) Non volatile
C) Volatile D) Acidic

1273.

Two parallel plates, a distance 25 mm apart, have a potential difference between them of 12 kV. What is the force on an electron when it is in the uniform electric field between the plates?
A) 40.8 × 10-20 N B) 7.7 × 10-20 N
C) 4.8 × 10-17 N D) 7.7 × 10-14 N

1274.

In the quadratic equation axe + bx + c 0 if a= 0, then it:
A) Becomes a linear equation
B) Becomes a polynomial
C) Becomes an exponential equation
D) Remains Quadratic equation
Hints: because a linear

1275.

Formaldehyde is used in the manufacture of:
A) Pararosaniline B) Acetic anhydride
C) 1,3-Butadien D) Smokeless powder

1276.

A body in equilibrium must not have:
A) Kinetic energy B) Velocity
C) Momentum D) Acceleration

1277.

(sec B — 1) (sec 0 + 1) =
A) Cot2□ B) Sec2□
C) Tan2□ D) Cosec2□
Hints: (sec θ -1) (sec θ + 1), = sec^2 -1= 1+ $ten^2\ \theta = sec^2\ \theta$

1278.

Which of the following is not true for enzymes?
A) They are complex protein molecules
B) Their efficiency is independent of temperature
C) They work under specific rang of pH
D) Their action is specific

1279.

"You really took good care of your sister," I said. Select the correct indirect speech:
A) I said that he had really taken good care of his sister.
B) I said that he had really cared good for his' sister.
C) I said that he really had taken good care of his sister.
D) I said that he had really good care taken of his sister.

1280.

The magnitude of horizontal component of a force 10N is 6N. The magnitude of its

vertical component is:
A) 10N B) 8N
C) 4N D) 12N

1281.

The numbers which have $\sqrt{-1}$ as one factor are called:
A) Real numbers B) Complex numbers
C) Irrational numbers D) Imaginary numbers
Hints: imaginary numbers

1282.

During the electrolysis of CuCl2 solution which reaction is possible at the anode?
A) Cu (5) □ Cu+2(aq) + 2e
B) 2H+ + 2e □ H2(g)
C) 2H2O(I) □ O2 (g) + 4H+(aq) + 4e
D) Cu+2 (aq) + 2e □ Cu(s)

1283.

Forces of 4N and 6N act at a point. Which one of the following could not be the magnitude of their resultant?
A) 10N B) 6N
C) 4N D) 1N

1284.

If A is a square matrix of order 3x3, then AAt is:
A) Symmetric B) Skew-symmetric
C) Triangular D) None of the above

Hints: symmetric eq. $\begin{matrix}1&0&0\\0&1&0\\0&0&1\end{matrix}\begin{matrix}1&0&0\\0&1&0\\0&0&1\end{matrix} = \begin{matrix}1&0&0\\0&1&0\\0&0&1\end{matrix}$

1285.

Polyamides are class of condensation polymers by a chemical reaction between:
A) Monocarboxylic acid and diamines
B) Dicarboxylic acids and diamines
C) Dicarboxylic acids and simple amines
D) All of the above

1286.

The magnitude of the resultant of two forces is F. The magnitude of each force is F. the angle between the forces must be:
A) 30o B) 60o
C) 120o D) 45o

1287.

Sin (a+$\frac{\pi}{2}$) =
A) Sin α B) – sin a
C) Cos D) – cos a
Hints: sin (a+$\frac{\pi}{2}$) = sin a cos $\frac{\pi}{2}$ + cos a sin $\frac{\pi}{2}$

1288.

Propene is unsymmetric molecule the addition of HI will result in the formation of:
A) H3C – CH – CH3 B) CH3 CH2 I
C) CH3 CH CH3 + CH3 CH2I
D) CH2 – CH – CH3 + H2

1289.

_PRECISE' is a short summary of the essential ideas of:
A) A mixture of passages B) The underlying theme
C) The overview practice D) A longer composition

1290.

An electron in a hydrogen atom makes a transition from an energy level with energy El, to one with energy E2 and simultaneously emits a photon. The wavelength of the emitted photon
A_) h/E1, E2) B) ho/E2, E2)
A) h/c (E1 – E2) D) (E1 – E2)/hc

1291.

For a geometric series a1 + a2 + a3+…+an with common ratio r + 1, sn –
a) $\frac{rn-1}{r-1}$ b) $\frac{r-1}{rn-1}$ c) $\frac{a1\,(rn-1)}{r-1}$ d) $\frac{a1\,(rn-1)}{r+1}$
Hints: a_1+ a_2 +…….a_n , sn = $\frac{a1\,(rn-1}{r+1}$

1292.

Styrene is polymerized at high temperature of about 600°C In the presence of a catalyst:
A) Iron oxide B) Platinum gauze
C) palladium D) Nickel

1293.

Which one of the following has the largest energy content?
A) 102 photons of wavelength 1 pm (y-ray)
B) 105 photons of wavelength 2 pm (y-ray)
C) 106 photons of wavelength 5 □m (infra-red rays)
D) 108 photons of wavelength 600 nm (yellow light)

1294.

The roots of the equation 25x2 — 30x + 9 = 0 are:
A) imaginary B) Rational and equal
C) Rational and unequal D) Irrational and equal

1295.

Which X — H bond angle is greatest in the following compounds? Where X=C,N,O,S
A) CH4 B) NH3
C) H2O D) H2S

1296.

What is represented by the gradient of a graph of force (vertical axis) against extension (horizontal axis)?
A) Elastic limit B) Spring constant
C) Stress D) Young modulus

1297.

If □ (x) = $\frac{x}{x+1}$ then [□(2)]-1 =
A) $\frac{1}{2}$ B) $\frac{-2}{3}$ C) $\frac{2}{3}$ D) $\frac{3}{2}$
Hints:

1298.

Which statement given below is not true for the reaction?
Fe3+ + e □ Fe2+
A) Fe3+ is being reduced

B) The oxidation state of Fe has changed
C) Fe3+ could be referred to as a reducing agent in this reaction
D) Both Fe3+ and Fe2+ are called cations

1299.
COME OF AGE' implies:
A) To get married off
B) To become very old
C) To reach maturity
D) To fall ill and expire

1300.
If a stationary electron is subjected to a uniform magnetic field it will be:
A) Unaffected
B) Accelerated in the direction of field
C) Caused to move in a circular path
D) Caused to oscillate about a fixed point

1301.
If a, b, c are the sides of a triangle and a, □, □ are the respective angles, then area of the triangle is:
a) $\frac{1}{2}$ a^2 sin β
b) $\frac{1}{2}$ a^2 sin γ
c) $\frac{1}{2}$ a^2 sin α
d) $\frac{1}{2}$ be sin α

1302.
Which one of the following will be more acidic?
A) 1-Pentene B) 1-Pentyne
C) 3-Hexyne D) 2-Pentyne

1303.
The gate which inverts the output of an OR gate is:
A) NOR B) AND C) XOR D) NAND

1304.
□□radians =
A) 60o B) 90o C) 360o D) 180o

1305.
Choose the correct product of the following reaction:
CH3CH2OH + PCI5□
A) CH3CI + POCI3 + H2O
B) CH3CH2CI + POCI3 + H2O
C) CH3CH2CI + CI + POCI3 + HCI
D) C2H5CI + H3PO3

1306.
When atoms in the gaseous state are excited to emit radiations, the spectrum obtained is:
A) Band spectrum B) Line spectrum
C) Continuous spectrum D) None of the above

1307.
For what value of k will equation x2 – kx + 4 = 0 have the sum of roots equal to the product of roots?
A) 3 B) –2 C) –4 D) 4

1308.
Which one of the following is not a state function?
A) Enthalpy B) Free energy
C) Work D) energy

1309.
—I shall be in Geneva on Monday, —he said. Select the correct indirect speech:
A) He said that he would be in Geneva on Monday.
B) He said that he shall be in Geneva on Monday.
C) He told that he would be in Geneva on Monday.
D) He hoped that he could be in Geneva on Monday.

1310.
Which one of the following particles belongs to Hadron group?
A) Neutrino B) Proton
C) Electron D) Antineutrino

1311.
The product of the fourth roots of unity is:
A) Zero B) 1 C) -1 D) –*i*

1312.
In lower atmosphere, ozone has adverse effects due to its role in the formation of:
A) CO2 B) NO2
C) Fog D) Photochemical smog

1313.
In an AC capacitive circuit, current and voltage phase relation is:
A) In-phase
B) Current leads voltage by 90o
C) Voltage leads voltage by 90o
D) Current leads voltage by 180o

1314.
□□xn dx =
a) $\frac{xn+1+}{n+1}$ + C, n ≠ -1
b) Nx^{n-1} + C, n ≠ -1
c) $\frac{nx\ n-1}{n+1} + C, n \neq -1$
d) $\frac{nx\ n-1}{n-1} + C, n \neq -1$

1315.
Identify the name of coordination compound K4 [Fe(CN)6]:
A) Potassium hexa cyan ferrate
B) Potassium hexa cyan ferrate (II)
C) Potassium hexa cyan ferrate (III)
D) Potassium (I) hexa cyan ferrate (IV)

1316.
Keeping magnetic field B and velocity of the particles same, which particle will show the most deflection when passes through the magnetic field:
A) Neutrons B) A-particles
A) □-particles D) Y-rays

1317.
Which of the following sets has closure property with respect to multiplication?
A) {-1, +1} B) {-1}

C) {-1, 0} D) {0, 2}

1318.

PbSO4(8) + 2e Pb(8) + SO4-2 -0.36v
PbO2(8) + 4H+ + SO42- + 3e □ PbSO4(8) + 1.69v
The two half cell reactions above are involved in the discharge of a lead storage battery. The potential of a single cell lead storage is:
A) 1.33 volts B) 4.10 volts
C) 2.66 volts D) 2.06 volts

1319.

The might promote Javed next year.
Select the correct passive voice:
A) Javed might be promoted by them next year.
B) Promoted by them Javed might be next year.
C) By them Javed might be promoted next year.
D) Next year Javed might be promoted by them

1320.

Particles giving rise to dense, straight and continuous tracks in a cloud chamber due to lionization produced by them are:
A) Beta particles B) Alpha particles
C) Gamma rays D) Photo electrons

1321.

The coordinates of the midpoint of the line segment whose end points are P1(–10,4), P2(7, –5) are:
a) (4, -1/2)
b) (2/3, 2)
c) (3/2, ½)
d) (-3/2, -1/2)

1322.

The electronic configuration of gallium, atonic number 31, is:
A) [Ar] 4S2 3d8 4P3 B) [Kr] 4S2 3d10 4S1
C) [Ar] 4S2 3d10 4P1 D) [Ar] 3S2 3d10 4P1

1323.

A ball is dropped from the roof of a very tall building. What is its velocity after falling for 5.00 seconds?
A) 1.96 m/s B) 9.80 m/s
C) 49.0 m/s D) 98.0 m/s

1324.

The inverse relation of y = sin x is defined by the equation:
A)*Y = sin-1 x* B) *X = sin-1y*
C) *Y = cosx* D) *X = cos-1 y*

1325.

All of the following tests are used to identify aldehyde except:
A) Tolle's test B) Fehling test
C) Benedict test D) Baeyer's test

1326.

wire of resistance 4□ is bent into a circle. The resistance between the ends of a diameter of the circle is:
A) 1□ B) ¼ □ C) 1/16 □ D) 4□

1327.

Parallel sides of a trapezium are x and y. the distance between these two sides is z. Area of the trapezium =
A) $(x + y)\frac{z}{2}$ B) (x – y) C) 2z(x + y) d) 2z/x+y

1328.

Which of the following is the strongest oxyacid?
A) HCIO4 B) HCIO3
C) HCIO2 D) HCIO

1329.

Leagerly-look forward… seeing her again.
A) At B) To
C) On D) by

1330.

Nuclear forces are inside the nucleus. These forces are:
A) Long range B) Short range
C) Medium range D) Not range dependent

1331.

If □(x) = x2 + x – 1, then the images of 2, 3, are:
A) 7, 13, 31 B) 5, 12, 26
C) 5, 11, 29 D) 3, 8, 24

1332.

Arrange electromagnetic spectrum in terms of wavelength in correct order:
A) i.f.>u,v.> visible> microwave> radio frequency
B) u.v.> visible> i.r.> microwave> radio frequency
C) isible > I.r.> b.v.> microwave> radio frequency
D) Radio frequency> microwave> Lr.> visible > u.v

1333.

Reaction in which two or more light nuclei use together to form a single nuclide is categorized as:
A) Nuclear fission B) Chemical reaction
C) Nuclear fusion D) None of the above

1334.

Sin/ is
a) $\frac{1}{2}(e^{-x} + e^{-x})$
b) $\frac{1}{2}(e^{x} + e^{-x})$
c) $\frac{1}{2}(e^{-x} - e^{-x})$
d) $\frac{1}{2}(e^{x} - e^{-x})$

1335.

The log of rate constant of a reaction is:
A) Directly proportional to temperature
B) Inversely proportional to temperature
C) Not affected by temperature
D) Not dependent on the activation energy

1336.

The derivative of -8x5 is:

A) A-rays B) □-particles
C_) Y-rays D) neutrons

1337.
The amount of ionization produced in a gas is the most due to:
A) -8 B) -40x
C) -40x5 D) -40x4

1338.
What energy (in joules) would a photon of light with a wave length 3 × 10-4 cm (h=6.6×10-34 Jsec) have
A) 2.2 × 10-44 B) 3.3 × 10-21
C) 6.6 × 10-20 D) 6.6 × 10-48

1339.
Select the correct sentence:
A) But brightly polished were the old shoes
B) Old were the shoes but brightly polished
C) The shoes were old but polished brightly
D) The shoes were old but brightly polished

1340.
The state of thermal equilibrium between two systems is determined by equality of:
A) Pressure B) Volume
C) Temperature D) mass

1341.
∫dx
A) 3 B) 3/2 C) 2 D) 2/3

1342.
Which of the following is not a polymer?
A) Urea B) Starch
C) Polythene D) Natural rubber

1343.
In liquid metal fast breeder reactor the moderator used is:
A) Graphite B) Heavy water
C) Boron rods D) Not required

1344.
If the point P1 and P2 have the coordinates x1 = 7, x2 = - 9, then [P1P2]
A) –2 B) 16
C) 2 D) –16

1345.
Which of the following reagents may not be used for the oxidation of aldehydes and ketones to carboxylic acids?
A) Li AIH4 B) KMnO4
C) K2Cr2O7 D) Na2Cr2O2

1346.
In the diagram, a box slides down an incline plane. Toward which point is the force of friction directed?
A) 1 B) 2
C) 3 D) 4

1347.
Two lines with slope m1 and m2 respectively are parallel if:
A) m1 + m2 = 0 B) m1 – m2 = 0
C) m1, m2 = 1 D) m1 = m2

1348.
The coordination number of cobalt in the complex [Co (H2N CH2 CH2 NH2)3]+3 is:
A) 3 B) 4
C) 5 D) 6

1349.
The senator is opposed ….. this new legislation.
A) To B) At
C) By D) on

1350.
The half-life of 22Na11 is 2.6 years. If X grams of this sodium isotope are initially present, how much is left after 13 years?
A) X/32 B) X/13
C) X/8 D) X/5

1351.
Length of the latus rectum of 3x2 = 4y is:
A) 4 B) –4 C) $\frac{4}{3}$ D) $\frac{3}{4}$

1352.
What is the bond order in F2 according to the molecular orbital theory?
A) 2 B) 3
C) 1 D) 4

1353.
The centripetal acceleration of a car traveling at constant speed around a frictionless circular racetrack:
A) Is zero
B) Has constant magnitude but varying direction
C) Has constant direction but varying magnitude
D) Has varying magnitude and direction

1354.
The distance of a point (–2, 8) from a line 4x + 3y – 11 0 is:
A) –6 B) 1
C) 3 D) 5

1355.
Nitrogen dioxide is a brown coloured gas which exists in equilibrium with:
A) HNO3 B) N2O4
C) NO + NO3 D) N2 + O2

1356.
A diver is swimming 10 meters below the surface of the water in a reservoir. There is no current, the air has a pressure of 1 atmosphere, and the density of the water is 1000 kilograms per cubic meter. What is the pressure experienced by the diver?
A) 1.1 atm B) 11 atm
C) 1.99 × 105 Pa D) 1.01 × 105 Pa

1357.
The set of all first elements of the ordered pairs in
relation R is called:
A) Domain of R B) Range of R
C) Co-domain of R D) Subset of R

1358.
The complex compound [Ni(CN)4]2- is square planar in shape. What is the type of

hybridization involved?
A) Sp3 B) S3d
C) Dsp3 D) Dsp2

1359.

ENTOURAGE‘ means:
A) Group of companions B) Embark on long tons
C) Place one visits daily D) Albums of folk singer

1360.

Which species has no net charge?
A) An a-particle B) A neutrino
C) An electron D) A proton

1361. $\frac{d}{dx}$ (cosec x)=
A) Tan x. cosec x B) –cot x. sec x
C) –tan x. sec x D) –cot x, cosec x

1362.

Which one of the following compounds is insoluble in water?
A) CuCI2 B) NiCI2
C) Hg2CI2 D) KCI

1363.

What is the optimum difference in phase for maximum destructive interference between two waves of the same frequency?
A) 180o B) 90o
C) 270o D) 360o

1364. $\frac{d}{dx}$ $\cos^{-1} x$=
a) $\frac{1}{\sqrt{1+x2}}$
b) $\frac{1}{\sqrt{1-x2}}$
c) $\frac{1}{\sqrt{1+x2}}$
d) $\frac{1}{\sqrt{1-x2}}$

1365.

Which one of the following has the smallest lonic radius:
A) Mg2+ B) Be2+
C) Ca2+ D) Si2+

1366.

Which derived unit below is equivalent to the SI unit for magnetic field strength, the tesla, T?
A) Nm/A B) NA/m
C) N/Am D) Am/N

1367.

If m1 and m2 are the slopes of two lines $l1$ and $l2$ respectively, then the angle from $l1$ to $l2$ is given by:
a) Tan $\theta = \frac{m1+m2}{1+m1\,m2}$
b) Tan $\theta = \frac{m1+m2}{1+m1\,m2}$
c) Cot $\theta = \frac{m2+m3}{1+m2\,m1}$
d) Cot $\theta = \frac{m2+m3}{1+m12\,m1}$

1368.

Ethyl alocohol was added to water to form a clear solution. What do you expect to be the vapour pressure?
A) It will be equal to V.P of water
B) It will be more than V.P of water
C) It will be less than V.P of water
D) It will be equal to V.P of ethyl alcohol

1369.

Your essay impressed the lecturer.
Select the correct passive voice:
A) The lecturer got impressed by your essay.
B) The lecturer felt impressed by your essay.
C) By your essay the lecturer was impressed
D) The lecturer was impressed by your essay

1370.

A car with a mass oh 800 kg is stalled on a road. A truck with a mass of 1200 kg comes around the curve at 20 m/s and hits the car. The two vehicles remain locked together after the collision. What is their combined velocity after the impact?
A) 3 ms-1 B) 6 ms-1
C) 12 ms-1 D) 24 ms-1

1371.

A1x + b1y + c1 = 0, a2x + b2y + c2 = 0 and a3x + b3y + c3 = 0 are three non-parallel lines.

These lines are concurrent if $\begin{matrix} a1 & b & c \\ a & b & c \\ a & b & c \end{matrix}$

A) –1 B) 1
C) 0 D) –2

1372.

Which of the following would you consider to be comparatively more reactive?
A) C2H6 B) C2H4
C) C2H2 D) C3H8

1373.

Current in an ionized gas sample depends on:
A) Cations only B) Anions only
C) Free electrons only
D) Cations, anions, and free electrons

1374.

If a. (b + c) = a.b + a. c, then:
A) Vector product is distributive over multiplication
B) Scalar product is distributive over multiplication
C) Vector product is associative over addition
D) Scalar product is distributive over addition

1375.

18.0 grams of glucose, C6H12O6 was dissolved in 70.0 grams of water. The relative lowering of vapour pressure would be:
A) 4.1 B) $\frac{1}{41}$
C) 4.0 D) $\frac{1}{40}$

1376.

Monochromatic light passes through two parallel slits in a screen and falls on a piece of film, The pattern produced is an example of:

A) Interference and reflection
B) Interference and diffraction
C) Refraction and diffraction
D) Diffraction and polarization

1377.

If x2 + y2 + 2gx + 2fy + c = 0 is the general form of the equation of circle, then radius =
a) $\sqrt{g2 + f^{2\,c}}$
b) $G^2 + f^{2+\,c}$
c) $\sqrt{g2 + f^{2+c}}$
d) $G^2 + f^{2+\,c}$

1378.

Which is not a raw material for the production of cement?
A) CoCO3 B) CaCO3
C) CaSO4 2H2O D) Clay

1379.

In grammatical context, _ARTICLES' allude to:
A) A, an and the B) For and since
C) Lexical verbs D) Word classes

1380.

What is the acceleration of a falling stone whose velocity increases from 80 m/s to 100 m/s in 2 seconds?
A) 0.10 m/s2 B) 10 m/s2
C) 100 m/s2 D) 90 m/s2

1381.

The equation of the circle whose center is the origin and radius is 3 units is:
A) x2 + y2 = 3 B) x2 – y2 – 3
C) x2 + y2 – 9 D) x2 – y2 = 9

1382.

Aluminum from scrap metal is extracted by solvent extraction technique by using the liquid:
A) Dichloro diethyl ether B) Ethanol
A) Phenol D) Mercury

1383.

A certain radionuclide decays by emitting an a-particle. What is the difference between the atomic numbers of the parent and the daughter
A) 1 B) 2
C) 4 D) 6

1384.

Equation of the ellipse is :
a) $\frac{x2}{a2} + \frac{y2}{b} = 1$
b) $\frac{a2}{x2} + \frac{y2}{b2} = 1$
c) $\frac{x2}{a2} + \frac{y2}{b2} = 1$
d) $\frac{x2}{a2} + \frac{b2}{y2} = 1$

1385.

The best technique for detecting narcotics in blood is:
A) Solvent extraction B) Distillation
C) Chromatography D) All of the above

1386.

If the mass of a moving body is doubled, the inertia of the body will be:
A) Half as great as its original value
B) Four times s great as its original value
C) Unchanged from its original value
D) Twice as great as its original value

1387.

Equation of the normal at the point (x1, y1) to the parabola y2 = 4ax is:
A) Yy1 = 2a (x + x1) B) Y – y1 = $\frac{y1}{2a}$ (x – x1)
C) Y + y1 = $\frac{y1}{2a}$ (x + x1) D) Yy1 = 2a (x – x1)

1388.

Which one of the following compounds has the shortest carbon-halogen bond?
A) CH3F B) CH3CI
C) CH3Br D) CH3I

1389.

'HAVE CLEAN HANDS' implies:
A) Wash one's hands B) Go for corruption
C) Not being guilty D) Prepare for prayers

1390.

If the speed at which a car is traveling is tripled, by what factor does its kinetic energy increase?
A) ½ B) 3
C) 6 D) 9

1391.

The conic having eccentricity e > 1, is called:
A) Hyperbola B) Ellipse
C) Parabola D) Asymptotes

1392.

Which one of the following does not form covalent crystals?
A) Diamond B) Allcon
C) Graphite D) Water

1393.

Two electrically neutral material are rubbed together. One acquires a net positive charge. The other must have:
A) Lost electrons B) Gained electrons
C) Lost protons D) Gained protons

1394.

If a and b are parallel vectors but opposite in direction and 9 = 180°, then a. b =
A) 1 B) –1
C) – ab D) ab

1395.

Which gas occupies the largest volume at STP?
A) 16g of CH4 B) 32g of O2
C) 28g of N2 D) 4g of H2

1396.

A current of 20.0 A flows through a battery with an emf of 6.20 V. If the internal resistance of the battery is 0.010, what is the terminal voltage?
A) 1.24V B) 6.00V
C) 6.40V D) 31.0V

1397.

If |a| = 3, |b| = 4 and □ = 60o, then a, b =

a) a$\frac{1}{2}$ b) $\sqrt{\frac{3}{2}}$ c) 6 d) 2

1398. Which one is the oxidizing agent in the following reaction?
A) Cu^{2+} B) Zn
C) Zn^{2+} D) Cu

1399. Selagiella is the living member of:
A) Psilopslda B) Lycopsida
C) Sphenopsida D) pteropsida

1400. Which of the following misnamed?
A) Aniline B) Methyl naphthalene
C) Carboxyl benzene D) Benzene sulphonic acid

1401. On the ground the gravitational force on a satellite is W. What is the gravitational force on the satellite when at a height R/SO, where R is the radius of the earth?
A) 1.04W B) 1.02W C) 0.50W D) 0.96W
Hints:
W = $\frac{gmen}{re2}$
W =?
W =$\frac{gmem}{(re\frac{re)2}{50})}$ = $\frac{gmem}{(\frac{51}{50}+re)2}$ = $\frac{1}{1.04}$ $\frac{gmem}{re2}$
W = o.96w

1402. Contraction can be sustained for a long period of time by:
A) Skeletal muscles B) Smooth muscles
C) Cardiac muscles D) All of the above
Hints: centraction can be sustained for a long period of time by smoke muscles because the cells are spindle shaped and exist as single cells which are arranged in bundles or sheets or layers.

1403. Aromatic compounds generally burn with smoky flame because:
A) Skeletal muscles B) Smooth muscles
C) Cardiac muscles D) All of the above
Hints: the smoke produced by burning a hydrous is due to incomplete combustion if the higher the carbon content, the higher the smoke.

1404. If a wave can be polarized, it must be:
A) An electromagnetic wave
B) A stationary wave
C) Transverse wave
D) A longitudinal wave
Hints: only transverse wave can be polarized

1405. Amount of DNA in bacterial cell is:
A) 1% B) 2% C) 3% D) 4%

1406. The smaller the value of Pkg:
A) The weaker the base B) The stronger the base
C) The stronger the acid D) None of the above

1407. In the nuclear reaction shown below what is the value of coefficient _γ‘?
$_{92}U_{235}$+0n1…. $_{56}Kr_{89}$+γon1 + 200MeV
A) 0 B) 1 C) 2 D) 3

1408. Have you got a computer? She said.
Select the correct indirect speech:
A) She wanted to find whether I have a computer.
B) She wanted to know whether I had a computer.
C) She wanted to know if I could use computer.
D) She was interested to know about my computer.

1409. Keratinized Epithelium is found in the:
A) Hair B) Skin C) Bone D) Muscle
Hints: keratinized epithelium is presents in the skin because the detrain protein secreted by the skin which is present in hairs, nails, claws, hooves horns etc.

1410. Why is the boiling point of n-Pentane about 28‘C higher than that of its 2, 2-Dimethylpropane isomer?
A) The area of contact between 2, 2-Dimethylpropane is small which results in weak forces of attraction.
B) 2,2-dimehlprpane molecules repel each other
C) N-pentane molecules cannot come into closer contact with each other
D) Shapes of molecules have not effect on boiling point

1411. The vectors A and B are such that |A + B| = |A – B|, then the angle between the two vectors is:
A) 0_0 B) 60_0 C) 90_0 D) 180_0 A + B| = |A – B
$A_2 + B_2 + 2.ABcos\,\theta = A_2 + B_2\ 2.ABcos\,\theta$
Hints: $4.ABcos\,\theta = \frac{0}{4.AB}$
$\theta = 90^0$

1412. Mushrooms belong to:
a) Zygomycota B) Ascomycota
C) Basidiomycota D) Deutetoinycota
Hints: vasidiomycota is characterized by the formation of basidiocarp and basidia both these structures are present in mushrooms.

1413. Which one of the following 2will not undergo dehydrogenation?
A) CH_3OH B) $(CH_3)_2CHOH$
C) $(CH_3)_3COH$ D) CH_3CH_2OH

1414. Which one is a polymer substance?
A) Glass B) Iron C) Plastic D) copper
Hints: plastic is a polymer made up of small repeating unit is called manors e.g. p v c is made up of venylchloride manors units lron and copper are elements while glass is amorphous solid mode of silicates

1415. In chick development gives rise to:
B) Ectoderm & Endoderm
C) Ectoderm & Mesoderm
D) Mesoderm & Endoderm
E) Mesoderm only

Hints: in chick development epiblas give rise to ectoderm and mesoderm because hypoblast give rise to endoderm.

1416. The heat of combustion of hydrocarbon is very useful source of heat and power, Considering the combustion reaction given below.

$CH_{4(g)} + O2_{(g)} \rightarrow CO_{2(o)} + 2H_2O$

$\triangle H$ for the reaction is.

A) $\triangle H$ = 213 kcal/mole B) $\triangle H$= 213 kcal/mole

C) $\triangle H$= 426 kcal/mole D) $\triangle H$= 312 kcal/mole

Hints: combustion of hydrocarbon is exothermic process that is why OH is –ve and since combustion of methane provides 213 k cal / mol.

1417. A zirconium nucleus ,is a ß-emitter. The product nucleus is also a ß-emitter. What is the final resulting nucleus of these two decays?

A) $_{100}Sr_{38}$ B)$_{100}Mo_{41}$ C)$_{98}Zr_{40}$ D) $_{102}Zr_{40}$

Hints: $_{40}Z^{100} \overset{b}{\rightarrow} \overset{b}{\rightarrow}{}_{39} S^{100}$

1418. Add some milk and sugar ..... the tea.

A) To B) At C) In D) On

1419. Rain water becomes acidic, when the pH-value of rain water becomes.

A) Greater than 6 B) Greater than 6.5

C) Less than 5.6 D) Less than 5

Hints: normal water has a ph of 5.6 rain water has a ph lower than 5.6. this because acid rain contain Nitric acid and sulphuric acid formed by lighrening.

1420. Dunking water should be odorless, tasteless and live from turbidity and its pH should range between:

A) 6.0 to 7.0 B) 7.0 to 8.5

C) 4.5 to 6.0 D) 8.5 to 9.0

1421. A raring car accelerates uniformly through three gear changes with the following average speeds:

20 ms_{-1} for2.0s;40ms-1for 2.0 s and 60 ms_{-1} for 6.0 s What is the overall average speed of the car:

A) 12 ms_1 B) 13.3 ms_{-1}

C) 40 ms_{-1} D) 48 ms_1

$\langle s \rangle = \frac{s1+s2+s3}{10} = \frac{40+80+360}{10}$

Hints: $\langle s \rangle = \frac{480}{10}$ = 48m/s

1422. Changes in gene frequencies in small population by chance is called:

A) Gene pool B) Genetic dolt

C) Gene mutation D) Gene flow

Hints: changes in gene frequencies in small population by chance is called droft.

1423. N2(g) 1 3H2 (g) 1 2NH3(g), $\triangle$H= 46.1 kj/mole For the reaction above which statement is true about the equilibrium constant (Keg):

A) Keg Increases with increase in temperature

B) Keg decreases with Increase in temperature

C) Keg decreases with Increase in pressure

D) Keg increases with decrease in pressure

Hints: according to le-chattetia principle formation of ammonia is favored by high pressure and low temperature. This is because reaction proceeds from higher to lower volume and further the r x n is exothermic.

1424. Which of the following lists contains scalar quantities only?

A) Mass, acceleration, temperature, kinetic energy

B) Mass, volume, electrical potential, kinetic energy

C) Acceleration, temperature, volume, electric charge

D) Momentum, electric intensity, density, magnetic flux.

1425. Number of chromosomes in Tobacco is:

A) 45 B) 48 C) 46 D) 47

28. How many molecules are present in 0.20 g of Hydrogen gas?

1426. How many molecules are present in 0.20 g of Hydrogen gas?

A) $\frac{0.10}{1.00n}$ x 6.02x 10_{23} B) 0.20x 2.016

C) $\frac{0.20}{2.016}$x 6.02 x 10^{23} d) $\frac{1.00n}{0.20}$x 6.02x 10^{23}

Hints: for number of particles we have N=n x N_A …….. (1)

But n= mass / molar mass in this case

N_{H2} molecule = 0.20 / 2.016 x 6.023 x10^{23}

(molar mass of H_2 = 2 Xa.008 = 2.016)

1427. A generator produces 100 kW of power at a potential difference of 10KV. The power is transmitted through cables of total resistance 5Q. How much power is dissipated in the cables?

A) 50 W B) 750 W C) 500 W D) 1000 W

$p = I^2 r$

Hints: p = (10^2) 5

P= 500 watt

1428. I keep the butter in the fridge.

Select the correct passive voice:

A) In the fridge the butter is kept by me.

B) By me is the butter kept in the fridge.

C) The butter is kept by me in the fridge.

D) kept in the fridge by me is the butter

1429. Appendix is vestigial in man but may play role in:

A) Digestion B) Excretion

C) Immunity D) Movement

Hints: appendix is vestigial in man but may play role in digestion, it is said that is secretes some digestive.

1430. In the nuclear reaction $\frac{233}{87}$ fr → $\frac{233}{88}$ Ra +x, particle x is:

A) A neutron B) A proton

C) An electron D) An alpha particle
$\frac{233}{87}$ fr → $\frac{233}{88}$ Ra +x, this is beta decay
Hints: $\frac{233}{87}$ fr → $\frac{233}{88}$ Ra + β^1

1431. A body of mass moves at constant speed V□‘ for a distance s□‘ against a constant force f what is the power required to sustain this motion?
A) p $_v$ B) $\frac{1}{2}$ mv2 C) $\frac{1}{2}$ Fs D) Fs
Hints: p= $\frac{w}{t}$, p = $\frac{fs}{t}$ p = f.v

1432. A single molecule of hemoglobin is composed of:
A) Three polypeptide chains
B) Four polypeptide chains
C) Five polypeptide chains
D) Six polypeptide chains
Hints: A single molecule of raemoglbin is composed of four polypeptide chain. Some protein like insulin has two poly peptide chains.

1433. Which of following functional groups are deactivating and not ortho, para directing?
A) –R B) –COR C) $–NH_2$ D) NR_2
Hints: COH is meta directing and deactivating because all m directing substitutes are deactivating R1NH2 and NR2 are opposite directing and activating.

1434. In which of the following pairs are both substances normally crystalline?
A) Copper and diamond B) Copper and glass
C) Copper and rubber D) Diamond and glass
Hints: copper is metallic solid and diamond is covalent crystallize solids glass and rubber are amorphous solids.

1435. Urea formation occurs in:
A) Kidney B) Liver C) Spleen D) Lungs
Hints: urea formation occurs in liver. Ammonia is highly toxic substances, so it is first converted in to a less toxic substance I. e. urea in the liver and then it is removed by the kidney in urine.

1436. Which one of the following is strongest acid?
A) CH3 COOH B) CH3 CH2 COOH
C) C6H5CG2 COOH D) FCH2COOH
Hints: electron denoting group when subtended into carbon dioxide acid decreases the acid strength while electron attracting (with drawing) group increases the strength of acids halogen are electron attracting groups and thus increase the strength of acid

1437. Ultraviolet rays differ from the X-rays in that ultraviolet rays:
A) Cannot be diffracted
B) Cannot be polarized
C) Have a low frequency
D) Do not affect a photographic plate

1438. _ALLUSION‘ means:
A) An idea haunting one‘s mind
B) A casual or indirect reference
C) Have a low frequency
D) Do not affect a photographic plate

1439. Phagocytosis, pinocytosis and autophagy are the functions of:
A) Golgi-Apparatus B) Lysosomes
C) Peroxisomes D) Glyoxisomes

1440. To distinguish among primary, secondary and tertiary alcohols which of the following tests is used?
A) Benedicts reagent B) Tollen‘reagent
C) Lucas test D) None of the above
Hints: Lucas ten is used to distinguish between primary, see and $_t$ertiary alcohols. Alcohols is treated with (HCI + 2ncl2) reagent tertiary alcohols react immediately secondary alcohols after 5 minutes and primary alcohols does not react at room temperature.

1441. A students measures a current as O .Sa. which of the following correctly expresses this result?
A) 50 mA B) 50 MA
C) 500 mA D) 500 MA
Hints: 0.5A = $\frac{0.5}{10}$x 1000
= 500mA

1442. Spiders belong to class:
A) Crustacean B) Myriapoda
C) Arychnida D) Hexapoda
Hints: spiders belongs to the Arachnida. Arachnids have four pairs of legs.

1443. Which one of the following; compounds participates in hydrogen bonding?
A) CH3 CI B) CH3 OCH3
C) CH3 NH3 D) C6 H5 OCH3
Hints: chlorine connect from hydrogen bonding in director ether and ethyl methyl ether oxygen is not available for hydrogen bonding in methyl anima the N g one molecule in from H-bond with H of other molecule.

1444. If a body of mass _*m*‘ is released in a vacuum just above the sun face of a planet of mass _*M*‘ and radius B. what would be its gravitational acceleration?
a) $\frac{Gmm}{n}$ b) $\frac{Gmm}{R2}$ c) $\frac{Gm}{R}$ d) $\frac{Gm}{R2}$
Hints: *W* = $\frac{Gmem}{R2}$, mg = $\frac{Gmem}{R2}$ g = $\frac{Gme}{R2}$

1445. Polysaccharide cellulose is the building material of:
A) Primary cell-wall B) Secondary cell-wall
C) Middle lamella D) Plasma membrane

1446. Which of the following structure has a bond formed by an over of *SP2* hybrid orbital with that of *SP* hybrid orbital?
A) HC = CH B) H2C = CH2
C) H2C = C= CH2 D) CH2 = CHCH3
Hints: carbon of CH2 is SP2 hybridized while the middle carbon has SP hybridization

1447. The first law of thermodynamics is a statement which implies that:

A) No heat enters or leaves the system
B) The temperature remains constant
C) All work is mechanical
D) Energy is conserved
Hints: the first law of thermodynamics is also called law of conservation of energy
$\Delta Q = \Delta u + \Delta w$

1448. GET HOLD OF ONESELF Implies:
A) To start running B) To catch a thief
C) To become calm D) To feel exhausted

1449. Lobsters belong to class:
A) Myrlopoda B) Arychnida
C) Hexapoda D) Crustacean
Hints: lobsters belongs to class crustacean which are more in animals with two pincer-like claws

1450. The bond angle between H - C – C bond in ethane is:
A) 109.5 B) 120
C) 90 D) 107.5
Hints: in alkanes carbon is sp^3 hybridization. Since bond angle between C-C in sp^3 hybridization is 109.5^o. so the ethane has an angle of 109. 5^o between C-C

1451. the function of a main transformer is to convert:
A) one direct voltage to another direct voltage of different magnitude.
B) one alternating voltage to another alternating voltage of different magnitude.
C) a high value alternating voltage to low value direct voltage.
D) A high value alternating current to low value direct voltage

1452. Pigeon odour is released from the water bloom of:
A) Slime mold B) Water mold
C) Cyanobacteria D) Cyanobacteria Algae ponds

1453. What will be the product when *PCT5* reacts with acetic acid?
A) CH3CI B) CH3COCI
C) CH3COCI2 D) CH3CH2COCI
Hints: $CH^3COOH + PCI^5 \rightarrow CH^3\ COOCI + POCI^3 + HCI$

1454. When monochromatic light of wavelength 5.0X 10-7 m is incident normally on a plane diffraction grating, the second order diffraction lines are formed at angles of 300 to the normal to the grating. What is the number of lines per millimeter of the grating?
A) 250 B) 500 C) 1000 D) 4000
Hints: d sin θ = m2 d = $\frac{m2}{\sin\theta}$
d = $\frac{2x5.0x10-7,}{\sin 30}$ = 20 x 10^{-5} = 20x 10^{-7}
as N = $\frac{l}{d'}$ = $\frac{1}{20x10}^{-5}$ = 0.05 x 10^{-7}
N = 500

1455. Brunner‘s glands are found in:
A) Stomach B) Duodenum
C) Ileum D) Colon
Hints: Brunner, s glands are found in duedeneon.

1456. Which type of isomerism is being exhibited by *FCH = CHF?*
A) Chain isomerism B) Structural isomerism
C) Geometrical isomerism D) Position isomerism
Hints: geometric isomerism is exhibited by compounds containing multiple bonds

1457. During the experiment one measured the mass of mosquito and found it 1.20x 10-5 kg. the number of significant figures in this case is:
a) Two b) three c) five d) one

1458. Select the correct sentence:
A) My feet seemed hardly to touch the earth.
B) My feet hardly seamed to touch the earth.
C) Hardly my feet seemed to touch the earth.
D) My feet seemed to touch the earth hardly

1459. An organism that adopts saprophytic mode of nutrition during part of its life is called:
A) Facultative saprophyte B) Facultative parasite
C) Obligate saprophyte D) Obligate parasite
Hints: An organism that adopts saprophytic mode of nutrition during part of its life is called facultative saprophytes like mushrooms. Monotropa etc.

1460. Which is the correct product formed when monohydric alcohol reacts with sodium metal?
A) Alkene B) Sodium alkoxide
C) Alkane D) Ether
Hints: fossil fuels include coal, petroleum and natural gas

1461. If a hole is bored through the center of the earth and a pebble is dropped in ti, then it will:
A) Stop at the center of the earth
B) Drop to the other side.
C)execute SHM
D) None of the above.

1462. Erypsim acts upon:
A) Polypeptides B) Carbohydrates
C) Dipeptides D) Fats

1463. Coal, Natural gas and petroleum are generally called:
A) Node B) Anti-node
C) Crest D) Trough

1464. in vibrating cord the point where the particles are stationary is called:
A) node B) anti-node
C) crest D) trough

1465. microsporum furfur causes:
A) athlete‘s foot B) ring wormer
C) ergot d) dandruff

1466. benzene reacts with acetyl chloride in the

presence of lewis acid forming:
A) Chlorobenzene B) Acetophenone
C) Benzoic acid D) benzophenone
Hints: in friedal craft acylation, benzene react with acetyle chloride in the presence of $AlCl_3$ as catalyst

1467. the minimum frequency of incident light required to emit photoelectrons from the metal surface is called:
A) critical frequency B) threshold frequency
C) work function D) none of the above

1468. in a composition writing exercise, _PRECISE' means:
A) A synopsis for writing an essay in a degree level examination
B) A critique highlighting the weak point of a feature film story
C) A resume of the commercial achievements spread over a year
D) A short summary of the crucial ideas of a longer composition

1469. The gills are covered by operculum in
A) Bony fishes B) Cartilaginous fishes
C) Lung fishes D) Jawless fishes
Hints: the gills are covered by operculum in bony fishes. The cartilaginous fishes and the other give fishes have no operculum over the gills

1470. When 2-Bromo-2-methyl propane undergoes unimolecular elimination reaction, the product obtained will be:
A) 2-Methyl propane: B) 2-Methyl propane:
C) 2-Methyl-1 propanol: D) 2-pentanol

1471. When lead, 81Pb214, emits a ß- particle, the resultant nutleus will be:
A) 83 Bi214 B) 84Po214 C)82Pb213 D) 41TI214

1472. A saprophyte that depends on gametophytes is:
A) Adlantum B) Pinus
C) Marchantia D) Mustard-plant

1473. Which is not correct about polyvinyl chloride?
A) It is used in large scale production of cable insulator
B) It is a copolymer
C) It is a homopolymer
D) It is used in the manufacturing of pipes
Hints: p v c is a homopolymer made up of venylchloride. It is used in the manufacture of cable insulator, pipes and other plastic materials

1474. If two cars are moving with velocity 10 m/s and 5m/s in opposite direction to each other, then their relative velocity with respect to one another will be:
A) 5m/s B) 10m/s C) -5m/s D) 15m/s

1475. Replication progresses at a rate of about 50 base pairs per second in:
A) Bacteria B) Virus
C) Eukaryote D) All of the above
Hints: the replication of DNA progresses at a rate of about 50 base pair per second in eukaryotes. The replication of DNA occurs very rapidly because eukaryotes have a complete set of enzymes for this process.

1476. Vinyl acetate monomer is prepared by the reaction of acetaldehyde and acetic-anhydride. The catalyst employed is:
A) FcCI3 B) AL2O3 C) V2O5 D) Cr2O3

1477. When released from a height a ball falls 5m in 1s. in 4s after release it will fall.
A) 40m B) 80m C) 20m D) 100m

1478. —I saw him yesterday‖ she said.
Select the correct indirect speech:
A) She told that she had seen him yesterday.
B) She said that she had seen him the day before.
C) She told that she could see him the previous day.
D) She said that she would see him the day before.

1479. The pigments of chlorophyll a, b, and carotenoids are present in:
A) Stroma B) Grana
C) Thalakoid membrane D) Crista

1480. Thermal processing of industrial waste material aims at:
A) Burning of waste material in pits
B) Converting the solid waste into useful products by thermal treatment.
C) Energy recovery from organic matter prior to its final disposal
D) Size reduction and compaction by thermal process

1481. If the momentum of a body decreases by 20% the percentage decrease in K.E will be:
A) 44% B) 36% C) 28% D) 20%
K.E $\frac{p2}{2m}$, K.E $\frac{p2}{2m}$,$(0.8^2$ -1)
Hints: $\frac{p2}{2m}$, (0.36), = 36%

1482. Which one of the following animals is filter feeder?
A) Teeth B) Sycon
C) Fresh water muscle D) Jelly fish
Hints: fresh water mussel is a filter feeder, filer feeders are those animals which filter the water and extract particles for eating digestion.

1483. Which one is not a nitrogenous fertilizer?
A) Ammonium nitrate B) Triple phosphate
C) Urea D) Nitro phosphate
Hints: all the three fertilizer contain nitrogen triple phosphate has no nitrogen in its composition

1484. The antimatter of election is:
A) Photon B) photon
C) Positron D) Antineutrino

1485. In chlorophyll-b, the porphyrine ring is attached to the:
A) Methyl group B) Carboxyl group
C) Aldehyde group D) Hydroxyl group

1486. Used as the‘ own indicator in acid medium?
A) K2Cr2O3 B) Lodine
C) KMnO4 D) H2O2

1487. An organ pipe is open at both ends at its fundamental frequency. Neglecting any end effects, what wavelength is formed by this pipe in this mode of vibration, if the pipe is two meter long?
A) 2m B) 4m C) 6m D) 8m
Hints: λ = 2l, = 2(2) =4m

1488. Fire destroyed the top floor of the building:
A) The top floor of the building got destroyed by fire
B) By fire was destroyed the top floor of the building.
C) Destroyed by fire was the top floor of the building.
D) The top floor of the building was destroyed by fire

1489. Myoglobin is found in:
A) Bone B) Connective tissue
C) Muscles D) Cartilage
Hints: myoglobin is present in muscular cells. Myoglobin is an oxygen storing pigmented protein. Due to the presence of myoglobin the color of the fibre is r e.

1490. The atomic number of scandium is 21. What is its ground state electronic configuration?
A) 1s22N22p63N23p63d3
B) 1s22N22p63N23p63d34s1
C) 1s22N22p63N23p63d34s2
D) 1s22N22p63N23p63d34p1
Hints: the scandium is a transition element in which ground state electronic configuration will have one electron in 4s.

1491. A body in equilibrium must not have:
A) Kinetic energy B) Velocity
C) Momentum D) Acceleration

1492. The center of porphrine ring of hemoglobin is occupied by:
A) Magnesium B) Sodium
C) Iron D) Potassium

1493. The differences in energy between difference states of bond vibrations in a molecule correspond to which electromagnetic region?
A) Microwave B) Infrared
C) Visible D) X-rays
Hints: the absorption of different electromagnetic radiation cause changes like microwaves cause rotational exestuation infer red radiation cause electronic exestuation and x-rays lead to the knocking out of electrons.

1494. Three equivalent resistors connected in parallel have equivalent resistance R/3. When they are connected in series then the equivalent resistance is:
A) 3R B) R/3 C) R D) 2R
Hints: $R = R_1 + R_2 + R_3$

1495. Thalassemia major is also known as:
A) Sickle cell anemia B) Cooley‘s anemia
C) Mycocystic anemia D) Nutritional anemia

1496. 40.0 dm3 of an ideal gas at 250C and 750 mm Hg is expanded to 50.0 dm3. The pressure of the gas changed to 765 mm Hg. What is the temperature of the gas?
a) $\frac{(290)(750)(50)}{(40)(765)}$
b) $\frac{(290)(750)(50)}{(50)(765)}$
c) $\frac{(290)(750)(50)}{(765)(40)}$
d) $\frac{(750)(40)}{(290)(750)(50)}$
Hints: p_1 = 750mm of Hg_1,
V_1 = 40 dm^3, T_1= 25^{oc} = 298k
P_2 = 765mm of Hg, v_2 = 50dm3, T_2 =?
$\frac{p1v1}{T1} = \frac{p2v2}{T2}$
$T2 = \frac{p2v2T1}{p1v1} = \frac{+765\ x\ 50\ x\ 298}{750\ x\ 40}$

1497. Ohm‘s law is valid only for:
A) Thermistor B) Bulb filament
C) Metals D) Semiconductors

1498. APPRAISE‘ means:
A) Tell a story at bed time
B) Evaluate the quality of
C) Do shopping in a bazaar
D) Praise a man out of place

1499. Premature death of paints is caused by the deficiency of:
A) Magnesium B) Iron
C) Phosphorus D) potassium

1500. Which of the given formulae would be used to calculate the wave length of an electron? Given its velocity(v), its mass (m) and constant *h:*
a) λ = h m v
b) λ = h/mv
c) λ = h v/m
d) λ = mv^2/h
Hints: according to brogle hypothesis
mv = h/λ
λ =h/mv

1501. The energy stored in a charged capacltor is given by:
a) $^1/_2$ QV
b) $^1/_2$ CV
c) $^1/_2$ C^2V
d) $^1/_2$ QV^2

1502. The birds excrete:
A) Ammonia B) Urea
C) Uric acid D) Acetic acid
The birds excrete uric acid, the white paste in the feaces of birds is uric acid is an adaptation in those animals which drink little water or who lives in such areas which have scarcity of water.

1503. Which electronic sub-shell do the Lanthanicies have incompletely filled?
A) 3f B) 4f C) 5f D) 6f
Hints: lanthanides and actinide are called f-block element because they have incompletely filled 4f sub-shell.

1504. Write has a resilience _it'. If its length is doubled and radius is reduced to half then its resistance will become:
A) 2R B) 4R C) 8R D) 16R
R = $\frac{sl}{A}$, $\frac{p2v2}{\pi r2}$ = 2π 4($\frac{sl}{an}$)
Hints: R = 8R

1505. Bulliform cells are present in:
A) Grasses B) Underground stems
C) Fruit-nuts D) Cabbage leaves
Hints: bulliform cells are present in epidermis. In dry weather the bulliform cells loss water due to which the rolling of leaves occurs in grasses.

1506. How many different values can m, assume in the electron sub-shell designated by quantum number n=5, 1=4?
A) 4 B) 5 C) 6 D) 9
Hints: n= 5,1 = then m = 21+ 1 = 2(4) +1=9
It means that it is f sub-shell which has no values for m
M = -3,-2,-1,0,+1,2+3

1507. The potential difference between a pair of similar and parallel conducting plates is known. What additional information is needed in order to find the electric field strength between the plates?
A) Separation of the plates.
B) Separation and area of the plates.
C) Permittivity of the medium; separation of the plates.
D) Permittivity of the medium; separation and area of the plates
Hints: v=ED ,E = v/d

1508. Please help someone the house is ….life.
A) At B) In C) On D) By

1509. Bone is surrounded by a membrane called:
A) Perichondrium B) Prostomlum
C) Perimyeium D) Periostium
Hints: bone is surrounded by a membrane which is called periosteum. Contain blood vessels and nerves .

1510. Which of the following is Hypochlorous acid?
A) HCIO B) HCIO2 C) HCIO3 D) HCIO4
Hints: HOCI_____hypochlorous acid
HOCI2_____chlorous acid
HOCI3_____ clonic acid
HOCI4 _____perchloric acid

1511. A capacitor which has a capacitance of 1 farad will:
A) Be fully charged in 1 second by a current of 1 ampere
B) Store 1 coulomb of charge at a potential difference of 1 volt.
C) Gain 1 joule of energy when 1 coulomb of charge is stored on it.
D) Discharge in 1 second when connected across a resistor of resistance 1 ohm.
Hints: Q=CV,C=Q/V

1512. A hormone that prevents senescence in leaves, is:
A) Auxin B) Gibberellins
C) Cytokinin D) Abscisic acid
Hints: a hormone that prevents senescence in lives is cytokinines. This action is performed by the activation of protein synthesis

1513. If 20.0 cm3 of 0.5 M solution is diluted to 1.0 dm3. What will be its new concentration?
A) 0.00.1 M B) 0.01 M C) 1.0 M D) 10.0 M
Hints: as we have $M_1 V_1 = M_2 V_2$ ------(1)
M_1= 0.5m v_1 = 20cm 3 = 0.02 dm^3
V_2 = 1dm^3 m_2 = ?
From equation 1 $m_2 = \frac{m1v1}{v2} = \frac{0.5x0.2}{1} = 0.01m$

1514. The internal energy of a fixed mass of an ideal gas depends on:
A) Pressure, but not volume or temperature.
B) Temperature, but not pressure or volume.
C) Volume, but not pressure or temperature.
D) Pressure and temperature, but not volume

1515. Messer's capsules are the receptors for:
A) Temperature B) Pain
C) Pressure D) Touch
Hints: Messer`s capsules are the receptors for touch. These are the nerre endings of sensory neurons which are encapsulated.

1516. Which one of the following oxides exhibit amphoteric properties?
A) K2O B) Mg O C) Zn O D) Ca O
Hints: k2o, mg o and ca o are basic while z n o is amphotic
Zn o + h2 so 4 → z n so 4+$h2_0$
Zn o + 2naoh + h20 → na2(zn(oh)4)

1517. A spring obeying Hook's law has an unstretched length of 50 mm and a spring constant of 400 Nm-01. What is the tension in the spring when its overall length is 70mm?
A) 8.0 N B) 28 N C) 160 N D) 400 N
Hints: F = K x, F = 400 x 0.02, F = 8N

1518. _CRANKY SPOUSE' implies:
A) A carefully selected loving partner of life
B) Fussy and bad-tempered wife or husband
C) Money squandering younger second wife
D) A device fitted behind the rear seat of a car

1519. Florigen is produced by:
A) Flowers B) Flower-buds
C) Leaves D) Fruits

Hints: Florigen is produced by leaves. Florigen is a hormone produced by leaves And travels through the phloem to floral buds and initiates flower formation.

1520. Which one of the following salts will produce an alkaline solution when dissolved in water?
A) NH1CI B) NuNO3
C) Na2CO3 D) Nu2SO4

1521. Which thermodynamic temperature is equivalent to 501.850C?
A) 772.00 K B) 774.85 K
C) 228.85 K D) 278.70 K
Hints: T k = T c + 273, T k = 501.85 + 273 = 774.85 k

1522. 124. Who used puzzle boxes in experiment on animal learning?
A) Pavlove B) E.L. Thorndike
C) Konrad Lorenz D) Kohler
Hints: E. L. Thorondike used the puzale boxes in an experiment of animal leering. This is an example of conditioned reflex type-II.

1523. A neutral atom A has the electronic configuration: 1s2 2s2 2p6 3s2 3p6 4s1. It will gain or lose electron/s to form most probably an ion of valence:
A) -2 B) -1 C) +2 D) +1
Hints: the electronic configuration $1s^2\ 2s^2\ 2p^6\ 3s^2\ 4s^1$ is that of an alkali metal (potassium) because alkali metals have ns^1 configuration. All alkali metals form monovalent cations (Mg^+) by losing one electron.

1524. Which statement correctly describes a nucleon?
A) A neutron or a proton
B) A neutron, proton or an electron
C) Any atomic nucleus
D) A radioactive atomic nucleus

1525. Ozone gas is:
A) Greenish, tasteless and light
B) Greenish blue, bitter in taste
C) Blue. Poisonous and explosive
D) Purple yellow, no poisonous, nonexplosive

1526. Which one of the following is a Lewis acid?
A) (CH3)3N B) PH3
C) BF3 D) O2
Hints: electron pair accepts are called Lewis acids $(CH^3)^3$ N, PH^3 and O^2 are electron rich species and can act as Lewis bases. B F^3 is electron deficient and is a Lewis acid because it can accept a pair of electron.

1527. An object travels at constant speed around a circle of radius 1.0 m in 1.0 s. what is the magnitude of its acceleration?
A) Zero B) 1.0 ms-2
C) 2n ms1 D) 4n2 ms-2
Hints: $2C_2H_5OH + 2Na$

1528. Select the correct sentence:
A) Farid and javed both are good swimmers.
B) Both farid and javed are good swimmers.
C) Good swimmers are Farid and javed both.
D) Swimmers are good both Farid and javed.

1529. Which one of the following animals is viviparous?
A) Rat B) Kangaroo
C) Duckbilled platypus D) Spiny ant eater
Hints: Rat is the viviparous animal which give birth to young ones because rat belong to the sub-class mammalian and give birth to young ones.

1530. According to molecular orbital theory which one of the following will indicate tow unpaired electrons?
A) N2 B) O2 C) F2 D) Hc2+2
Hints: MOT diagram of O_2 molecule shows that its has two unpaired electrons in antibonding molecule orbital`s. that is why O_2 molecule is paramagnetic.

1531. An alternating current _1/A‘ varies with time _t/s‘ according to the equation I = s sin (100n t). What is the mare power developed by the current in a resistive load of resistance 100?
A) 125 W B) 160 W C) 250 W D) 500 W
Hints: $P = I^2 R$, P = 250W

1532. Cristae of mitochondria re the sites of:
A) Electron transport chains
B) Photophosphorylation
C) Krebs cycle
D) Glycolysis

1533. Which one of the following compounds will show covalent bonding?
A) CaF2 B) Mg O C) KCI D) Sill1
Hints: Since all the compounds I. e. CaF_2, Mg Cl and KC l are ionic in nature, because they are formed from combination of metal and nonmetal. SiH_2 is covalent because both Si and H_2 are nonmetals.

1534. The rate of change of momentum of a body falling freely under gravity is equal to its:
A) Impulse B) Kinetic energy C) Power D) weight

1535. muscles develop from:
A) ectoderm B) mesoderm
C) endoderm D) all of the above
Hints: Muscles are developed from mesoderm during the developmental processes of young ones.

1536. Which one of the following has a covalent bonding by the overlap of s p hybridized orbital with p orbital/s?
a) BF1 B) H2O C) HeCI1 D) NH3
Hints: Be Cl_2 has linear structure so beryllium is s p hybridized S p hybridized orbitals of Be overlap with p orbitals of two chlorine atoms to Be Cl_2
Cl-Be-Cl
H_2O and NH_3 have s p^3 hybridized while BF_3 has s p^3 hybridization

1537. Radioactive activity is affected by:
A) Temperature B) Pressure
C) Humidity level D) None of the above

1538. An _ELEGY‘ is a poem written:
In the memory of a little child On the sighting of an old tutor In the love of dear sweetheart
On the death of someone dear

1539. Bacteria maintain their survival by the formation of:
A) Hormogonia B) Alkinets
C) Endospores D) Zygospores

1540. The change in enthalpy at constant pressure, △H is equal to:
A) △H = q + P△V B) △H = △E- P△V
C) △H = △E + P△V D) △H = q - P△V
Hints: Enthalpy is heat content at constant at constant pressure
△H = q p = △E + p△ v

1541. Four gas molecules have the speed 8.0 ms-1, 6.0 ms-1, 6.0 ms-1 and $\sqrt{8}$ ms-1. What is their root-mean-square speed?
A) 8.0 ms-1 B) 6.0 ms-1
C) 5.0 ms-1 D) 7.0 ms-1
Hints: $\sqrt{6^2 + 8^2 \sqrt{82,=6.0/sec}}$

1542. Avery, Macleod and McCarty repeated the Griffith experiment in the year:
A) 1869 B) 1928 C) 1944 D) 1952
Hints: A very, macleod and M c carty repeated the experiment of Grifth in 1944. The experiment was about the transforming principle, that D N A is the hereditary material

1543. Considering the standard reduction chart, the strong reducing agent value is:
A) Small negative values
B) Large negative values
C) Small positive values
D) Large positive values
Hints: the more negative value of standard reduction potential in electrochemical series indicates the strong reducing agent.
e. g. $li^+ e^- \rightarrow Li$ E^o = -3.05V
$K^+ + e \rightarrow K$ E^o = - 2.92V
Here Li is strong reducing agent than K.

1544. An organ pipe of length T has one end closed but the other end open. What is the wavelength of the fundamental node emitted?
a) Slightly smaller than 41.
b) Slightly larger than 41.
c) Roughly equal to 3:/2.
d) Slightly larger than 21

1545. Microvillae are also called:
A) Leaf veins B) Cristae
C) Capillaries D) Leaf midribs

1546. Which statement is correct while recharging the automobile battery?
A) P b is converted to PbO2.
B) P bSO4is converted t Ph.
C) P b is converted to PbSO4
D) None of the above
Hints: in lead storage (automobile) battery p b and p b O are consumed during usage. During recharging the reaction is reversed. P h O SO^4 and water are converted top b and P b O.

1547. A vertical steel wire *X* of circular cross-section is used to suspend a load. A second wire *Y*, made of the same material but having twice the length and twice the diameter is used to suspend an equal load. What is the value of the ratio $\frac{extention\ of\ wire\ x}{extention\ of\ wire\ y}$?
A) 1/1 B) 1 C) 2 D) 4

1548. My children don‘t approve….. my smoking.
A) I B) Of C) On D) at

1549. cell death due to tissue damage is called:
A) Cancer B) Apoptosis
C) Necrosis D) Metastasis
Hints: Cell death due to tissue damage is called necrosis. In this process the cells swells and burst and release intracellular contents in the surrounding and these contents can harm adjoining cells and result and inflammation.

1550. You are required to test the presence of NH4+ Ion in water. Which of the following reagent will solve your problem?
A) Dimethylglyoxime B) Tollens reagent
C) Nessler‘s reagent D) Magneson reagent
Hints: ammonia and its salts react with Nasser`s reagent to reddish brown precipitates

1551. Drops X and Y, of the same oil, remained stationary in air in the same electric field. After the field was switched off, X fell more quickly than Y. which deduction can be made?
A) X had a greater charge than Y
B) Y had a greater charge than X
C) Both X and Y. were positively charged
D) the changes on X and Y were identical in sign and magnitude.

1552. The two chains of DNA occur side by side in a:
A) Straight direction
B) Parallel but straight
C) Parallel but opposite
D) Parallel, opposite and folded spiral
Hints: The two chains of DNA occur side by side in a parallel, opposite and folded spirally. DNA is a double helix structure present in ladder form but spirally.

1553. Which of the following furnaces is used for the production of wrought iron?
A) Open hearth furnace

B) Reverberatory furnace
C) Bessemer converter
D) Blast furnace
Hints: Reverberratory furnace is used for the production of wrought iron open hearth acid Besserrier converter are used for the production of steel pig and last iron are manufactured in blast furnace.

1554. A mass accelerates uniformly when the resultant force acting on it:
A) Is zero.
B) Is constant but not zero.
C) Increases uniformly with respect to time.
D) Is proportional to the displacement of the mass from a fixed point.

1555. In which of the following the phenotypic and genotypic ratio is the same?
A) Co-dominance
B) Over dominance
C) Epitasis
D) Incomplete dominance
Hints: In case of incomplete dominance the phenotypic and genotypic ratio are the same, i.e. 1: 2: 1

1556. The variable oxidation states of transition elements is attubuted to the involvement of s as well as:
A) Unpaired *d* Electrons B) Unpaired *p* electrons
C) Unpaired *f* elections D) Paired up *d* electrons

1557. A sample of carbon-12 has a mass of 3.0 g. which expression gives the number of atoms in the sample? (NA is the symbol Ion the Avogadro constant).
A) 0.0030NA B) 0.25 NA
C) 3.0 NA D) 4.0 NA
Hints: l mole of C-12 = 12g
3 g of C-12 = x mole
N= $\frac{m}{M} = \frac{3g}{12g/mol} = 0.25$ mole
For no of molecules we have
N= n x Na
N = no of particles, n = no of moles
N = 0.25 Na

1558. _BREAK THE ICE' Implies:
A) Walk on ice-heet B) Swallow ice-cubes
C) Chisel an ice-block D) To make a beginning

1559. A cell-wall that is composed of sugar and amino acids is called:
A) Murein B) Chitin C) Lignin D) Pectin

1560. In contact process for the manufacture of sulphuric acid, sulphur trioxide is dissolved in sulphuric acid in form oleum. Oleum moleculr formula is:
A) H2S2O3 B) H2S2O5
C) H2S2O6 D) H2S2O7
Hints: Oleum or pyrosulpheric acid has a formula $H_2\ S_2\ O_7$
$SO_3 + H_2\ SO_4 \xrightarrow{diselvoed} H_2\ S_2\ O_7$

1561. Which of the following lists contains three regions of the electromagnetic spectrum in order of in ceasing frequency?
A) Gamma rays, ultraviolet rays, radio waves.
B) Gamma rays, visible radiation, ultraviolet rays.
C) Microwaves, ultraviolet rayst, X-rays.
D) Radio waves, visible radiation, infrared radiation
Hints: A plant or animal modified by genetic engineering is called transgenic in which the productive genes of interest are manipulated and the unwanted genes are removed.

1562. A plant or animal modified by genetic engineering is called:
A) Transgenic B) Probe
C) Recombinant D) Plasmid
Hints: A plant or animal modified by genetic engineering is called transgenic in which the productive genes o interest are manipulated and the unwanted genes are removed.

1563. Ethylene diamine tetraacetate ion (EDTA) is a opolydentate ligand it bonds to central metal atom through:
A) Two of its atoms B) Three of its atoms
C) Four of its atoms D) Six of its atoms
Hints: EDTA (Ethylene diamines tetraacetate) is a hexadentate ligand which links to cetral metal atom through six atoms.

1564. A source contains initially N0 nuclei of a radioactive nuclide. How many of these nuclei have decayed after a time interval of three half-lives?
A) No/8 B) 2No/3
C) No/3 D) 7No/8
Hints: $= \frac{No}{2} + \frac{No}{4} + \frac{No}{8}$
$= \frac{7No}{8} +$

1565. When the entire body of a bacterium is covered by flagella, such a bacterium is called:
A) Atrichous B) Lopho-trichous
C) Lampi trichous D) Peri-trichous

1566. Phosphorus trihalides are readily hydrolysed as shown below:
PX3 + 3H2O → H3PO3 + 3HX
Generally moving from fluorine to iodine rate of hydrolysis:
A) Increases B) Decreases
C) Remalns unchanged
D) First increases and then decreases
Hints: generally hydrolysis of phosphorus trihalides increases with the ivrease In atomic number and decrease in the electronegativity of the elements from fluorine to Iodine
The rate of hydrolysis is given
$PO_3 > PBr_3 > PCI_3 > PF_3$

1567. Two monochromatic radiations X and Y are incident normally on a diffraction grating. The second order intensity maximum for X coincides with the third order intensity maximum for Y. what is the ratio $\frac{wavelength\ of\ x}{wavelength\ of\ Y}$?
A) ½ B) 2/3 C) 3/2 D) 2/1

1568. Select the correct sentence:
A) Certainly she is the best person for the job.
B) She is the best person for the job certainly.
C) She is certainly the best person for the job.
D) The best person certainly she is for the job.

1569. Nucleus was discovered by:
A) Waldyne B) T.H. Margan
C) Robert Brawn D) Kohler
Hints: Nucleus was discovered by Robert brow in 1831. Waldyer discovered chromosomes in the cells in 1876

1570. Which of the following is not a nucleophile?
A) NH3 B) HO C) HC = CH D) Br^+
Hints: nucleophiles are negatively charged or neutral species.
NH_3, OH, H-C≡ C-H are nuclephile while Br^+ is electrophiles.

1571. A sound wave of frequency 400 Hz is travelling in a gas at a speed of 320 ms-1. What is the phase difference between two points 0.2 m apart in the direction of the travel?
a) $\frac{\pi}{4}$ rad
b) $\frac{\pi}{2} rad$
c) $\frac{2\pi}{5} rad$
d) $\frac{4\pi}{5}$rad

1572. Stroma of chloroplasts carries the fixation of:
A) N2 B) O2 C) CO2 D) NH3

1573. Half ell reaction standard reduction potential, E o
Fc2+ 2c- → Fe –0.41
Cu2+ 2c- → Fe –0.41
Ni2+ 2c- → Fe –0.41
Zn2+ 2c- → Fe –0.41
Referring to the table above which metal could be used to prevent iron from erosion?
A) Cu only B) Zn only
C) Cu & Ni only D) Ni and Zn only
Hints: since the standard reduction potential of zinc is lower than iron so it can be used as anode with iron cathode, iron will be coated with zinc and thus prevented from erosion the other elements Cu and Ni have higher standard reduction potential that iron.

1574. Which of the following is the unit of pressure?
A) Kg m s-1 B) Kg m-1 s-2
C) Kg m2 s-2 D) Kg m-2 s-1
Hints: P= $\frac{F}{A}$
= $\frac{kgin\ /sec2}{m2}$, = kg m - $\frac{-1}{s}$-2

1575. 177. What will be the anti-coden of AUG?
A) TAC B) ATC C) UAC D) UTC
Hints: the anticodon of AUG is UAC, because in coding the base adinine make chemical bonding with cytosine.

1576. Upids are naturally occurring substances which are chemically:
A) Proteins B) Arnino acids
C) Carbohydrates D) Esters
Lipids are chemically esters. They are derived from glycerol an fatty acids.
CH_2- OH
CH-OH+ 3 R-CH-COOH
CH_2 – OH
CH_2-O-CO-CH_2 R
CH- O-CO-CH_2 R
CH- O-CO-CH_2 R

1577. Satellites revolve around the earth in a circular orbit. What is the relationship between the raider f their orbits and their speeds?
A) V ∞ r2 B) V ∞ r
C) V1 ∞ 1/r D) V ∞ 1/r2
Hints: v a$\frac{1}{\sqrt{r,}}$v2a$\frac{1}{r}$

1578. _DENOUNCE‘ means:
A) To reject straight away B) To praise in a meeting
C) To condemn publicly D) To negoticate secretly

1579. Potatoe plastids, which store starch, are known as:
A) Paramylum B) Amyloplasts
C) Leucoplasts D) glycoplasts

1580. A salt AB tonizes as AB = A+ > B-. The solubility product for the salt AB is 4.0 □ 10-4. The molar solubility of the salt is:
A) 4.0 x 10-4 M B) 2.0 x 10-2 M
C) 8.0 x 10-4 M D) 2.0 x 10-4 M

1581. Of the following properties of a wave, the one that is independent of the others is its:
A) Amplitude B) Wavelength
C) Speed D) Frequency

1582. The primers used in polymerase chain reaction has a sequence of bases:
A) 8 B) 12 C) 16 D) 20
Hints: the primer used in polymerase chain reaction has sequence of basesm i.e. 20. During PCR healthing denatures the DNA and new primers are added.

1583. Which has the lowest temperature?
A) Troposphere B) Stratosphere
C) Mesosphere D) Thermosphere
Hints: the temperature eranges of different layers of atomosphere given below:
Troposphere 60^0C TO -56^OC
Stratosphere -56^OC TO -20^OC
Mesosphere -20^oC to 92^oC

Thermosphere -92°C to 1200°C

1584. The prefix _tera‘ stands for:
A) 104 B) 104 C) 104 D) 1012
Hints: prefixes are given as
Deca 10^1 deci 10^1
hector10^2 ceint 10^{-2}
kilo 10^3 milli 10^{-3}
mega 10^6 micro 10^6
giga 10^9 nano 10^{19}
tera 10^{12} pico 10^{-12}
peta 10^{15} FENTO 10^{15}
exa 10^{18} ATTO 10^{-18}

1585. The phenomenon that a seed fails to germinate in spite of providing all conditions necessary for germination, is called:
A) Photoperiodism B) Vernalization
C) Dormancy D) phytochrome
Hints: when seed fails to germinate inspite of providing all necessary conditions, is called dormancy, it is mainly due to some endogenous inhibitors inside the seed.

1586. Which one is least reactive towards a reaction with Na?
A) CH3 – OH B) CH3 – CH
C) CH3 – O- CH3 D) CH3 - COOH

1587. The force _F‘ on a charged partied _q‘ moving with velocity _v‘ parallel to magnetic held _B‘ is given by:
A) F = qv B B) F = q B
C) F = O D) F = 0

1588. The police arrested him for dangerous driving.
Select the correct passive voice:
A) He was arrested for dangerous driving by the police.
B) He was arrested by the police for dangerous driving.
C) For dangerous driving he was arrested by the police.
D) By the police was he arrested for dangerous driving.

1589. Which one of the following is a sex-linked inheritance?
A) Baidness B) Albinism
C) Eye colour D) Myopia
Hints: albinism is a sex-linked inheritance, which occur when both of the genes for this character present in recessive form.

1590. The element which has the smallest atomic radius is:
A) Fe B) Co
C) Ni D) Cu
Hints: Atomic radius decreases across a period and increases down the group. Atomic Fe, Cu, Ni and Cu, the Cu exist at right side of the fourth period. So atomic size decrease from Fe to Cu.

1591. Which one of the following has negative temperature coefficient?
A) Copper B) Thermistor
C) Soft iron D) platinum

1592. pulinus tissues are present at:
A) Leaf-tip B) Leaf-margin
C) Leaf-base D) Middle-vein
Hints: pulinus tissues are present in the leaf base. These are composed of parendy ma cells with large inter cellular spaces.

1593. Which isomers have difference in both their physical and chemical properties?
A) Chain isomers B) Position isomers
C) Functional group isomers D) Both 9A) and (B)
Hints: functional group gives characteristics property a to a compound, so isomers having different functional group will have different physical and chemical properties. Other isomers have same chemical but different physical properties.

1594. When the light from two lamps falls on a screen, no interference pattern can be obtained. Why is this?
A) The lamps are not point sources
B) The lamps emit light of different amplitudes
C) The light from the lamps is not coherent
D) The light from the lamps is white.

1595. When the light from two lamps falls on a screen, no interference pattern can be obtained. Why is this?
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Hints: the valve between lift atrium and lift ventricle is called bicuspid valve this valve has two flaps allowing the blood from the left auride to the left ventricle and not in the opposite direction.

1596. Which of the following tests can be used to distinguish between aldehyoes and ketones?
A) Bacyer‘s test B) Fehling‘s test
C) Silver mirror test D) Both (B) and (C)
Hints: aldehydes and ketones can be distinguished by Fehling`s test and silver mirror test Bayer`s test is used for the identification of alkenes.

1597. One way of expressing the equation of state for an ideal gas is by the equation p V = N k T.
What do _N and _K represent respectively?
a) Avogadro constant; Boltzmnn constant
b)Avogadro constant; Molar gas constant
c) Total number of molecules; Boltzmann constant
d) Total number of molecules; Avogadro constant
Hints: As P V = n RT
Also R = $\frac{k}{N}$ K = bolteonann`s cons tan t A

N = avegadro s number

PV = n$\frac{k}{N}$ T or A

PV = $\frac{k}{N}$ KT A

Now = $\frac{n}{N}$ = N (triple "N" formula)

PV = N k T wher "N" = total no of molecules

1598. According to Gay-Lusac's variation of the volume of a sample of gas, at constant pressure a straight line was obtained where slope was found to be equal to:

a) b) c) d) 273 1 v 273 0 v 273 1 P 273 0 P

Hints: increasing temp of gas by 1°C, volume of gas will be increased by $\frac{1}{273}$ time to volume at 0°C (V_o) ANSWER (b)

1599. If x be the height of a person and t be the time taken for x then is_____ d t dx

a) velocity b) acceleration c) Growth d)None

ANSWER (c)

1600. The binding energy for nucleus _A' is 7.7MeV an that for nucleus _D' is 7.8 MeV. Which nucleus has the larger mass?

a) Nucleus A b) Nucleus B

c) More information is need d) None

Hints: B.E relates to loss in mass when a nucleus Is formed BE ∝ loss in mass.

ANSWER (a)

1601. Which one will show ionic bonding?

a) N a H b) PbCl4c)H Cl (gas) d)PCl3

Hints: Alkali metals (Na) always form ionic bond.

ANSWER (a)

1602. The probability of either less than 1 or greater than 6 in rolling die is :_____

a) zero b) 1 c) d) 31 41

Hints: sample space = {1,2,3,4,5,6,}event= A = {} P (A) = n (A) /n (S) = 0

Answer :(a)

1603.

1604. What is the magnitude of the linear momentum of a particle if its De Broglie's wavelength is 0.02 mm?

a) 0.5 h b) 50 h c) 5×107 h d) 5×1018 h

Hints: As P = $\frac{h}{\lambda}$ λ = 0.02nm = 0.02x 10^{-9} m so p = $\frac{h}{0.02x10-9}$ = 50X 10^9 h= 5x10^{10} h

Answer : (c)

1605. $\frac{lim}{x\to\infty}$ (1+$\frac{1}{x}$) x = ?

a) x b) $\frac{1}{x}$ c) e d) ∞

Hints: theorem.

Answer: (c)

1606. Choose the correct electronic configuration for Scandium (Z=21) :

a) 2s2 2 s2 2p6 3s2 3p6 3d1 4s1

b) 1s2 2s2 2p6 3s2 3p6 3d1 4s2

c) 1s2 2s2 2p5 3s2 3p6 3d1 4s8

d) 1s2 2s2 2p5 3s2 3p6 4s2 4p1

Hints: $_{21}$Sc = $1s^1$ $2s^2$ $2p^6$ $3s^2$ $3p^6$ $3d^1$ $4s^2$

Answer : (b)

1607. An alternating current is represented by the equation . Which one of the following equations represent an alternating current that has half the amplitude an double the frequency? t I □ sin0 □

a) I = 2 Io sin 2ω t

b) 2I= 2Io sin $\frac{1}{2}$ ω t

c) I= $\frac{1}{2}$ Io sin 2 ω t

d) 2I= Io sin ω t

Answer: (c)

1608. As you have not prepared your work ___

a) you may not fall in the examination

b) you could prepare harder next time

c) you would do better in the examination

d) you are not likely to do well this time.

Hints: sentence starts with "As" which is a subordinating conjunction. It is used in compound sentences. The first clause is subordinative and need a result clause.

Answer: (a)

1609. Which one of following electronic sub-shells the lanthanides have in the process of filling?

a) 4f b) 5f c) 4d d) 5d

Hints: in lanthanides 4f is in the process of completion.

Answer: (a)

1610. If your body mass is 66.26 kg and you are running at the speed of10ms–1 what will be the De Broglie wave length associated with you?

(h = 6.626×1034js)

a)10.0×10–34m b)10.0×1034m

c)5.0×1034m d)2.0×1033m

Hints: $\lambda = \frac{h}{p} = \frac{h}{mv} = \frac{6.626x10-9}{6626x10}$ = 1x 10^{-36} m

Answer : (b)

1611. If X = {a, b, c, d} Y = {1,2,3,4}. Then which of the following is a bijective function from x toy?

a) {(a,1), (b,4), (c,2), (d,1)}

b) b) {(c,1), (d,4), (b,1),

c) (a,3)} c) {(d,3), (b,4), (a,2), (c,1)

d) {(b,2),(c,2), (a,3), (d,4)}

Hints: (I) Domain = {a, b, c, d,} (ii) Non repeated abscissa. (iii) Range ={1, 2, 3, 4,} (iv) Non repeated ordinate one-one and onto function.

Answer: (c)

1612. Nuclear fission occurs when a:

a)light nucleus is split by neutrons

b)light nucleus is split by alpha particles

c)heavy nucleus is split by alpha heavy particle

d)heavy nucleus is split by neutrons

Hints: $_0n^1$ + $_{92}$ U^{235} → Ba ^{141} + ^{36}kr ^{92} + 3on^1 + 200Mev

Answer: (d)

1613. $\frac{d}{dx}$ sech x = ?

(a)tan h x sech x (b) – tanh x sech x

(c) coshx (d) – cosh x

Hints: Use $\frac{d}{dx}$ sech x = $\frac{d}{dx}$ $(\frac{2}{ex+e-x})$
Answer: (b)

1614. Becquerel is the unit of:
(a) activity (b) decay constant
(c)half-life (d) mean life
Hints: Becquerel is equal to l dis/sec.
Answer: (a)

1615. The atoms A and B have the electronic configuration:
A = 1s2 2s2 2p6 3s2 B = 1s2 2s2 2p4
(a)AB (b) A2 B (c)AB2 (d) A2B2
Hints: A_2B. As A is monovalent while B is divalent.
Answer: (b)

1616. $\frac{d}{dx}$ $\sin^{-1}$ x = ?
a) $\frac{1}{\sqrt{1+x2}}$
b) $\frac{1}{\sqrt{x2-1}}$ $\forall$ x $\in$ R
c) $\frac{1}{\sqrt{1+x2}}$
d) $\frac{1}{\sqrt{1-x2}}$
Hints: (b)

1617. A photon is:
(a)a charged particle (b) an electron-positron pair
(c) a quantum of electromagnetic radiation
(d) neutron
Hints: photon is discrete packet of energy, also called quanta, plural quantum`s
Answer: (c)

1618. There are _____ fish in this pond.
(a)much (b) any (c) more (d) many
Hints: word "fish" is in need of suitable adjective. Fish is uncountable noun and "much" is the proper adjective to complete the sentence.
Answer: (a)

1619. Choose the correct statement:
(a)crystalline solids are usually anisotropic but liquid crystals are isotropic.
(b) crystalline solids are usually isotropic but liquid crystals are anisotropic.
(c) liquid crystals have both isotropic and 25anisotropic properties
(d) liquid crystals are devoid of isotropic and anisotropic properties.
Hints: liquid crystal have both the properties of liquid and solid.
Answer: (a)

1620. Straight lines represented by ax2+2hxy + by2 = 0 are perpendicular if:
(a) h2= ab (b) ab < h2 (c) h2<ab (d) a + b =0
Hints: a+ b=0 tan θ $= \frac{2\sqrt{h^2-ab}}{a+b} = \infty$, $\tan^{-1}$ $(\infty)= \frac{\pi}{2}$
Answer: (d)

1621. For a noninverting amplifier the gain is given by
a) G = 1+ $\frac{R1}{R2}$
b) G = $\frac{1+R1}{R2}$
c) G = $\frac{R1}{R2}$
d) G = -($\frac{R1}{R2}$ +1)
Answer: (a)

1622. Which is not used as desiccant?
(a) Silica gel (b) CaCl2 (c) P2O5 (d) Na Cl
Hints: pure Na Cl is not desiccant & doesn`t absorb moisture.
Answer: (d)

1623. Two or more vectors are said to be collinear if they are:
(a) intersecting the same line
(b) parallel to the same line
(c) perpendicular to the same line
(d) both a. and c.
Hints: they are collinear if their line of action is same.
Answer: (b)

1624. The total energy of a Hydrogen atom in its ground state is:
(a) zero (b) positive (c) negative (d) None
Hints: $E_n = \frac{-13.6ev}{n2}$ Hence negative.
Answer : (c)

1625. Atomicity is considered as the:
(a) number of atoms present in 1g of a substance.
(b) number of atoms present in a molecule
(c) number of neutrons present in an atom
(d) number of sub-atomic particle present in an atom.
Answer: (b)

1626. $\int e^{10x}$ dx =?
a) $\frac{e-10x}{-10}$
b) E^{10x}
c) $\frac{e-10x}{10}$ + c
d) $\frac{e-10x}{10}$
Answer: (c)

1627. Kirchoff's first law is based upon law of conservation of:
(a) charge (b) energy (c) mass (d) momentum
Hints: KCL → Law of conservation of charge
Answer: (a)

1628. She does not wash clothes on Friday:
Passive form of the sentence is:
(a) clohers are not being washed by her on Fridays.
(b) clothes are not washed by her on Fridays.
(c) Clothes were not wasfhed by her on Fridays.
(d) clothes were not being washed by her on Fridays
Hints: the tense of the sentence is present simple and use of "does" make it emphatic.
Answer: (b)

1629. In the periodic table period represents:
(a) The number of electron in the outer most

shell
(b) The metallic and nonmetallic characters of the elements
(c) The chemical properties of an element
(d) The number of the shells in an element
Hints: Groups correspond s, p, d, f, sub shell while periods correspounds shell.
Answer: (d)

1630. The asymptotes of the hyperbola are $\frac{x2}{a2} - \frac{y2}{b2} = 1$ are:
a) $x = \pm \frac{b}{a} y$
b) $y = \pm \frac{b}{a} x$
c) $y = \pm \frac{b}{a} x$
d) $x = \pm \frac{b}{a} y$
Hints: $\frac{x2}{a2} - \frac{y2}{b2} = 0$, we get $y = \pm x = \pm \frac{b}{a} x$
Answer: (c)

1631. Which of the following rays has the longest wavelength ?
(a) infrared rays (b) ultraviolet rays
(c) Gamma rays (d) x-rays
Hints: Order of increasing wavelength is gamma < x –rays < UV < IR < µwave < Radio IR has smallest frequency hence longest wavelength
Answer: (a)

1632. Which one is considered as fool‘s gold?
(a) copper metal (b) iron pyrites FeS2
(c) Copper glance Cu2s (d) None
Hints: Fe S_2 when mixed have shine like gold.
Answer: (b)

1633. $Tan^{-1}(\frac{5}{6}) + tan^{-1}(\frac{1}{11}) = ?$
a) $\frac{\pi}{3}$
b) $\frac{\pi}{4}$
c) $\frac{3\pi}{2}$
d) $\frac{\pi}{2}$
Hints: $tan^{-1}\frac{5}{6} + \frac{1}{11} = tan^{-1}(\frac{61}{66\frac{61}{66}}) = tan^{-1}(1) = \frac{\pi}{4}$
Answer: (b)

1634. The wavelength of a wave traveling with speed v‘ and having frequency *f* ‘ is
a) $\lambda = f/v$
b) $\lambda = f$
c) $\lambda = v/f$
d) $\lambda = f/v$
Answer: (c)

1635. Common salt is purified by common ion effect by passing HC l Gas through saturated solution of Na Cl in water. Why ordinary crystallization process from saturated solution is not recommended?
(a) common salt solubility remains constant with increase in temperature (b) common salt is less soluble
(c) common salt solubility in water increases with increase in temperature.
(d) common salt solubility decreases with increase in temperature.
Hints: Na CI $_{(s)} \rightarrow$ Na CI $_{(a\ q)} \rightarrow Na^{+}(a\ q)\ ^{+}$ CI – (a q) ΔH = 0 temperature has no effect on the solubility of Na CI
Answer: (a)

1636. The line y = mx + c , becomes tangent to the circle x2 + y2 = a2, If _____
a) C = a/m
b) C = m/a
c) $C = \pm a\sqrt{1 + m2}$
d) $C = \pm\sqrt{1 - m2}$
Hints: y= mx + c, $x^2 + y^2 = a^2$, putting value of y.
So, $c = a\sqrt{1 + m2}$
Answer: (c)

1637. Radioactive activity is affected by:
(a) temperature (b) pressure
(c) humidity level (d) None
Hints: Radioactivity is spontaneous disintegration of high atomic number nuclei & is independent of temperature, pressure etc.
Answer: (d)

1638. Do you go shopping often? Yes, ____
(a) I go shopping on Mondays
(b) I go shopping once a week
(c) I go shopping every days
(d) I go shopping at Super Market
Hints: the word “often” needs to be considered and focused. Often means occasionally.
Answer: (d)

1639. In an A.P if a1 = 4, a10 = 22 Then a15 = ?
(a) 30 (b) 32 (c) 33 (d) 56
Hints: a = 4,a + 9d = 22, 4 + 9d = 22, d = 2
a_{15} = a + 14d = 4+ 14 (2) = 32
Answer: (b)

1640. Which one of the following is scalar quantity
(a) Mass (b) acceleration
(c) Momentum (d) electric intensity
Hints: Mass does not require direction for description
Answer: (a)

1641. Out of the following which treatment is mostly used to kill the disease causing bacteria and other pathogens in water?
(a) Ozonation (b) UV irradiation
(c) chlorination (d) boiling
Hints: Chlorination is cheap process as compared to Ozonation.
Answer: (c)

1642. Which of the following is correct
(a) sum of the cube roots of unity is 0
(b) product of the cube roots of unity is 1
(c) each complex cube root of unity is reciprocal of the other (d) All of the above
Hints: $1 + \omega + \omega^2 = o$

Answer: (a)

1643. A car of mass 1000 kg first travels forwards at 25m/s2 and then backwards at 5m/s–1. what is the change in the kinetic energy of the car?
(a) 200kj (b) 300kj (c) 325kj (d) 450 k j
Hints: $\Delta KE = K_f - K_i = \frac{1}{2} m [V_f^2 - V_i^2] = -300kj$
Answer: (b)

1644. Choose the correct sentence of the following :
(a) I am much thankful to you.
(b) I am quite thankful to you
(c) I am just thankful to you
(d) I am very thankful to you
Hints: "very" is the correct degree of adjective which is used before word "thankful".
Answer: (d)

1645. Which of the following reagent will convert acetic acid into acetyl chloride?
(a) Na Cl (b) HC l/ZnCl2 (c) SOCl2 (d) Hg
Hints: $CH_3COOH + SOC_2 \rightarrow CH_3COCl + SO_2 + HC l$
Acetic acid Acetyl chloride
Answer: (b)

1646.

1647. The concept of complex numbers as a + I b was given by
(a) Gauss (b) Newton (c) Archimedes (d)Leibniz

Answer: (d)

1648. Teflon is prepared by the polymerization of
(a) butadiene (b) vinyl cyanide
(c) propylene (d) tetra fluoroethene
Hints: $n\ CF_2 = CF_2 \rightarrow \{- CF_2 - CF_2 -\}n$

Tetra fluoro ethane

1649. Which one is the correct formula for finding the speed v of ocean waves in terms of the density of seawater, the acceleration of free fall g, the depth h of the ocean and the wavelength λ?
a) $V = \sqrt{g2}$
b) $V = \sqrt{\frac{g}{h}}$
c) $V = \sqrt{pgh}$
d) $V = \sqrt{\frac{g}{p}}$
Hints: correct formula is the one in which dimension of RHS equal to that of LHS.
Answer: (a)

1650. The power loss P in resistor is calculated using the formula P = V2/R. The uncertainty in the potential difference V is 3% and the uncertainty in the resistance R is 2% what is the uncertainty in P?
(a) 4% (b) 7% (c) 8% (d) 11%
Hints: Uncertainty in power = 2 x 3%
Answer: (c)

1651. $(x^{-1})^{-1}$ =?
a) $\frac{1}{x}$
b) X
c) $-\frac{1}{x}$
d) – x
Hints: $(x^{-1})^{-1} = (x)^{-1} x^{-1} = x^1$
Answer: (b)

1652. Aspirin is produced by heating salicylic acid with:
(a) Phenol in the presence of Sulphuric acid.
(b) Dentoic anhydride in the presence of phosphoric acid
(c) Methyl alcohol in the presence of $H_2\ SO_4$
(d) Acetic anhydride in the presence of $H_2\ SO_4$
Hints: Acetic anhydride is used in preparing aspirin.
Answer: (d)

1653. For a given matrix A , If $|A| \neq 0$, Then $(A–1)t$ =
(a) (A t) –1 (b) (A–1) (c) (A–1) –1 (d) (At) –t
Hints: $A \neq 0$, then $(A^{-1})^{-1}$ (inverse and transpose are interchangeable)
Answer: (a)

1654. The measurement of physical quantity may be subject to random errors and to systematic errors. Which statement is correct?
(a) Random errors are always caused by the person taking the measurement.
(b) A systematic error cannot be reduced
(c) Random errors can be reduced by taking the average of several measurements
(d) A systematic error results in a different reading each time the measurement is taken
Answer: (c)

1655. Molecular orbitals are generally considered as:
(a) localized (b) de-localized (c) normalized(d) None
Hints: in molecular orbitals the electrons are localized between the nuclei.
Answer: (a)

1656. A narrow beam of monochromatic light is incident normally on a diffraction grating. Third order diffracted beams are formed at angles of 45oto the original direction. What is the highest order of diffracted beam produced by this grating?
(a) 3rd (b) 4th (c) 5th (d) 6^{th}
Hints: $d \sin\theta = m\lambda$ for 3^{nd} order diffraction $\sin 45^o = 3\lambda\ d = 3\sqrt{2}\ \lambda$ … (1) for highest order diffraction $\sin\theta = 1\ d = m\lambda$ … (2) comparing both we get m = 4
Answer: (a)

1657. _Hue and cry' means a:
(a) colorful cooking (b) shouting at the people

(c) Noisy public protest (d) Loud confused talking
Hints: the idiomatic expression means public protest.
Answer: (d)

1658. Select the correct name of the compound
(a) Naphthelene (b) Diphenyl
(c) Phenanthrene (d) Diphenyl methane
Hints: methane is attached with two benzene rings.
Answer: (d)

1659. What will be the remainder when x4 + 2x3 – 2x – 3, is divided by (x + 2)?
(a) – 7 (b) – 23 (c) – 1 (d) None
Hints: $p(x) = x^4 + 2x^2 - 2x-3$, x + 2 =0, x = -2
$p(-2) = (-2)^4 + 2(-2)^2 -2(-2) -3 = 25$
Answer: (d)

1660. Will you give me your bicycle? Passive form of the sentence is:
(a) Will your bicycle be given to me by you?
(b) Shall you be given to me by your bicycle?
(c) I shall be given your bicycle by you?
(d) Your bicycle will be given to me by you?
Hints: sentence is interrogative. tense: future simple
Answer: (a)

1661. container?
(a) The molecules of the gas collide continually with each other.
(b) The molecules of the gas collide in elastically with the walls of the container.
(c) The molecules of the gas collide continually with the walls of the container.
(d) The weight of the molecules exerts a force on the walls of the container.
Hints: Gas molecules collide with the walls of container and in this way they exert pressure
Answer: (b)

1662. The most reactive compound among the following is:
(a) Nitrobenzene (b) Toluene
(c) Benzoic acid (d) Benzene
Hints: CH_3 attach to benzene ring is a para directing group and it increases the reactivity of benzene ring.
Answer: (b)

1663. |Z1+ Z2| is: _____
(a) = |Z1|+ |Z2| (b) > |Z1|+ |Z2|
(c) = |Z1||Z2| (d) <|Z1| + |Z2|
Answer: (d)

1664. On a particular railway track a train driver applies the brakes of the train at a yellow signal, a distance of 1 km from red signal, where it stops. The maximum deceleration of the train is 0.2ms2Assuming uniform deceleration what is the maximum safe speed of the train at the yellow signal?
(a) 20 m s–1 (b) 40 m s–1 (c) 200 m s–1 (d) 400 m s–1
Hints: $2as = V f^2 - Vi^2 \rightarrow - 2x0.2x1000 = 0 - V i^2$
Answer: (a)

1665. Considering the addition of hydrogen acids to alkenes, what is the correct order of reactivity?
(a) HC l > HB r > HI (b) HI > HB r > HC l
(c) HB r > HI > HC l (d) HC l > HI > HB r
Hints: addition of halogen and alkene depends on the bond between hydrogen. Weaker the weaker greater will be the reactivity. H-1 bond is weaker than H-Br and H-Ci
Answer: (b)

1666. Consider the solubility of the following sparingly soluble salt in water.
Ag Cl(S)Ag+(aq) Cl–(aq)
KSP = KC [Ag Cl] = [Ag+] [Cl–] The precipitation of Ag Cl will occur if the product of ionic concentration is:
(a) equal to KSP (b) less than KSP
(c) More than KSP (d) Both a. & b.
Hints: If ionic product is greater than $K_s P$ then solution is super saturated.
Answer: (c)

1667. Equation of the parabola with vertex at (0,0) and directrix y + 2 = 0 is:
(a) y2 = 8x + 8y (b) x2 = – 8y
(c) y2 = 8x (d) x2 = 8y
Hints: with y = -2 & a = 2 e q of parabola $y^2 = 4(2)x = 8x$
Answer: (c)

1668. In a stationary wave, the distance between a consecutive node and an antinodes in equal to:
a) $\frac{\lambda}{2}$
b) $\frac{3\lambda}{4}$
c) λ
d) $\frac{\lambda}{4}$
Hints: Distance between two nodes or antinodes is $\frac{\lambda}{2}$
Distance between a node and next antinodes is $\frac{\lambda}{4}$ Answer: (d)

1669. He said to me, ―Why have you come late‖
Indirect form of the sentence is:
(a) He asked me why I came late.
(b) He asked me why I had come late.
(c) He asked me why I have come late.
(d) He told me as to why I had come late.
Hints: the reporting speech is in present perfect tense. Sentence is interrogative.
Answer: (b)

1670. Select the oxide which will be acidic in nature:
(a) P2O5 (b) Ca O (c) K2O (d) Ba O
Hints: $p_2O_5 + 3H_2O \rightarrow 2H_3 PO_4$ (phosphoric acid)
Answer: (a)

1671. If (x1,y1), (x2,y2), (x3,y3) be the vertices of

a triangle ABC then the area of the triangular region is____
(a) x1(y2 – y3) + x2(y2 – y1) + x3(y1 – y2)
(b) $\frac{1}{2}$ [x1 (y2 – y3) + x2(y3 – y1) + x3(y1 – y2)] 21
(c) $\frac{1}{2}$ [x1 (y2 + y3) + x1(y2 + y1) + x3(y1 + y3)] 21
(d) 2 [x1 (y2 – y3) + x1(y2 – y1) + x3(y1 – y3)]

Hints: Area of Δ ABC = $\frac{1}{2}\begin{matrix} x1 & y1 & 1 \\ x2 & y2 & 1 \\ x3 & y2 & 1 \end{matrix}$

Answer: (c)

1672. An alternating current of r.ms. value 20mA passes through a 4 KΩ resistor. What is the average power dissipated?
(a) 0.8 W (b) 1.6 W (c) 8×108 W (d) 1.6 × 10W
Hints: <P> = I^2rms R = $(20x10^{-3})^2$x4x 10^3= 1.6w
Answer: (b)

1673. The solution formation of two miscible liquids perfectly obey the Raoult's law if they satisfy the conditions:
(a) ΔH = 0, ΔV = 1 (b) ΔH = 1, ΔV = 0
(c) ΔH = 1, ΔV = 1 (d) ΔH = 0, ΔV = 0
Hints: ideal solutions obey raoult`s law in which no heat is evolved or absorbed, ΔH = 0, no change increase or decrease in volume will taken place ΔV= 0
Answer: (d)

1674. The eccentricity and foci of the ellipse 16x2 + 25y2 = 400 are:
a) $-\frac{3}{5}$, (0, ± 3)
b) $-\frac{4}{5}$, (0, ± 4)
c) 8x, (±3, 0)
d) $\frac{4}{5}$, (± 4,0)
Hints: $16x^2+ 25y^2 = 400 \rightarrow \frac{x2}{25} + \frac{y2}{16} = 1 \rightarrow a^2 = 25, b^2= 16, (ae)^2 = a^2= 25 – 16 = 9 \rightarrow e^2 = \frac{9}{25}$, $e = \frac{3}{5}$
Answer: (c)

1675. Which of the following statement is false about the acetic acid?
(a) Acetic acid is stronger acid than monochloro-acetic acid.
(b) Acetic acid is weaker acid than trichloro-acetic acid
(c) acetic acid is weaker acid than formic acid
(d) Acetic acid is weaker acid than hydrochloric acid
Hints: monochloro acetic acid is stronger acid than acetic acid due to the presence of e^- attracting group i.e. Chlorine
Answer: (a)

1676. The x + I y form of (1 – 3i)–1 is:
a) $\frac{1}{10} + \frac{3i}{10}$
b) $-\frac{1}{10} - \frac{3i}{10}$
c) $\frac{1}{5} - \frac{3i}{5}$
d) $\frac{1}{10} + \frac{3i}{10}$
Hints: x + I y form of $(1-3i)^{-1}$ is $\frac{1}{(1-3i)} = \frac{1}{(1-3i)} \text{ x } \frac{(1+3i)}{(1+3i)} = \frac{(1+3i)}{(1)2-(3i)2} = \frac{1+3i}{1+9} = \frac{1}{10} + \frac{3i}{10}$
Answer: (a)

1677. What is the ratio 1Gm/1μm?
(a)10–3 (b) 10–7 (c) 10–18 (d) 1015
Hints: l G m /1μm = 10^9m/10^{-6}m = 10^{15}
Answer: (d)

1678. Which metal's presence in fish was responsible for the Minimata disease in Japan?
a) Lead (b) Copper (c) Mercury (d) Cadmium
Hints: Mercury is poisonous.
Answer: (c)

1679. {1 . w. w2} is a group under:
(a) Division (÷) (b) Multiplication (×)
(c) Subtraction (–) (d) Addition (+)
Answer: (b)

1680. Which physical quantity would result from a calculation in which a potential difference is multiplied by an electric charge?
(a) electric current (b) electric field strength
(c) electric power (d) electric energy
Hints: Electric P.E = PD x charge
Answer: (d)

1681. Meta formaldehyde is a trimer of:
(a) ethanol (b) ethanol (c) Methanol (d) methanol
Hints:
3H – C – H (methanol) → meta formaldehyde
Answer: (c)

1682. Order of a matrix A is p × q , order of matrix B = q × r, Then the order of matrix C = A×B will be____
(a) p × r (b) p × q (c) q × r (d) r × p
Answer: (a)

1683. In the expressions below _a' is acceleration _F' is force _m' is mass, _t' is time and _v' is velocity. Which expression represents energy?
(a) Ft (b) F v t (c) 2mv (d) at2 / 2
Hints: E = power x time = F v t
Answer: (c)

1684. Choose the correct sentence out of the following:
(a) every one of the two students got a prize.
(b) any one of the two students got a prize.
(c) each of the two students got a prize.
(d) each one of the two students got a prize.
Hints: the correct "Distributive" pronoun is required. For two persons "Each" is the appropriate word.
Answer: (c)

1685. The order of chemical reaction can be

measure by:
(a) Half- life method (b) differential method
(c) Ostwald method (d) all of these
Answer: (d)

1686. If A and B are mutually exclusive events then:
65
(a) P(A □□B) = P(A) + P(B) – P(A∩B)
(b) P(A□□B) = P(A) + P(B)
(c) P(A □□B) = P(A) □□P(B)
(d) P(A□□B) = P(A) ∩ P(B)
Hints: P(AUB) = P(B) – p(A∩B) As (A∩B = Ø)
Answer: (b)

1687. Which of the following series lie in the visible region?
(a) Balmer (b) Lyman (c) Paschen (d) Pfund
Hints: layman series lie in UV region of electromagnetic spectrum. Balmer series in visible region while paschen, bracket and pfund in IR region
Answer: (a)

1688. If half- life of a certain chemical reaction is denoted by the relationship given bellow: Where
T0.$^{5}\frac{1}{ka-1}$ ais initial concentration what will be the order of the reaction?
(a) first order kinetics (b) second order kinetics
(c) third order kinetics (d) fractional order kinetics
Hints: expression for half-like is $t_{0.5} = \frac{1}{kan-1}$ n = order of reaction, may be 0, 1, 2, 3, or 5 for 2nd order reaction, Half-like is inversely proportional to initial concentration of reactants.
Answer: (b)

1689. $f\frac{1}{x}$ dx=?
(a) logekx + c (b) logrx + c (c) $\frac{x2}{2}$ +c (d) $\frac{e2x}{2}$ +c
Answer: (b)

1690. The binding energy per-nucleon is greater for:
(a) lighter nuclei (b) heavy nuclei
(c) intermediate nuclei (d) None
Hints: intermediate nuclei are most stable.
Answer: (d)

1691. The standard molar enthalpy of formation is denoted by:
(a) ΔH (b) ΔH0 (c) ΔH0273 (d) ΔH0298
Hints: standard molar enthalpy of formation is measured at 25^0 C or K ,l a tm pressure.
Answer: (d)

1692. The acute angle formed by two non-perpendicular intersecting lines is given by:
a) Tan θ $\frac{m2-m1}{1+,m2\ m1}$
b) Tan θ $\frac{m1+m2}{1+,m2\ m1}$
c) Tan θ $\frac{m2+m1}{1+,m2\ m1}$
d) Tan θ $\frac{1+m2+m1}{,m2-m1}$
Answer: (a)

1693. When a wave comes across an obstacle, it bands ground the obstacle. This phenomenon of bending around of a wave is called:
(a) polarization (b) interference
(c) reflection (d) diffraction
Hints: By definition
Answer: (d)

1694. Choose the correct statement about Born Haber cycle:
(a) Born Haber cycle is a process for a applying Hess‘s law to the standard enthalpy changes in the formation of covalent compounds.
(b) Born Haber cycle is a process for applying Hess‘s law to the standard enthalpy changes in the formation of ionic compound.
(c) Born Haber cycle is a process for applying Hess‘s Law to the standard enthalpy changes in the formation of ionic and covalent compounds.
(d) None
Hints: broth Haber cycle is the application of Hess`s law, through which we can determine the lattice energy of an ionic compound.
Answer: (b)

1695. $\frac{d}{dx}$ (x) is:
a) $\frac{x}{x2}$
b) $\frac{x2}{x}$
c) $\frac{x}{x}$
d) $\frac{x}{x}$
Answer: (d)

1696. Longitudinal waves cannot be:
(a) Diffracted (b) polarized
(c) interfered (d) refracted
Hints: polarization is the property of transverse waves : longitudinal waves cannot be polarized
Answer: (b)

1697. If we leave this minute _____
(a) I‘m sure we‘ll make it (b) I‘m sure we‘ll take it
(c) I‘m sure we‘ll get it (d) I‘m sure we‘ll turn it
Hints: this is the completion of a conditional structure. The “if” clause is in present tense and thus result clause must be in future simple.
Answer: (a)

1698. I insist _____ the withdrawal of your statement.
(a) for (b) at (c) in (d) on
Hints: the correct preposition is required. after the word insist preposition “on” is used
Answer: (d)

1699. The rote law for the reaction A→ C + k is given as: Rate = K[A] the unit of K will be:
(a) mole–1 dm3 s–1 (b) mole1 d m–3 s–1
(c) s–1 (d) mole–1 d m
Hints: As rate = $\frac{dx}{dt} = \frac{moles}{dm3sec}$, for equation rate = K[A] K = $\frac{rate}{[A]}$ = sec^{-1}
Answer: (c)

1700. If $\underset{a}{\rightarrow}$ and $\underset{b}{\rightarrow}$ are non-collinear vectors then P +q=0 implies: a b a b
(a) p ≠ 0 , q ≠ 0 (b) p = q = 0
(c) p ≠ 0, q = 0 (d) P = 0, q ≠ 0
Answer: (b)

1701. If the length of a simple pendulum is halved and mass is doubled then its time period.
(a) increases by (b) remains constant $\sqrt{2}$
(c) cannot be predicted (d) decreases by $\sqrt{2}$
Hints: T = 2π $\sqrt{\frac{l}{\frac{2}{8}}}$ now length is halved:
T = $2\pi \sqrt{\frac{\frac{l}{2}}{g}} = \sqrt{\frac{l}{2g}} = \frac{1}{\sqrt{2}} (2\pi \sqrt{\frac{l}{g}}) = \frac{T}{\sqrt{2}}$
Answer: (d)

1702. The maximum kinetic energy of photoelectrons emitted depends upon:
(a) frequency of incident light
(b) intensity of incident light.
(c) temperature of the metal surface
(d) None of the above
Hints: Einstein equation of photoelectric effect KE $_{max}$ = h f - Ø hence the maximum K.E depends on freq. of incident light.
Answer: (a)

1703. How many hydrogen atoms are present in one mole of water?
(a) 6.02×1023 atoms (b) 1.806×1074 atoms
(c) 1.204×1024 atoms (d) 3.01×1023 atoms
Hints: l mole of H_2O = 2 moles of H atom. Of H atom will be twice the number of water molecules
:60x 10^{23}molecule = 2x6.022 x 10^{23} = 1.204x10^{24} atoms
Answer: (c)

1704. Lim $\frac{x}{x\to\infty\ logax}$ =?
(a) 0 (b) 2 (c) 3 (d) ∞
Answer: (d)

1705. A wire loop is placed in a magnetic field. The magnetic flux passing through the loop is minimum when the angle between the field lines and the normal to the surface area of the wire loop is:
(a) 00 (b) 45o (c) 90o (d) 270o
Hints: Ø = BA cos φ, φ is angle b/w direction of $\underset{B}{\rightarrow}$ and not normal to the loop.
Answer: (c)

1706. Be poles apart‘ means:
(a) either of the two poles
(b) have nothing in common
(c) leading position in a race
(d) affect somebody greatly
Hints: being entirely opposite or different form each other.
Answer: (b)

1707. Choose the correct geometry of the coordination compound [Ni(CN)4]–2
(a) square planer (b) tetrahedral
(c) trigonal bipyramidal (d) octahedral
Hints: in [NI(Cn)$_4$]$^{2-}$ hybridization is dsp^2, so the geometry is square planar.
Answer: (a)

1708. Period of $\frac{1}{2}$ tan 3x is:
a) $\frac{\pi}{6}$
b) $\frac{\pi}{3}$
c) $\frac{\pi}{4}$
d) $\frac{\pi}{7}$
Hints: $\frac{priod\ of \tan\theta}{coefficient\ of\ x} = \frac{\pi}{3}$
Answer: (a)

1709. The number of electrons in one coulomb of charge is:
(a) 6.25×1018 (b) 6.25×1013 (c) 1.6×1018 (d) 9.1×1031
Hints: l e = l.6x10-^{19} C: l C = $\frac{1}{1.6022x10-19}$ = 6.25x10^{18}e
Answer: (a)

1710. Select an element which exists in liquid state at room temperature.
(a) d1 (b) F2 (c) Br2 (d) I2
Hints: Cl_2 & F_2 are gases, Br_2 is liquid and I_2 is solid.
Answer: (c)

1711. Which of the following is a conditional equation?
(a) (x + 2)3 = x3 + 6x2 +12x + 8
(b) (x – 5)2 = x2 – 10x +25
(c) Sin2□□= 1 – Cos2□
(d) x – 1 = 5
Hints: condition is x = 6
Answer. (d)

1712. Which of the following is the most elastic one?
(a) rubber (b) wood
(c) sponge (d) steel
Hints: Elasticity = $\frac{stress}{strain}$, which is least for steel for the give stress.
Answer: (d)

1713. If Kc of a certain reaction is large it indicates that at equilibrium:
(a) The reactants concentration will be high
(b) the products concentration will be low
(c) the products concentration will be high
(d) the reactants and products concentration will be equal
Hints: K_c $\frac{product}{reactant}$ greater K_c means greater product.
Answer: (c)

1714. Conic is a parabola if:
(a) e = 1 (b) e = $1\frac{1}{2}$ (c) c = $\frac{3}{2}$ (d) c = 2
Answer: (a)

1715. If component of a vector is 3N and y component is 3N then the angle made by the resultant vector with the x-axis is:
(a) 450 (b) 3150 (c) 1350 (d) 2250
Hints: Direction of vector $\varphi = \tan^{-1}\frac{fy}{fx} = \tan^{-1}$ (l) = 45^{o}
Answer: (a)

1716. A cylindrical wire 4.0m long has a resistance of 31Ω and is made of metal of resistivity 1.0×104Ωm. What is the radius of cross section of the wire ?
(a) 1.0×10– 4 m (b)2.0×1021 m
(c) 6.4×108 m (d) 2.0×10– 4 m
Hints: $R = \frac{pl}{\pi r2} \rightarrow r = \sqrt{\frac{pl}{\pi R}}\sqrt{\frac{1x10-6x4}{3.14x31}} =$ $2.0x10^{-4}$ m
Answer: (d)

1717. Dilute H2SO4 and not HNO3 is used to prepare H2S form Fe S because
(a) HNO3 acts as an oxidizing agent and oxidites H2S to SO2
(b) HNO3 acid is weaker acid than H2SO4
(c) H2SO4 is more reactive than HNO3
(d) H2SO4 is environmental friendly as compared to HNO3
Hints: H_2SO_4 is an oxidizing agent & fuming acid.
Answer: (a)

1718. Period of sin is
a) $\frac{\pi}{2}$
b) 2π
c) π
d) $\frac{3\pi}{2}$
Answer: (b)

1719. A total charge of 100 C flows through a 2W light bulb in a time of 50s. What is the potential difference across the bulb during the time?
(a) 0.12 V (b) 2.0 V (c) 6.0 V (d) 24V
Hints: $p = IV = \frac{qV}{T} \rightarrow V = \frac{pt}{q}$ 2x 50/50 = 2 volt
Answer: (b)

1720. 3Ca (PO4)2. CaF2 is the formula of:
(a) chlorapatitie (b) fluorapatite
(c) phosphorite (d) None of these
Hints: $Ca_3 (PO_4)_3 F_2$ is called Fluorapatite.
Answer: (b)

1721. Let *a* and *b* be any two vectors and □□be the angle
between them then |b| cos□□is protection of:
(a) *b* in the direction of *a* (b) *a* in the direction of *b*
(c) *b* in the direction of x-axis (d) *a* in the direction of yaxis
Hints: projection of $\underset{b}{\rightarrow}$ in the direction of $\underset{a}{\rightarrow}$ = A= b cos θ
Answer: (a)

1722. What is the ultimate tensile stress of a material?
(a) the stress at which the material becomes ductile
(b) the stress at which the material deforms plastically
(c) the stress at which the material reaches its elastic limit
(d) the stress at which the material breaks
Hints: By definition
Answer: (d)

1723. _Frown on somebody' means to:
(a) Fall flate upon a stranger
(b) Stay alive working hard
(c) Disapprove of somebody
(d) Unable to be successful
Hints: the idiomatic expression means to disapprove of some body.
Answer: (c)

1724. Cobalt metal generally forms colored compounds. The color is due to:
(a) d. d electronic transition which falls in the visible range
(b) p. p electronic transition which falls in the visible range
(c) d. v electronic transition which falls in the visible range.
(d) d. p electron transition which falls in the visible range
Hints: cobalt is d-block element. Color of transition metals is due to d- d transition of electrons.
Answer: (a)

1725. The catalyst used in Friedel-craft reaction
(a) Lewis base (b) Lewis acid
(c) amphoenc compounds (d) none of these
Hints: craft reaction undergo by electrophile substitution reaction and if involved generation of electrophilic so the generation of electrophile will take place by those specie which are electron pair acceptor (lews and) e.g. $AlCl_3$
Answer: (b)

1726. ax2 + b x + C = 0 will NOT be a quadratic equation if:
(a) b ≠ 0, c = 0 (b) a ≠ 0, b = 0 (c) a = 0 (d) b = 0\
Hints: because is a = 0, the equation becomes linear
Answer:

1727. The acceleration of free fall on a planet P is 1/6th of the acceleration of free fall on earth. The mass of a body on planet P is 30kg. what is its weight on planet?
(a) 4.9 N (b) 100N (c) 290 N (d) 49N
Hints: w= mg/6 = 30x9.8/6 = 49N
Answer: (d)

1728. What will happen if a small piece of sodium metal is dropped into ethanol in a test tube?
(a) No reaction will take place
(b) reaction will take place with the evolution of hydrogen gas.
(c) reaction will take place with the evolution of oxygen gas
(d) reaction will take place and only sodium ethoxide will be formed with no evolution of any gas
Hints: $2C_2\ H_5OH + 2Na \rightarrow 2C_2H_5OHa + H_2$
Answer: (b)

1729. The general term Tr+1 in (a + b)n is:
a) $(\frac{n}{r})\ a^{n-r-1}\ b^r$
b) $(\frac{n}{r})\ a^{n-r}$
c) $(\frac{n}{r})\ a^{n-r-1}\ b^r$
d) $(\frac{n}{r})\ a^{n-r-1}\ b^r$
Answer: (c)

1730. Which is a statement of the principle of conservation of momentum?
(a) momentum is the product of mass and velocity (b) momentum is conserved only in elastic collision (c) momentum is conserved by all bodies in a collision (d) momentum is conserved providing no external forces act
Hints: By definition
Answer: (d)

1731. $\frac{d}{dx}$ Cos x =
(a) Sin x (b) Sec h x
(c) – Sin h (d) Tan h x
Answer: (a)

1732. A uniform meter rod of mass 50 grams balance at distance of 20 cm from one end. The man at the other end is:
(a) 50 gm (b) 25 gm (c) 75 gm (d) 100 gm
Hints: 2nd condition of equilibrium: 20x W` = 30xWW` = 30x50 /20 = 75g → mg = 75g, m = 75g.
Answer: (c)

1733. If $\frac{an+1+bn+1}{an+bn}$ be an A.M between a and b then n?
a) -2 (b)0 (c) 1 (d) –1
Answer: (b)

1734. $\frac{1}{18}\frac{1}{14}\frac{1}{10}\frac{1}{6}$ …….. is _____
(a) Geometric sequence (b) Arithmetic sequence (c) Asymptotic sequence (d) Harmonic sequence
Hints: Harmonic sequence reciprocal of A.P
Answer: (d)

1735. Two wires P and Q have resistances Re and Rn respectively. Wire P is twice as long as wire Q and has twice the diameter of wire Q. the wire are made of the same material. What is the ratio Re / RQ ?
(a) 0.5 (b) 1 (c) 2 (d) 4
Hints: $R_p = \frac{4plp}{\pi d2p} =$, $R_Q = \frac{4plQ}{\pi d2Q}$ After conditions $R_p = \frac{4p(2lp)}{\pi(2dQ)2} = \frac{1}{2}(R_Q) \rightarrow \frac{RP}{RQ} = \frac{1}{2} =$ 0.5
Answer: (a)

1736. Dimethyl ether and ethanol is an example of:
(a) chain isomerism (b) position isomerism
(c) metamerism (d) functional group isomerism
Hints: CH_3-O-CH_3 Dimethyl ether
CH_3- CH_2- OH
Answer: d)

1737. If A (x1,y1), B(x2,y2), C(x3,y3) are the vertices of a triangle ABC and a, b, c be the lengths of its side then $(\frac{ax1+bx2+cx3}{a+b+c}, \frac{ay1+by2+cy3}{a+b+c}$
(a) ortho-center (b) centroid
(c) In-centre (d) circum-centre\
Answer: (c)

1738. How is it possible to distinguish between the isotopes of uranium.
(a) their nuclei have different charge and different mass, and they emit different particles when they decay.
(b) their nuclei have the same charge but different mass
(c) their nuclei have different charge but the same mass
(d) Their nuclei have the same charge and mass, but they emit different particle, when they decay.
Hints: isotopes are the nuclei of same element having same atomic no. (same charge) but different mass no. (different masses)
Answer: (b)

1739. If A, G and H be respectively the A.M , G.M and H.M between a and b, then which of the following relation is correct?
(a) G1 = AH (b) G > A > H
(c) H > A > G (d) A < G < H
Answer: (a)

1740. Octane number one hundred is given to compound:
(a) 2,2,4-Trimethylpentane (b) n-heptane
(c) n-octane (d) iso heptane
Hints: octane No for 2, 2, 4 trimethyl pentane is 100
Answer: (b)

1741. A zirconium nucleus, $^{100}Zr_{40}$ is a β-decay charge number increases by 2.
Answer: (b)

1742. They should have arrived by now_____ I wonder:
(a) what has kept them (b) what has got them
(c) what has held them (d) what has done them
Hints: the sentence is to be completed with and appropriate expression of wonder.
Answer: (a)

1743. A student measures a current as 0.5A. Which of the following correctly expresses this

result?
(a) 50mA (b) 50MA (c) 500MA (d) 500 mA
Hints: 05.A = $\frac{0.5x1000}{1000}$ = 500mA.
Answer: (d)

1744. Nylon-6, 6 is obtained from:
(a) adipic acid and hexamthylene diame
(b) tetrafluoroethylene
(c) vinyl cyanide (d) vinyl benzene
Answer: (a)

1745. i48 =
(a) i (b) –i (c) –1 (d) 1
Hints: - i^{48} = -$(i^2)^{24}$ = - $(-1)^{24}$ = - (1) = - 1
Answer: (c)

1746. He said to me, — what a stupid fellow you are‖ Indirect form of the sentence is:
(a) he told me that you were a stupid fellow.
(b) He exclaimed that I was a very stupid fellow.
(c) he exclaimed that what stupid fellow I was.
(d) he did tell me that I had been stupid fellow
Hints: reporting speech is in past tense and reported speech is present simple. Sentence is exclamatory.
Answer: (d)

1747. Which one of the following is thermosetting polymer?
(a) nylon-6, 6 (b) Poly ethylene
(c) Bakelite (d) Teflon
Hints: thermosetting plastic is that polymer which becomes hard on heating and softness cannot be gained. E. g. Teflon.
Answer: (d)

1748. Factors of x2 + 9 are:
(a) (x + 3) (x – 3) (b) (x + 3i) (x – 3i)
(c) (x – 3) (x – 3) (d) (x + 3i) (x + 3i)
Answer: (b)

1749. The quantity x is to be determined form the equation x = P – Q.P is measured as (1.27 + 0.02)m and Q is measured as (0.03 + 0.01)m. what is the percentage uncertainty in x to one significant figure?
(a) 4% (b) 2% (c) 3% (d) 7%
Hints: x= p – Q = (1.27 $\pm$ 0.02) – (0.83 $\pm$ 0.01) = (0.4 $\pm$ 0.03) m fractional uncertainty in x = $\frac{0.03}{0.04^-}$ = 0.07 = 7%
Answer: (d)

1750. Which one of the following polymers contains nitrogen?
(a) PVC (b) Teflon (c) Nylon (d) polypropylene
Hints: in nylon 1 monomer is hexamethylene dimine.
Answer: (c)

1751. Power of the highest derivative appearing in an equation is called its:
(a) Degree (b) order (c) power (d) index
Answer (b)

1752. Which force is caused by a pressure difference:
(a) Friction (b) viscous force
(c) up thrust (d) weight
Hints: By definition
Answer: (c)

1753. Acetaldehyde on treatment with Fehling's solution forms red precipitate. The color is due to the formation of:
(a) sivler nitrate (b) silver
(c) CuO (d) Cu2O
Hints: acetaldehyde + Fehling sol → Su_2O (red p p t)
Answer: (d)

1754. A sequence is a function whose domain is:
(a) N (b) R (c) W (d) Q
Answer: (a)

1755. The symbol _g' represents the acceleration of free fall. Which of these statements is correct?
(a) g is gravity (b) g is the ratio weight /mass
(c) g is the weight of an object
(d) g is reduced by air resistance
Hints: weight = mass x acceleration of freefall g = weight/mass
Answer: (b)

1756. —His bad friends will ruin him‖ Passive form of the sentence is:
(a) he will ruin his bad friends
(b) he is ruined by his bad friend
(c) he will be ruined by his bad friends
(d) he is being ruined by his bad friends
Hints: here the voice from active into passive is to be changed. The sentence is future simple tense.
Answer: (c)

1757. When formaldehyde is treated with 50% sodium hydroxide solution, it undergoes.
(a) cannizzaro's reaction (b) aldol condensation (c) Wurtz reaction (d) hydrolysis
Hints: only formaldehyde is treated gives cannizzaro reaction.
Answer: (a)

1758. If a, G1,G2,G3,…..Gn , b is a G.P then Gn =
a) $\frac{an}{bn-1}$
b) B$(\frac{a}{b})$ $\frac{n}{n+1}$
c) $(\frac{b}{a})\frac{n}{n+1}$
d) a $(\frac{b}{a})\frac{n}{n+1}$
Answer: (d)

1759. Choose the correct order of decreasing basic strength.
(a) MgO >Na2O >P4O10>Al1O3
(b) Na2O >MgO >Al1O3>P4O10
(c) P4O10>Na2O > MgO >Al1O3
(d) Al1O3>MgO > P4O10> Na2O
Hints: if we move across the period the basicity of oxides are decreased. So Na → 1st group members, mg → 2nd group members, al → 3rd group members, p → 5th group

members
Answer: (b)

1760. Select the statement which is NOT true about carbonyl group?
(a) The three atoms attached to the carboxyl carbon are not in the same plane.
(b) The carbon is carbonyl group is SP2 hybridized.
(c) The bond angles around carbon attached to three atoms are approximately 120.
(d) The carbonyl group forms resonating structure
Hints: all three atoms attached to carbon lie in same plane. Bond angles are a20₀ thus is is planar.
Answer: (a)

1761. Which statement is NOT true about benzene?
(a) Benzene is a planer molecule with bond angles 120o (b) It is completely miscible with water
(c) It can be converted into a cyclohexane by hydrogenation (d) It can be converted into ethyl a benzene when reacted with ethyl chloride and AlCl3
Hints:

1762. What is plastic deformation/
a) Plastic deformation occurs if, when the load is removed, the material contracts but a permanent stretching has occurred.
b) Plastic deformation occurs until the extension is no longer propos train is directly proportional to the length
c) Plastic deformation occurs when strain is directly proportional to stress but when the load is removed the material returns to its normal length
d) the material extends so that strain is directly proportional to stress.
Hints: By definition
Answer: (a)

1763. $Ax + \frac{b2}{x} = c^2$ is:
(a) an equation of power 5 (b) a linear equation
(c) a cubic equation (d) a quadratic equation
Answer: (a)

1764. What is the relationship between the intensity and the amplitude of a wave?
(a) $\frac{1}{a}$ =constant (b) Is^2 = constant
(c) $\frac{1}{a2}$ = constant (d) 1 a =constant
Hints: $1 \propto a^2 \rightarrow \frac{1}{a2}$ = costant
Answer: (c)

1765. Select the suitable product when ethylene oxide react with hydrogen bromide:
(a) 1-Bromethanol (b) Ethyl bromide
(c) 2-Bromo ethanol (d) Ethylene glycol
Hints: ethylene oxide + HB r → 2 bromo ethanol
Answer: (c)

1766. Which of the following is correct?
(a) Right bisectors of a triangle are concurrent
(b) Medians of a triangle are concurrent
(c) Altitudes of a triangle are concurrent
(d) All of the above
Answer: (d)

1767. The following particles are each accelerated from rest through the same potential difference. Which one completes the acceleration with the greater momentum?
(a) - particle (b) electron
(c) Neutron (d) proton
Hints: momentum of a-particle $\sqrt{2mk}$ m and k of a-particle is greatest among all of the given particles.
Answer: (a)

1768. Select the compound that will not be easily oxidized:
(a) CH3CH2OH (b) (CH3)3COH
(c) CH3OH (d) (CH3)2CHOH
Hints: tertiary alcohol is more stable to oxidation
Answer: (c)

1769. If A = {0} then the number of elements in the power set of A =
(a) 0 (b) 1 (c) 2 (d) 3
Hints: the appropriate time expression is needed in this question. Last night refers to period of time and "since" is the correct option.
Answer: (c)

1770. It has been raining continuously ____ last night.
(a) Since (b) For (c) From (d) With
Hints: a = {O} , P(a) = {Ø, {O} }
Answer: (a)

1771. Two heating coils X and Y of resistance Rx and Ry respectively deliver the same power when 12V is applied across x and 6V is applied across y. what is the ration of Rx/Ry=?
(a) ¼ (b) 6 (c) 2 (d) 4
Hints: px =$\frac{144}{Rx}$ & pr = $\frac{36}{Rx}$ now $\frac{144}{Rx} = \frac{36}{Ry} \rightarrow \frac{rx}{Ry}$ = 4
Answer: (d)

1772. The acid catalyzed dehydration mechanism of alcohols is best described by:
(a) SN1 (b) SN2 (c) E1 (d) E2
Hints: CH_3- CH_2 - CH_2 _ OH $\xrightarrow{H2SO4}$ CH_3 – CH = CH_2 + H_2O This reaction is an elimination reaction and one step reaction so, E_2 mechanism.
Answer: (d)

1773. Molecular formula of silica is:
(a) SiO4 (b) SiO3 (c) SiO2 (d) Na2SiO3
Answer: (c)

1774. Let V1 and V2 be two vectors, If where is scalar, then V1 and V2are called:
(a) equal (b) parallel (c) perpendicular (d)

coincident
Hints: $v_2 = 2v_1$ Their direction is same and magnitude is different so they are parallel.
Answer: (b)

1775. The electric field at a certain distance from an isolated alpha particle is 3.0×107 N C–1. What is the force on an electron when at that distance from the alpha particle?
(a) 4.8×10–12 N (b) 2.6×1012 N
(c) 3.0×107N (d) 6.0×107 N
Hints: F = q E = $1.6x10^{-19}$ x $3x\ 10^{7}$ = $4.8x10^{-12}$ N
Answer: (a)

1776. Markownikoff`s rule is NOT applicable when HBr is added to:
(a) 3-pentene (b) 2-Butene (c) 1-Butene (d) Propene
Hints: Markownikoff `s Rule is applicable for unsymmetrical alkene only.
CH_3- CH =CH- CH_3 2- butane is symmetrical
Answer: (b)

1777. The associated angle of $\frac{8\pi}{3}$ i:
a) $\frac{\pi}{2}$
b) $\frac{\pi}{1}$
c) $\frac{2\pi}{3}$
d) $\frac{4\pi}{5}$
Hints: Associated angles are acute angles whose terminal ray is same to given angle.
Answer: (c)

1778. Light of wavelength 700nm is incident on pair of slits forming fringes 3.0mm apart on a screen. What is the fringe spacing when light of wavelength 350 nm is used and the slit separation is doubled?
(a) 0.75mm (b) 1.5mm (c) 3.0 mm (d) 6.0 mm
Hints: Fringe spacing = $\frac{\lambda D}{d}$ = 3mm After conditions fringe spacing = 0.75 mm
Answer: (a)

1779. He said, “may this child live long!”
Indirect form of the sentence is :
(a) He prayed that that child may live long.
(b) He prayed that child will live long.
(c) He said that that child might live long.
(d) He prayed that that child might live long.
Hints: the reported speech is in present simple and is expressing wish/desire.
Answer: (d)

1780. AlCl3 generally behaves as:
(a) Lewis acid (b) Bronstead base
(c) Bronstead acid (d) Lewis base
Hints: $H_3N + Al\ Cl_3 \rightarrow [H_3N \rightarrow AlCl_3]$
As $Al\ Cl_3$ accepts pair of electrons it`s a Lewis acid.
$Al\ Cl_3$ is e^- deficient.
Answer: (a)

1781. A coin is flipped thrice. The number of sample points in the sample space is:
(a) 3 (b) 6 (c) 8 (d) 9
Hints: 2^3 = 2x2x2 =8
Answer: (c)

1782. The radius R of the circumcircle is:
a) $\frac{a}{2sina}$
b) $\frac{b}{2sin\beta}$
c) $\frac{abc}{4\Delta}$
d) All
Answer: (c)

1783. Several resistor are connected in parallel the resistance of their equivalent resistor will:
(a) increases (b) decreases (c) not change (d) None
Hints: in parallel combination of resistors, equivalent is smaller than the smallest in combination.
Answer: (b)

1784. What the required conditions for the following reaction? CH4+ Cl2 → CH3Cl + CH3Cl2 + CHCl3 +CCl4 +HC l
(a) Low temperature (b) Al3O2 catalyst 400 o C
(c) ZnCl2 250 o C (d) UV light
Hints: Halogenation of alkene is favored by UV light.
Answer: (d)

1785. $\frac{cos75o+cos15o}{sin75o-cos15o}$ = ?
a) $\sqrt{3}$
b) $\sqrt{\frac{3}{2}}$
c) $\frac{1}{2}$
d) $\frac{1}{\sqrt{2}}$
Hints: $\frac{2cos\left(\frac{75-15}{2}\right)+cos\left(\frac{75-15}{2}\right)}{2cos\left(\frac{75+15}{2}\right)sin\left(\frac{75-15}{2}\right)}$ = cot 30^o = $\sqrt{3}$
Answer: (a)

1786. A wave incident in a rare medium, when reflected from a denser medium will have a phase change of:
(a) 90o (b) 0o (c) 180o (d) 360o
Hints: Its crest reflect as trough and trough reflects as crest hence it undergoes a phase change of 180^o
Answer: (c)

1787. The conversion of ethyne to acetaldehyde is carried out:
(a) NI 250 o C (b) HgSO4 Fe2O3 80 o C
(c) Al2O2 Fe2O3 150 o C (d) P d, 70 o C
Hints: $HC \equiv CH + H_2O \xrightarrow{HgSO4+H2SO4}$ acetaldehyde Answer: (b)

1788. The apparent weight of a man in a an elevator moving up with acceleration _a‘ is:
(a) mg (b) mg – ma (c) mg + ma (d) ma
Hints: Apparent weight = w` = w + ma = mg + ma
Answer: (c)

1789. The line y = mx + c is tangent to the ellipse

$\frac{x2}{a2} + \frac{y2}{b2}$ = l, If
a) C = $\pm\sqrt{a2ma + b2}$
b) C = $\pm\sqrt{a2ma - b2}$
c) C = $\pm\sqrt{1 + m2}$
d) C = $\pm\sqrt{a2 + b2m2}$
Answer: (b)

1790. Your friend proved more sympathetic than expected he do.
(a) will (b) Shall (c) should (d) would
Hints: here the target is the suitable modal auxiliary.
Answer: (d)

1791. The sum of binomial coefficients in (1 + x)n is:
(a) 2n+1 (b) 2n (c) 2–n (d) 2n–1
Hints: $(1+2)^n = (1 + 1)^n$ + put x =1 → 2^n
Answer: (b)

1792. A projectile is launched at 45o to the horizontal with initial kinetic energy E. Assuming air resistance to be negligible what will be the kinetic energy of the projectile when it reaches its highest point?
(a) 0.71 E (b) 0.50 E (c) 0.87 E (d) E
Hints: at the point of projection: $K_o = \frac{1}{2} mv \frac{2}{o}$ at the point of maximum height $v = v_o \cos \varphi = v_o \cos 45_o = \frac{vo}{\sqrt{2}}$ so at the point of maximum height $K = \frac{1}{2} mv^2 = \frac{1}{2} m (\frac{vo}{\sqrt{2}})^2 = \frac{ko}{2} = 0.5K_o = 0.5E$
Answer: (b)

1793. What is the approximate mass of nucleus of uranium?
(a) 10–13kg (b) 10–20kg (c) 10–23kg (d) 10–30kg
Hints: mass of $6.02x10^{26}$ nuclei of U = 235kg mass of l U atom = $\frac{235}{6.02x1026}$ kg = $39x10^{-26}$ = 10^{-25} kg
Answer: (c)

1794. Ethene could be obtained from ethyl bromide by:
(a) Hydrolysis (b) Nucleophilic substitution
(c) Dehydration (d) Dehydrohalogenation
Hints: $CH_3 CH_2 Br + KOH \xrightarrow{alcohal} CH_2 = CH_2 + H_2O + KBR$ as this reaction is dehydrohalogenation reaction.
Answer: (d)

1795. The quadratic equation whose roots are 3 and 4 is
(a) x2 – 7x + 12 (b) x3 + 7x + 12
(c) x3 + 12x + 7 (d) x2 – 12x + 7
Hints: $x^2 – S x + p = 0$, S = 3 + 4 = 7 p = 3 x 4 =12
Answer: (a)

1796. Choose the correct sentence out of the following:
(a) As far as I know he bears a good moral character
(b) As long as I know, he bears a good moral character
(c) So far as I know, he bears a good moral character
(d) Not that I know, he bears a good moral character
Hints: "as far as" is the correct expression.
Answer: (a)

1797. Ketones on reaction with methyl magnesium iodide will produce:
(a) tertiary alcohol (b) primary alcohol
(c) secondary alcohol (d) All of these
Hints: RM g X + Ketone → 3^o alcohol
Answer: (a)

1798. If 11Pn = 990 then n =
(a) 2 (b) 3 (c) 5 (d) 7
Hints: $^{10}p_3 = \frac{10!}{(10-3)!} = 720$
Answer: (b)

1799. The sum of mole fractions of solute and solvent is always equal to:
A) 0.1 B) 10.0
C) 1.0 D) Zero
Hints: Sum of all mole fractions is one.
Answer: (c)

1800. Two forces of magnitude 20 N and 10 N act at a point then which one of the following cannot be their possible sum?
A) 30 N B) 10 N C) 35 N D) 15 N
Hints: the range of their possible sum is from 10to 30but 35N cannot be their possible sum.
Answer: (d)

1801. Glycolysis completes with the net gain of:
A) 2 ATP B) 3 ATP
C) 4 ATP D) 32 ATP
Hints: As two ATPs are already consumed during $C_6H_{12}O_6$ splitting.
Answer: (a)

1802. An Azeotropic mixture of two miscible liquids boils at lower temperature than its components when:
A) The system shows negative deviation from Raoult's law.
B) The system shows positive deviation from Raoult's law
C) The system perfectly obeys Raoult's law
D) Both A) and B)
Hints: As the BP of the mixture is lower than the components of the mixture. The vapour pressure is higher. This is called +ive deviation from Raoult`s law
Answer: (b)

1803. When a force is applied to a body, several effects are possible. Which one of the following effects could not occur?
A) The body speeds up
B) The body rotates
C) The body changes direction
D) Mass of body decreases
Hints: force can change the speed of the body or direction of motion But it can never change the mass of the body.

Answer: (d)

1804. When you go to Karachi, please
A) Collect a good watch for me.
B) Acquire a good watch for me.
C) Bring a good watch for me.
D) Arrange a good watch for me.
Hints: involves sentence completion.
Answer: (c)

1805. Restriction enzymes are of great use in genetic engineering because:
A) They cut DNA at a specific base level
B) They cut D.N.A at several specific levels
C) They help in binding the pieces of D.N.A
D) They are nuclease
Answer: (a)

1806. Optical fibers guides:
A) Current B) Light
C) Sound D) Voltage
Hints: it guides light through itself by the phenomena of total internal reflection or continuous refraction.
Answer: (b)

1807. Methanoic acid HCOOH has one carbon-oxygen bond of length 123 PM and another of 136 PM. The C = O and C — O bond lengths respectively would be:
A) 136 PM, 123 PM
B) 123 PM and 136 PM
C) 136 PM, 136 PM
D) 123 PM and 123PM
Hints: double bond is shorter/stronger than single bond.
Answer: (b)

1808. Abcissic acid (ABA) promotes:
A) Triple response
B) Sex expression
C) Flower initiation
D) Leaf, flower and fruit fall
Hints: abscisic acid causes abscission i.e. separation of stalks of fruit, leaves and flower from the stem or branch.
Answer: (b)

1809. Choose the compound in which hydrogen bonding is not possible?
A) CH3OCH3 B) H2O
C) CH3CH2OH D) CH3COOH
Hints: There are no hydrogen bonding in ether because in ether hydrogen is not directly attached with oxygen.
Answer: (a)

1810. The ratio of output voltage V0 to the voltage difference Vin between the positive (+) input and negative (-) input of opamp is (where Vin=V+ –V–:
A) Current gain B) Voltage gain
C) Open-loop gain D) Close-4oop gain
Hints: $V_o \propto (V_+ - V_-)$, $V_o = A_{ol} V_+ - V_-)$
$A_{ol} = \frac{Vo}{(V \pm V-)}$ A_{ol} = open loop gain
Answer: (c)

1811. Why have you broken this jug?
Passive form of the sentence is:
A) Why has this jug been broken by you?
B) Why have this jug been broken by you?
C) Why this jug has been broken by you?
D) Why had that jug been broken by you?
Hints: passive of an interrogative sentence is intended. Tense is present perfect, structure is interrogative.
Answer: (a)

1812. Surplus amino acid in the body are broken down to form urea in:
A) Spleen B) Kidneys
C) Liver D) Pancreas
Answer: (c)

1813. Lipids are chemically:
A) Acids B) Alcohols
C) Ethers D) Esters
Hints: Lipids are the esters of glycerol and fatty acids. The glycerol of component is constant. Fatty acid component is variable.
Answer: (d)

1814. The resistance of light dependant resistance LDR:
A) Increases with light
B) Decreases with light
C) Decreases with darkness
D) None of the above
Hints: Reststance of LDR decreases upon increasing the intensity of falling light. It is used as light sensors.
Answer: (b)

1815. Remember to brush your teeth after dinner,‖ she said.
Indirect form of the sentence is.
A) She told him to remember to brush his teeth after dinner.
B) She reminded him to brush his teeth after dinner.
C) She advised him to remember to brush his teeth after dinner.
D) She said to him to remember to brush his teeth after dinner
Hints: indirect narration: Mood of the sentence is advise.
Answer: (c)

1816. Which of the following represent the bile salts?
A) Bilirubin
B) Biliverdin
C) Haemoglobin
D) Both A) and B)

1817. Benzene undergoes substitution reactions more easily than addition reactions because:
A) of its cyclic nature
B) of having three double bonds
C) of aromatic character
D) of delocalization of electrons
Hints: benzene is stable due to the delocalization of pi electrons. These bonds are strong and not broken down easily during reaction. Benzene gives electrophilic

substituition reactions and not addition reactions although benzene is highly unsaturated.
Answer: (d)

1818. The maximum kinetic energy of an electron ejected from a metal by photon depends on:
A) The photon's frequency only
B) The metal work function
C) The intensity of incident light
D) None of the above
Hints: in photoelectric effect the KE of elec depend only on *f* of photon. But the current depends on the intensity of light. $KE_{max} = h f - \emptyset$
Answer: (a)

1819. A spring system executes simple harmonic motion. If a load is added to it then the time period of spring–mass system will be:
A) increased B) decreased
C) the same D) halved
Hints: $T = 2\pi \sqrt{\frac{m}{k}}$ So, $T \propto \sqrt{m}$
If load is added T increases but the frequency will decrease.
Answer: (a)

1820. Conversion of excess glucose into fat is known as:
A) Glycolysis B) Lipogenesis
C) Ketogenosis D) Glycogenesis
Hints: Lipogenesis means formation of lipids.
Answer: (b)

1821. Ring test is shown by compounds having:
A) Sulphate radical B) Chloride radical
C) Nitrate radical D) None of the above
Hints: Ring test is shown by nitrate salts. As a result brown ring ($feSO_4.NO$) is formed.
Answer: (c)

1822. The diode that converts electrical energy into light energy is called:
A) Solar cell B) Photodiode
C) Vacuum diode D) Light emitting diode
Hints: LED emits light when it is forward biased.
Answer: (d)

1823. Choose the correct sentence out of the following:-
A) The country was hard hit by the war.
B) The country was hardly hit by the war.
C) The country was severely hit by the war.
D) The country was more hardly hit by the war.
Hints: Word "hardly" best expresses the verb "hit"
Answer: (b)

1824. Fatigue free muscles are:
A) Striped B) Unstriped
C) Cardiac D) Triceps
Hints: cardia muscles are found in the heart wall of never show fatigue.
Answer: (c)

1825. Excretion of bile pigments in blood indicates:
A) Anemia B) Diabetes
C) Rickets D) Jaundice
Hints: when bile pigment are secreted in blood, color of skin and urine become pale. Condition is called jaundice.
Answer: (d)

1826. Which arrangement of the Photon is in their decreasing energy?
A) x rays > i. r. > u. v. > visible
B) x rays > u. v. > visible > I. r.
C) u. v. > x rays > visible> I. r.
D) i. r. > visible > x rays> u. v.
Hints: Decreasing order of frequency is shown in (b)
Answer: (b)

1827. The color in the soap bubble are due to:
A) Interference B) Dispersion of light
C) Scattering of light D) Refraction of light
Hints: The color streaks in the soap bubble are the example of phenomenon of interference of light in thin film.
Answer: (a)

1828. You did not kill a lion in the forest.
Passive form of the sentence as:
A) A lion is not killed by you In the forest
B) A lion was not killed by you in the forest.
C) A lion is killed not by you in the forest.
D) A lion has not killed by you in the forest.
Hints: this is negative structure of sentence in past simple tense.
Answer: (b)

1829. An individual with contrasting alleles is called:
A) Homozygous B) Monoecious
C) Heterozygous D) Dioecious
Answer: (c)

1830. Which is the strongest acid?
A) CH3 COOH B) Cl2CH COOH
C) Cl CH2 COOH D) Cl3 C COOH
Hints: As greater number of electrons attached with the alpha carbon of acetic acid.
Answer: (d)

1831. An object in a satellite orbiting around the earth is weightless because:
A) g = 0 B)No force acts on it
C) Its motion is free fall D) It is far away from earth
Hints: when a body falls freely it is weightless. As there is no vertical force to balance the weight of an object.
Answer: (c)

1832. The expression for binding energy is:
A) EB =fh
B) EB =[(ZMP + N Mn}– ZMA]C2
C) EB = ZMPC2 + N Mn ZMA C2
D) EB = ZMP + N M n – M C2
Hints: when a nucleus is formed from Z protons and N neurons mass deficit takes place which is converted into energy. $E = (\Delta m)c^2$

Answer: (b)

1833. Mathematics …. difficult but is fascinating.
A) seems B) is seeming
C) seemed D) seem
Answer: (a)

1834. The color of bone marrow is:
A) Red B) Yellow
C) Orange D) Both A) and B)
Answer: (d)

1835. Enzymes are basically:
A) Proteins B) Carbohydrates
C) Hydrocarbons D) None of the above
Hints: Enzymes are special proteins which catalyze biochemical reactions.
Answer: (a)

1836. Half- life of given sample is 44 years. The sample will reduce to 50% of the original value after:
A) 22 years B) 88 years
C) 11 years D) None of the above
Hints: Half- life of simple is 44 years, therefore after 88 years the simple will reduce to 25% .
Answer: (d)

1837. Please come to the point; don‘t beat __ the bush.
A) across B) about
C) along D) around
Hints: idiomatic expression: means an indirect speech. After the word “beat” the preposition “about” is used.
Answer: (b)

1838. Ozone is:
A) Greenish, tasteless, light gas
B) Blue green, and bitter in taste
C) Blue, poisonous and explosive gas
D) Purple yellow, poisonous and nonexplosive gas
Hints: the blue color of sky is due to the presence of ozone layer in stratosphere(ozoneosphere)
Answer: (c)

1839. Rectified spirit is:
A) 100% ethanol B) 95% ethanol
C) 90 % ethanol D) 35% ethanol
Answer: (b)

1840. The time rate of change of magnetic flux has the same dimensions as that of:
A) Current B) Resistance
C) Magnetic induction D) Potential difference
Hints: E mf = $\frac{\Delta \emptyset}{\Delta t}$ = potential difference
Answer: (d)

1841. A non-connective tissue is:
A) Areolar tissue B) Tendon
C) Neuron D) Ligament
Hints: Neuron is a cell which conducts impulses between CNs and body part.
Answer: (b)

1842. Lucas Test is used to detect the presence of:
A) Alcohols B) Phenols
C) Amino acids D) Carboxylic acids
Hints: It is used to differentiate 1^0 alcohol, 2^0 alcohol and 3^0 alcohol. R- OH = HCI $\xrightarrow{z\ n\ CI2}$ R – CI + H_2O mixture of z $_n CI_2$ and HCI is called Lucas reagent.
Answer: (a)

1843. The transverse nature of light is verified with the phenomenon of:
A) Interference B) Polarization
C) Diffraction D) Dispersion
Hints: polarization is the property of transverse waves.
Answer: (b)

1844. She has complained_____ me to the Principal.
A) about B) from
C) against D) over
Answer: (c)

1845. Speech and language area are located in:
A) Thalamus B) Medulla oblongata
C) Right cerebral hemisphere D) Left cerebral hemisphere
Answer: ( )

1846. Choose the correct statement:
A) The aliphatic polyamides are generally known as Nylons
B) The aliphatic polyamides are generally known as Polyester
C) The aliphatic polyamides are generally known as Epoxy Resins
D) None of the above

Hints: Nylon contains many amide linkages thus it is called aliphatic polyamide.

Answer: (a)

1847. Na2B4O7 10 H20 is the formula of:
A) Bauxite B) Borax
C) Carborundum D) Colemanite

Answer: (b)

1848. I said to him, _Can you read this letter?‘ Indirect form of the sentence is:
A) I said to him whether he read that letter.
B) I asked him if could he read this letter.
C) I told him that he could read that letter.
D) 1 asked him if he could read that letter.
Hints: Indirect speech: Sentence is interrogative.
Answer: (d)

1849. Phytochromes are involved in:
A) Photorespiration B)Photophosphorylation
C) Photoperiodism D)Phototropism
Hints: phytochrome is a plant flowering hormone both in SDP & LDP.
Answer: (c)

1850. 1 amu is equal to 1.661 × 10-24g, then 1.0 g will be equal to:

A) 6.022 × lO23amu B)6.022 × 10-23amu
C) 6.022 × 10-24amu D)6.022 × 1024amu
Hints: 1 amu is equal to 1.661 × 10-24g, 1g = x
→ $1.661x10^{-24}$x x= 1 → x = $\frac{1}{1.661x10-24}$ = $6.022x10^{23}$ a mu
Answer: (a)

1851. If a soap bubble is charged:
A) Its size decreases B) Its size increases
C) No change D) None of them
Hints: Due to repulsion among similar charges, size of soap bubble increases
Answer: (b)

1852. How many genotype will be produced by crossing of two alleles —A‖ and —a‖?
A) One B) Two C) Three D) Four
Hints: when alleles "A" and "a" are crossed the genotype possible will be AA& aa.
Answer: (c)

1853. An electric current of 1 A is passing through a cross section of the coil in 1 second. How many electrons are involved in providing a current of 1A? The charge on 1 electron is 1.602x10–19 C.
A) 3.21 × 1018 B) 2.2 × 1016
C) 1.602 × 1019 D) 6.42 × 1018
Hints: le = l.6x10^{-19} C l C = $\frac{1}{1.6x10-19}$ = $6.42x10^{18}$ e l C = l A sec = $6.42x10^{18}$e
Answer: (d)

1854. A botanist who proposed the cell-theory was:
A) Schlelden B) Schwann
C) Robert Hook D) Robert Brown
Hints: Schwann: zoologist. Brown: discovered nucleus. Hook discovered cell.
Answer: (a)

1855. For a certain chemical reaction the slope of the plot $\frac{dx}{dt}$ was determined and plotted against the concentration (a — x) 2 and a straight line was obtained. It indicates that the reaction is of:
A) First order B) Second order
C) Third order D) Zero order
Hints: Straight graph shows that reactionis 2nd order
Answer: (b)

1856. One mole is the amount of substance which contains as many elementary entities as contained in:
A) 0.12 kg of 6C12 B)1.2 kg of 6C12 atom
C) 0.012 kg of 6C12 atom D) 0.12 kg of 8O16
Hints: 0.012kg = 0.012x1000 = 12g l mole C-12 = 0.012kg = $6.023x10^{23}$ atoms
Answer: (c)

1857. Smooth endoplasmic reticulum makes:
A) Enzymes B) Protein
C) Sugar D) Lipids
Hints: SER is concerned with lipids. RER with proteins.
Answer: (d)

1858. Select the chemical method used for the determination of reaction rate:
A) Conductometry B) Polarimetry
C) pH metry D) Volumetric analysis
Hints: Volumetric analysis I .e titration is chemical method
Answer: (d)

1859. The uncertainty recorded in the radius of a sphere is 1.6%. The uncertainty in the area of that sphere is:
A) 4.8% B) 3.2%
C) 1.6% D) 0.8%
Hints: Area sphere A = $4\pi r^2$, Uncertainty in r = 1.6% now total uncertainty 1.6 x 3.2%
Answer: (b)

1860. How many atoms of oxygen in R.N.A are greater than D.N.A?
A) One B) Two
C) Three D) Four
Hints: RNA contain ribose sugar that contains one more oxygen than deoxyribose sugar in DNA.
Answer: (a)

1861. Bakelite is obtained from:
A) Adipic acid and hexamethylenediamine
B) Dimethyl terephalate and ethyl glycol
C) Neoprene
D) Phenol and formaldehyde
Hints: Bakelite is condensation polymer and is obtained by the chemical combinatiom of phenol & formaldehyde.
Answer: (d)

1862. Consider the following endothermic reaction: N2(g) + O2(g) 2NO(g) What will happen to the equilibrium if the temperature of the system is raised?
A) The equilibrium will shift in the backward
B) The equilibrium position will suffer no change
C) The equilibrium will shift in the forward direction
D) All of the above
Hints: Reaciton is endothermic thus if temp is increased then equilibrium will shift to right.
Answer: (c)

1863. A hunter aiming a bird in a tree should aim:
A) A little above the bird B)A little below the bird
C) Exactly at the bird D)Very high
Hints: Due to gravity a bullet follows a projectile motion in a parabolic path.
Answer: (a)

1864. Abacterium that converts NO2 to NO3 is:
A) Rhizobium B) Bacillus
C) Nitrosomanas D) Nitrobecter
Hints: Nitrosomonas converts NH_4 to NO_2; Rhizobium change N_2 to NH_3; whereby bacillus are rod shaped bacterium.
Answer: (d)

1865. Why it is so that if aromatic compounds,

burned In air, produce a very smoky flame?
A) Aromatic compound cannot be completely converted into CO2 and other products during burning
B) The available amount of oxygen present in air is not sufficient to completely burn available compound
C) Aromatic compound produces compounds on burning that are of black colour
D) None of the above
Hints: in aromatic compounds the % age of carbon is greater than aliphatic compounds.
Answer: (a)

1866. Acetic acid reacts with methanol in the presence of an acid catalyst to give:
A) Methyl formate B) Ethyl formate
C) Methyl acetate D) Ethyl acetate
Hints: O
$CH_3 - C - OH + H\text{-}O\text{-}CH_3 \xrightarrow{H2SO4} CH_3\text{-}C\text{-}OCH_3 + H_2O$
Answer: (c)

1867. An ideal transformer steps up or steps down:
A) Energy B) AC voltage
C) DC voltage D) Power
Hints: Transformer works on the principal of mutual inductance and steps up/down AC voltage.
Answer: (b)

1868. Growth promoting substance in plant is:
A) F.A.D B) Chlorophyll a
C) I.A.A D) ABA
Hints: Indol acetic acid a naturally accurring auxinur 2- 4-D in lab is a growth promoting substance, FAD having adenine dinucltide is a coenzyme.
Answer: (c)

1869. Select the strongest reducing agent:
A) Cl–1 B) Ne
C) Na+ D) Ca+2
Hints: Cl^- ion is electron rich and bigger in size thus it loses electrons easily and :. The strongest reducing agent.
Answer: (a)

1870. Three equal resistors connected in parallel have equivalent resistance R/3. When they are connected in series then the equivalent resistance is:
A) R/3 B) R
C) 2R D) 3R
Hints: $\frac{1}{Req} = \frac{1}{R1} + \frac{1}{R2}\frac{1}{R3}$ (parallel) $R_{ep} = R_1 + R_2 + R_3$ series Here, $R_1 = R_2 = R_3 = R \rightarrow R_{eq} = 3R$
Answer: (d)

1871. Choose the correct sentence out of the following:
A) The sun has been shining since two hours.
B) The sun has been shining for about two hours.
C) The sun has been shining from two hours.
D) The sun has been shining by two hours.
Answer: (a)

1872. Steroid hormones are produces by:
A) Testes and ovaries B)Adrenal glands and gonads
C) Adrenal cortex and gonads D)Gonads and thyroids
Answer: (c)

1873. Which one of the following is not a vector quantity?
A) Electric field intensity
B) Gravitational field intensity
C) Magnetic induction
D) Electromotive force
Hints: e m f = energy per unit charge
Answer: (d)

1874. B.C.G vaccines are usually given to:
A) Children B) Adults
C) Special persons D) All of the above
Answer: (a)

1875. Proteins, carbohydrates and fats form three great classes of foodstuffs commonly called:
A) Trivirates B) Triumvirates
C) Trisvirates D) All of the above
Answer: (b)

1876. The velocity of projectile at its maximum height is:
A) Zero B) Minimum
C) Maximum D)In between maximum and minimum
Hints: Velocity of projectile is min at point of max height and equals to horizontal component of velocity of projection
Answer: (b)

1877. If you want to play cricket ,……..
A) you ought to join our club.
B) you ought to join with our club.
C) you ought joined our club.
D) you ought to join in our club.
Hints: conditional structure is to be completed.
Answer: (a)

1878. Replication of D.N.A occurs in:
A) Inter phase B) Prophase
C) Metaphase D) Anaphase
Hints: Replication of D.N.A takes place in "S" phase of inter phases
Answer: (a)

1879. Allah, the Almighty, has blessed him___ a son.
A) by B) along
C) from D) with
Hints: Correct preposition is to be chosen.
Answer: (d)

1880. Regeneration of cartilage is carried on by:
A) Collagenous fibers B) Blood vessels
C) Perichondrium D) Matrix
Answer: (d)

1881. CH4 on complete oxidation in the presence of cu as catalyst under200 atom yield:
A) Methanol B) Formaldehyde
C) Formic acid D) Carbon dioxide gas

Hints: It gives CO_2, H_2O& heat.
Answer: (d)

1882. The solids in which the molecules or ions are arranged in a regular repetitive manner are called:
A) Amorphous solids B) Glassy solids
C) Polymers D) Crystals
Hints: In crystals the particles are in order and thus they have definite geometrical shape.
Answer: (d)

1883. Nuclear mitosis occurs in the kingdom of:
A) Monera B) Protista
C) Plantae D) Fungi
Hints: N. Metosis in which nucleus divides without separating from each other.
Answer: (d)

1884. Compared to benzene, nitration of toluene takes place at:
A) slower rate B) faster rate
C) same rate D) depends on the conditions
Hints: Toluene has electron donor group i. e methyl.
Answer: (b)

1885. Lenz's law is a particular form of law of conservation of:
A) Charge B) Current
C) Energy D) Magnetic field
Hints: Lenz's law is the manifestation of law of conservation of energy. Mech energy → elec energy
Answer: (c)

1886. The sense of hearing is concerned with:
A) Cerebrum B) Cerebellum
C) Medulla D) Hypothalamus
Hints: Sense of hearing is concerned with cerebellum which is the part of hind brain.
Answer: (b)

1887. Sodium hydroxide acts on Aluminum oxide to form:
A) NaAlO3 B) Na3A12O6
C) NaAlO2 D) NaAl2O3
Hints: Al_2o_3 +2NaOH → $2NAlO_2$ + H_2o
Answer: (c)

1888. The number of significant figures in the measurement x = 10.00300 are:
A) 7 B) 8
C) 5 D) 3
Answer: (a)

1889. You need to go to the hospital _____ possible. An erratic heart-beat can be very dangerous.
A) as good as B) as long as
C) as much as D) as soon as
Hints: The time expression "as soon as" is correct.
Answer: (d)

1890. Largest lymphatic duct is the:
A) Abdominal duct B) Thorasic duct
C) Femoral duct D) Subclavian duct
Answer: (b)

1891. The σ bond formed between carbon and oxygen atoms in aldehyde and ketone is due to the overlap of:
A) sp2—s p B) sp2—sp2
C) sp3—sp2 D) s p—s p
Hints: Diagram →
Answer: (b)

1892. Two equal, antiparallel and non-concurrent forces that produce only angular acceleration are:
A) Couple B) Couple arm
C) Collinear forces D) Torque
Hints: Couple can produce angular acceleration.
Answer: (a)

1893. Redox action takes place during the process of:
A) Respiration B) Photosynthesis
C) Growth D) Both A and B
Hints: Redox reaction is also called oxidation reduction reaction.
Answer: (d)

1894. Paper is biodegradable material. It produces gas whose emission is environmentally objectionable. Which is that gas?
A) CO2 B) SO2
C) CH4 D) NO2
Hints: CH_4 is produced during decomposition of paper.
Answer: (c)

1895. The minimum number of forces that keep the body in equilibrium are:
A) Two B) Three
C) Four D) Five
Hints: Two forces should be equal in magnitude and opposite in direction to make $\sum F = 0$ & $\sum T = 0$.
Answer: (a)

1896. A ball of mass 5 kg is dropped from a height of 78.4 m. The time taken by the ball to hit the ground is:
A) 2s B) 4s
C) 8s D) 16s
Hints: $S = Vi\ t + \frac{1}{2} gt^2$, $h = 0 + \frac{1}{2} gt^2 \rightarrow t^2 = 2h/g \rightarrow t = 4s$
Answer: (b)

1897. How many sigma bonds are there in CH2 = CH–CH = CH2:
A) 6 B) 9
C) 11 D) 4
Hints:
Answer: (b)

1898. In electromagnetic waves the electric and magnetic vectors are:
A) Parallel B)Anti parallel
C)Perpendicular D) None of the above
Hints: E and B are perpendicular to each other.
Answer: (c)

1899. The negative gradient of electric potential is

also called:
A) Potential energy B)Electric field intensity
C) Electric potential difference D)Electro volt
Hints: E = - $\frac{\Delta V}{\Delta r}$
Answer: (b)

1900. In human being, the number of cranial nerves are:
A) 8 pairs B) 10 pairs
C) 12 pairs D) 3l pairs
Hints: 12 pairs of cranial nerves arise from brain. The number of spinal nerve is 31 pairs.
Answer: (c)

1901. Ethene and Ethyne can be distinguished by employing the test:
A) Br2 in organic solvent B)Baeyer‘s reagent
C) Phenyl Hydrazine D)Tollens reagent
Hints: Ethene + Tollens reagent → No pp t
Ethyne + Tollens reagent → pp t
Answer: (d)

1902. The ionization potential of Hydrogen atom is:
A) 13.6 V B) 1.36 V
C) 10.2 V D) 4.3 V
Hints: Ionization energy of H atom = 13.6V
So its ionization potential = 13.6V
Answer: (a)

1903. Live attenuated vaccines are used to treat all of the following diseases except:
A) Typhoid and plague B)Polio and measles
C) Cholera and rabies D)Mumps and influenza
Answer: (b)

1904. Cracking problem of fuel combustion can be avoided by:
A) reforming B)improving octane number
C) adding TEL D)All of the above
Hints: All these are used to improve the quality of petrol.
Answer: (d)

1905. The shortest wavelength of radiation in Paschen series is:
A) RH/9 B) 9/RH
C) 9 RH D) 9 + RH
Hints: Wavelength of spectral line in paschen series of the H- spectrum is $\frac{1}{\lambda} = R_H (\frac{1}{9} - \frac{1}{n2})$ where n = 4, 5, 6 …… For shortest wavelength n= ∞ then $\frac{1}{\lambda} = R_H (\frac{1}{9} 0)$ $\lambda = \frac{9}{RH}$
Answer: (b)

1906. All of the following are polysaccharides except:
A) Lactose B) Cellulose
C) Starch D) Glucose
Hints: Glucose is a monosaccharide.
Answer: (d)

1907. Select the compound that will give Positive lodoform test:
A) Benzaldehyde B) 2-Pentanone
C) 3-Hexanone D) 3-Pentanone
Hints: in 2-pentanone there is methyl thus is gives iodofrom test.
Answer: (b)

1908. The part of electromagnetic spectrum in which Lyman series lies is:
A) Visible region B) Infrared region
C) Ultra violet region D) X-rays
Answer: (c)

1909. A single ovum of human being contains:
A) X — chromosomes B)XX — chromosomes
C) YY— chromosomes D)XY — chromosomes
Hints: An ovum always contain one X chromosome whereas a sperm may contain X or Y chromosome.
Answer: (a)

1910. Choose the correct statement:
A) Ionic solids exist in the form of molecules
B) Ionic solids have high volatility
C) Ionic solids exist in the form of liquids and
D) Ionic solids have high melting points and boiling points
Answer: (d)

1911. The centripetal force acting on a body rotating in a circle of radius _r‘ is _F‘. If the body moves in a circle of radius half of the initial value keeping other quantities constant, then the percentage change in the centripetal force is:
A) 300% B) 100%
C) 400% D) 200%
Hints: F = $\frac{mv2}{r}$ when r`= r/2 then F` = $\frac{mv2}{r/2}$ = 2 $\frac{mv2}{r}$ F` = 2(F) = 2 (100) = 200, ΔF = F`- F = 200 -100 = 100%
Answer: (b)

1912. In a dihybrid cross, how many homozygous off -springs can be produced?
A) 4 B) 3
C) 2 D) 9
Hints: In dihybrid cross, between organism with the genotypes AABB and aa bb, F_2 generation will contain only two homozygous plants, one with all dominant and the other with all recessive alleles.
Answer: (c)

1913. Which is true about London forces?
A) London forces are present in non-polar molecules
B) London forces are present in polar molecules
C) London forces are created between instantaneous dipole and induced dipole
D) All of the above.
Hints: London forces are present in all types of molecules.
Answer: (d)

1914. Which one of the following properties of electromagnetic waves do not change in vacuum?
A) Speed B) Wavelength

C) Frequency D) All of the above
Hints: All electromagnetic waves irrespective of their λ and *f* have same speed in vacuum.
$C = \lambda f$
Answer: (a)

1915. In human being, the carrier of color blind is:
A) Male B) Female
C) Both male and female D) None of them
Hints: If female contain one recessive allele for color blindness on one of her X chromosome, she will a carrier of the disease. Male may contain recessive or dominant allele.
Answer: (b)

1916. The correct electronic configuration of Nickel (28) is:
A) 1s2 2s2 2p6 3s2 3p6 3d8 4s2
B) 1s2 2s2 2p6 3s2 3p6 3d7 4s2 4p1
C) 1s2 2s2 2p6 3s2 3p6 3d6 4s2 4p2
D) 1s2 2s2 2p6 3s2 3p6 3d6 4s1 4p3
Hints: $_{28}Ni = ls_2 2s\ 2p_6\ 3s_2\ 3p_6\ 3d_8$
Answer: (a)

1917. Hook's law correlates the:
A) Force and displacement B)Force and extension
C) Force and compression D)Stress and strain
Hints: Hook`s law: within the elastic limit stress ∝ strain
Answer: (d)

1918. Ghani Khan is_____ of Pashto.
A) John Keats B) a John Keats
C) the John Keats D) like John Keats
Hints: Involves similarity of two poets. The definite article "the" should be used before the proper Noun.
Answer: (c)

1919. The number of ATP formed directly by a single krebs cycle is:
A) One ATP B) Two ATP
C) 32 ATP D) 36 ATP
Hints: This ATP is formed by dubstrate level phusphhorylation.
Answer: (a)

1920. Select the correct equilibrium constant expression, Kc for the following reversible reaction.
Ce4+(a q) + Fe2+(a q) Ce3+ (e q) + Fe3+(a q)
A) $\frac{[ce3+(aq)]2\,[Fe3+(aq)]}{[ce4+(aq)][Fe2+(aq)]}$
B) $\frac{[ce3+(aq)][Fe3+(aq)]}{[ce4+(aq)][\mathrm{Fe2+(aq)}]}$
C) $\frac{[ce3+(aq)][Fe3+(aq)]3}{[ce4+(aq)][Fe2+(aq)]}$
D) $\frac{[ce3+(aq)][Fe3+(aq)]4}{[ce4+(aq)][Fe2+(aq)]}$
Answer: (b)

1921. MRI works on the principle of:
A) Beats B) Interference
C) Resonance D) Standing waves
Hints: MRI stands for magnetic Resonance Imaging
Answer: (c)

1922. Myoglobin combines with:
A)Four oxygen molecules
B) Three oxygen molecules
C) Two oxygen molecules
D) One oxygen molecule
Hints: myoglobin is made of one polypeptide chain and contain only one haeme group.
Answer: (d)

1923. Sunken stomata are present in:
A)Hydrophytes B) Xerophytes
C) Mesophytes D) All of the above
Hints: Just to reduce the rate to transpiration.
Answer: (b)

1924. Bohr predicted the radius of the orbit of the electron in hydrogen atom to be:
$r = \frac{n2\epsilon 0h2}{e2\pi m}$
If electron moves from n = 1 to n = 2, by how much times the radius of the orbit will increase?
A) 2 times B) 3 times
C) 4 times D) 5 times
Hints: $r_1 = r_o$, $= r_2 = 4r_o$ when n = 2, $r_2 = 4r_o$
Answer: (c)

1925. The waveform of sinusoidal voltage, its frequency and phase can be found by:
A) CRO B) Diode
C) Transistor D) Radio
Hints: CRO can be used as voltmeter, frequency meter and phase meter.
Answer: (a)

1926. Which blood group transfusion can be made without risk?
A) Group A to group B B) Group AB to group O
C) Group A to group O D) Group B to group AB
Hints: Group AB has no antibodies in blood group can therefore called universal acceptor. Any blood group can donate blood to group AB.
Answer: (d)

1927. The first law of thermodynamics has a statement which implies that:
A) No heat enters or leaves the system
B) The temperature remains constant
C) All work is mechanical
D) Energy is conserved
Hints: First law of thermodynamics is law of conservation of energy and applies to heat energy.
Answer: (d)

1928. Haemophilia affects males more than females because of:
A) Dominant autosomes B) Dominant X-linked
C) Recessive X- linked D) y- chromosome linked
Hints: All hereditary disease which are caused by a recessive allele present on X

chromosome and more common in male than females. This is become males get the disease when they have a recessive allele on their X chromosome whereas female will get the disease only if they have recessive allele on both X chromosome
Answer: (c)

1929. The volume occupied by 3.2 g of oxygen at STP is:
A) 22.4 dm3 B) 2.24 dm3
C) 11.2 dm3 D) 16.0 dm3
Hints: Mass of O_2 = 3.2g, n_{o2} x 22.4 = 2.24dm3 → volum = n_{o2} = 3.2/3.2 = 0.1 mol, $n_{o2} = \frac{volume\ in\ dm3}{22.4}$

1930. When a neutral body is rubbed and it becomes positively charged, it must have:
A) Lost electrons B) Lost protons
C) Gained protons D) Gained electrons
Hints: When ab body losses-, it becomes + vely charged.
Answer: (a)

1931. Penicillin is obtained from:
A) Algae B) Yeast
C) Mushroom D) Mold
Hints: Penicillin is obtained from the mold penicillin s p of fungus. Penicillin is obtained from the mold penicillin
Answer: (d)

1932. Which of the following elements with a given electronic configuration has the highest ionization potential value?
A) 1s2 2s2 2p3 B)1s2 2s2 2p4
C) 1s2 2s2 2p6 3s1 D) 1s2 2s2 2p6 3s2 3p3
Hints: a) is smaller in size. Its p orbital is also half filled
Answer: (a)

1933. When a charged particle enters a uniform magnetic field, there is a change in:
A) Kinetic energy B)Magnitude of velocity
C) Direction of velocity D) All of these
Hints: Magnetic force is perpendicular to velocity. Thus it can only change the direction of the velocity.
Answer: (c)

1934. Insuline is produced by:
A) Alpha-cells B) Beta-cells
C) Delta-cells D) Gamma-cells
Hints: Alpha cell secrete glucagon, delta cell secrete somatostatin (which regulate or inhibit α β cell) and gamma cells secrete pancreatic pancreatic polypeptide.
Answer: (b)

1935. Which one is not responsible for the formation of acid rain?
A) CO2 B) SO2 C) CO D) NO2
Hints: CO is neutral.
Answer: (c)

1936. Which of the following hybridization can explain the shape of BeCl2?
A) sp2 hybridization B) s p hybridization
C) sp3 hybridization D) dsp2 hybridization
Hints: Cl-Be-Cl. In the valence shell of Be there are (s p) two electron pairs.
Answer: (b)

1937. According to Millikan's oil drop experiment the charge on an oil droplet is:
A) Quantized B) Integral multiple of _e'
C) Not less than _e' D) All of them
Hints: Electric charge is quantized, i. e. q = ne, where n=0, ±1, ±2,… and e is quantum of electric charge.
Answer: (d)

1938. Did he buy a car yesterday?
Passive form of the sentence is:
A) Was a car bought by him yesterday?
B) Has a car been bought by him yesterday?
C) Is a car bought by him the other day?
D) Had a car been bought by him yesterday?
Hints: Sentence Is interrogative & in past simple tense
Answer: (a)

1939. The enthalpy of the elements at 1 atom: pressure and 298 K is arbitrary given the value of:
A) 0.1 B) 1.0 C) 29.8 D) Zero
Hints: The enthalpy of formation of all elements is zero at standard states.
Answer: (d)

1940. If two forces P and Q are such that |P + Q| = |P— Q| ,then the angle between P and Q is:
A) 00 B) 300 C) 900 D) 1800
Answer: (c)

1941. Chlorophyll a and b chiefly absorb:
A) Violet blue light B) Orange light
C) Blue —red light D) Red, orange light
Answer: (c)

1942. Select the correct statement about lattice energy:
A) The energy absorbed when 1 mole of ionic crystal Lattice is formed from its constituent ions in the gaseous state.
B) The energy liberated when 1 mole of an ionic crystal Lattice is formed from its constituent ions in the gaseous state
C) The energy liberated when 1 mole of an

ionic crystal Lattice is split into its constituent ions in the gaseous state
D) None of the above
Hints: $Na^{+}(g) + Cl^{-}(g) \rightarrow Na\ Cl_{(s)}$ L.E = - 787kj/mole $Na\ Cl_{(s)} \rightarrow NA_{+(g)} + Cl^{-}_{(g)}$ L.E = + 787kj/mole
Answer: (b)

1943. Two blocks of masses 1.0 kg and 3.0 kg placed in contact are acted upon by a force of 40 N. The acceleration of 1.0 kg mass will be:
A) 40 m s-2 B) 10 m s-2 C) 30 m s-2 D) 50 m s-2
Hints: F = ma, $a = \frac{F}{m1+m2} = \frac{40}{1+3} = 10\ ms^{-2}$
Answer: (b)

1944. Choose the correct sentence out of the following:
A) Each of them deserves praise.
B) Each one of them deserves praise.
C) Each one of them deserves praise.
D) Every one of them deserves praise.
Hints: Distributive adjective "everyone" is correct.
Answer: (d)

1945. Following nasal passages are composed of cartilage except:
A) Trachea B) Bronchus
C) Broncheoles D) Tracheoles
Hints: Tracheoles are present in insects.
Answer: (d)

1946. A set of xylem tissues are:
A) Vessels, tracheids, parenchyma
B) Sieve tubes, companion cell, fibers
C) Parenchyma, sieve tube, vessels
D) Fibers, companion cells, tracheids
Hints: Tracheids are specialized cells of xylem, whereby companion cells & sieves & tubes are found in phloem. Xylem tissue contains vessels, tracheide and paranchyma cells
Answer: (a)

1947. Which of the following compounds on treatment with NaHCO3 will liberate C02?
A) CH3 COOH B) C2 H5 NH2
C) CH3 CO CH3 D) CH3 CH2 OH
Hints: $CH_3COOH + NaHCO_3 \rightarrow CH_3COONa + CO_2 + H_2O$
Answer: (a)

1948. A body in equilibrium must not have:
A) Kinetic energy B) Velocity
C) Momentum D) Acceleration
Hints: A body is said to be in equilibrium if both its linear and angular acceleration are zero.
Answer: (d)

1949. Choose the correct sentence out of the following;
A) The meeting does not approve in your scheme.
B) The meeting do not approves of your scheme.
C) The meeting does not approve of your scheme.
D) The meeting does not approve about your scheme.
Answer: (c)

1950. The interval of pace maker signals from S.A.N to AV.N is:
A) 01 second B) 0.1 second
C) 02 seconds D) 0.2 second
Answer: (b)

1951. Commonly used coagulant used for the purification of water is:
A) Ca (NO3)2 B) MgCl2
C) Al2 (SO4)3 D) Ca (OH)2
Hints: Alum is common coagulant.
Answer: (c)

1952. Forces controlling the reactions are proportional to the product of the active masses (concentration) of chemicals.
The above statement is of:
A) Raoult`s Law B)Le Chatlier`s principle
C) The law of conservation of energy
D) The law of mass action
Answer: (d)

1953. Sound waves cannot be:
A) Polarized B) Reflected
C) Refracted D) Diffracted
Hints: polarization is the property of transverse waves since sound waves are longitudinal, they cant be polarized
Answer: (a)

1954. He said to me, —May you succeed in life!‖
Indirect form of the sentence is:
A) He said to me that may you succeed in life.
B) He prayed that I might succeed in life.
C) He prayed that he might succeed in life.
D) He prayed that you may succeed in life.
Hints: The exclamatory sentence is to be changed from direct indirect speech.
Answer: (b)

1955. A Test cross is:
A) Tt × Tt B) Tt × t t
C) TT × Tt D) TT × TT
Hints: A test cross is crossing of a phenotypically dominant organism with the recessive parent.
Answer: (b)

1956. Which compound is formed when Ammonium hydroxide is added to silver chloride?
A) [Ag (NH3)2] Cl B) [Ag (NH3)}Cl
C) [Ag (NH3)4) Cl D) [Ag (NH3)6] Cl
Hints: Silver forms complex with NH_3.
Answer: (a)

1957. The spring constant of a spring is k. If the spring is cut into two halves then the spring constant of one of the half is:
A) k + 2 B) k/2 C) 2k D) k
Hints: If spring is cut in two haves then

double force is required to produce unit extension. Therefore spring constant becomes double.
Answer:

1958. Carotenoid contains:
A) Caroteres B) Xanthophyils
C) Chlorouhyil –C D)Both A) and B)
Hints: Carotenes & Xanthophyll reddish Brown to pale yellow golden pigments i. e. Reddish Brown canteen. Pale: zeaxanthin yello golden phycoxanthin. Both zea & phycoxanthin are types of xanthophylls.
Answer: (d)

1959. Which one is spontaneous chemical reaction?
A) Zn + Cu2+ Zn+2 + Cu
B) Zn2+ + Cu Cu2+ + Zn
C) 2 Fe (OH)3 2 Fe + O2 + 3 H20
D) 2NaCl—2Na + Cl2
Hints: The potential of the reaction is positive.
Answer: (a)

1960. A force of 6 N acts horizontally on a stationary mass of 2 kg for 4 s. The kinetic energy in Joule is:
A) 12 B) 144 C) 72 D) 48
Hints: Here $F\Delta t = \Delta P = mv \rightarrow v = \frac{F\Delta t}{m} = \frac{6x4}{2} =$ 12m/s. Now K.E $= \frac{1}{2} mv^2 = \frac{1}{2} (2) (12)^2$ 144J
Answer: (b)

1961. If it did not rain in time, there ___ a horrible famine.
A) would have been B) will be
C) would be D) will have been
Hints: It is the second conditional structure. The second clause of the sentence is to be completed.
Answer: (c)

1962. A person travels a distance x = 20 t+2At2, where A is a constant. The acceleration of the person is:
A) A/4ms–2 B) 4/A m s –2
C) 4ms–2 D) 4Ams–2
Hints: by comparing equation $x = 20 t + 2At^2$ with $x= V_i t + \frac{1}{2} at^2 = 2A \rightarrow a = 4A$ m/s^2
Answer: (d)

1963. Attraction of water molecules to the xylem vessels is called:
A) Adhesion B) Cohesion
C) Collision D) Corrosion
Answer: (a)

1964. In which of the following compounds hydrogen bonding is possible?
A) PH3 B) CH4 C) NH3 D) SiH4
Hints: In NH_3, H is directly attached with nitrogen.
Answer: (c)

1965. Which of the following are ohmic materials?
A) Semiconductors B)Tungsten filament
C) Thermistor D)Metals
Hints: Resistance of metallic conductor doesn`t depend on voltage applied:. Metallic conductors obey ohm law
Answer: (d)

1966. Tobacco is a:
A) Long day plant B)Short day plant
C) Day neutral plant D)Intermediate plant
Answer: (b)

1967. Ripening of fruits can be promoted by:
A) Gibberellic acid B)Indole acetic acid
C) Florigen D)Ethylene gas
Hints: Usually immature fruits are kept in reserves and Ethylene gas is used to ripen them.
Answer: (d)

1968. Sucrose sugar is considered as:
A) Monosaccharide B) Oilgosacchides
C) Polysaccharides D) All of the above
Hints: sucrose sugar is a disaccharides formed by the combination of glucose & fructose. It is the simplest member of oilgosacchides.
Answer: (b)

1969. In the nuclear reaction 11Na2412Mg24 + X, the particle X is;
A) Electron B) Positron
C) Proton D) Neutron
Hints: It is beta decay in which atomic number is increased by one unit and no change in mass number. Neutron is changed into proton.
Answer: (b) (a)

1970. The least toxic excretory product is:
A) Ammonia B) Urea
C) Uric acid D) Fatty acid
Hints: The least toxic ammonia.
Answer: (c)

1971. Which one of the following will give an ionic product?
A)CH3 CH2 OH + PCI5 B)CH3 CH2 OH + Na
C)CH3 CH2 OH + PCI3 D)CH3 CH2 OH + 5oCl2
Hints: $CH_3 CH_2OH + Na \rightarrow CH_3 CH_2$ Ona + $\frac{1}{2} H_2$ Ionic product
Answer: (b)

1972. The angular displacement made by the minute hand of a watch after 5.0 minutes is:
A) 300 B) 1200 C) 1800 D) 3600
Hints: $\theta = \omega t \rightarrow \frac{18ev}{60min}$ x5 $= \frac{360o}{60min}$ x5 = 6x5 - 30^o
Answer: (a)

1973. The intensity of a wave is:
A) Directly proportional to amplitude
B) Directly proportional to (amplitude)2
C) Inversely proportional to amplitude
D) Inversely proportional to (amplitude)2
Hints: $E = \frac{1}{2} m\omega^2a^2 \rightarrow$ intensity $\propto$ (amplitude)^2
Answer: (b)

1974. The diameter of human capillary is:
A) 5 microns B) 6 microns
C) 7 microns D) 8 microns
Answer: (c)

1975. Organisms phenotypically similar but genotypiclally different are said to be:
A) Monozygous B) Homozygous
C) Heterozygous D) Multizygous
Answer: (c)

1976. Which of the following can function as Lewis acid?
A) CN B) NH3
C) CH3–O–CH3 D) I+
Hints: $I^{(+)}$ is electron deficient thud it acts as Lewis acid.
Answer: (d)

1977. Conversion of alternating current into direct current is called:
A) Rectification B) Amplification
C) Oscillation D) Regeneration
Hints: Rectifier converts ac into dc by rectification.
Answer: (a)

1978. Gibberellin was isolated from:
A) An algae B) A fungus
C) A bacterium D) A virus
Hints: A fungus named Gibrella fugikuroi is responsible for secretion of giberellin mainly in paddy fields of rice.
Answer: (b)

1979. All amino acids found in proteins are:
A) -amino acids B)amino acids
C) Both and D)None of the above
Hints: both α & β –amino acids are equally important for protein synthesis. As the secondary proteins are further classified as a helix and βpleated sheets. In more complex form of secondary proteins (Tertiary) both α & β are present. NH_2–RCH-COOH+NH_2-RCH-COOH
α β
Answer: (c)

1980. Which of the following pairs have the same units and dimensions?
A) Resistance and resistivity
B) Conductivity and resistivity
C) Electromotive force and potential difference
D) Resistivity and temperature coefficient of resistivity
Hints: $\in = \frac{w}{qo}$ = J/C, v $\frac{w}{qo}$ J/C :. Dimensions are same.
Answer: (c)

1981. Process of bone formation is called:
A) Calcification B) Chondrification
C) Decalcification D) Ossification
Answer: (d)

1982. Which is a trimer of ethyne?
A) PVC B) Benzene
C) Toluene D) Teflon
Hints: 3CH ≡ CH → C_6H_6 Ethyne benzene
Answer: (b)

1983. The activity of the radioactive material can be expressed in the units of:
A) Curie B) Becquerel
C) Tesla D) Both A) and B)
Hints: Curie & becquerel are units of radoioactivity. L Curie = $3.7x10^{10}$ B q
Answer: (d)

1984. Bicep muscle is attached to the humerus by:
A) Tendon B) Ligaments
C) Elastic fibers D) Areolar
Hints: tendon connects muscle to bone.
Answer: (a)

1985. Which is NOT true about amino acids?
A) They have two functional groups
B) They show both acidic and basic characteristics
C) They are the basic units of proteins
D) They do not exist in solid state
Hints: the amino acids do exists in solid state. For functionally fibrous proteins are solid in nature.
Answer: (d)

1986. The work function of a metal is 6.63 eV. The threshold frequency of the metal is:
A) 1.6 × 1015 Hz B) 1.6 × 1012 Hz
C) 6.63 × 10-34 Hz D) 1.6 × 10-19 Hz
Hints: $f_o = \frac{w}{h} = \frac{6.63ev}{6.6x10-34} = 1.6x10^{-19+34} = 1.6x10^{15}$Hz
Answer: (a)

1987. Concentration of water molecules is inversely proportional to the:
A) Water potential B) Pressure potential
C) Solute potential D) Osmotic potential
Answer: (c)

1988. Which is the least polar molecule?
A) HF B) HI C) HCI D) HB r
Hints: Electronegativity different of H and I is the least.
Answer: (b)

1989. The birds sitting on an overhead transmission line suffer no harmful effects because:
A) Their bodies have high resistance
B) Their feet are good insulators
C) There is negligible potential difference between their feet
D) Wires are insulated
Answer: (c)

1990. They arrived at about mid night
A) because their flight was detained.
B) because their flight was delayed.
C) because their flight was derailed.
D) because their flight was diverted
Hints: The compound sentence in which both the clauses are in past simple tense.
Answer: (b)

1991. The target organ for vasopressin is:
A) Heart B) Liver
C) Stomach D) Kidneys

Hints: Vasopressin stimulates absorption of water through nephron of the kidney.
Answer: (d)

1992. Ketones are prepared by the oxidation with Na2Cr2O7 and H2S04 of:
A) Primary alcohol B)Secondary alcohol
C) Tertiary alcohol D)All of the above
Hints:
Answer: (b)

1993. The sinusoidal AC current in a circuit is I = 50 sin (20 t). The peak value of current is:
A) 100 A B) 25 A C) 50 A D) 20 A
Hints: I = 50 sin (20t) → I = I_o sin (ωt) → I_o = 50A
Answer: (c)

1994. Thirst is controlled by:
A) Pituitary gland B) Adrenal gland
C) Parathyroid D) Thyroid
Hints: thirst is controlled by pituitary gland as it produces vasopressin.
Answer: (a)

1995. Which of the following is a condensation polymer?
A) Nylon 6,6 B) Teflon
C) Polypropylene D) Orion
Hints: Nylon 6,6 as H_2O is eliminated during its formation
Answer: (a)

1996. Current in the semiconductors is caused by the movement of:
A) Protons B) Electrons only
C) Holes only D) Both electrons and holes
Hints: Current in semiconductor id due to movement of free electrons and holes in the opposite directions.
Answer: (d)

1997. Auxins inhibit the growth of:
A) Apical buds B) Lateral buds
C) Parthenocarpy D) Root growth
Hints: Auxin play a key role in seedless variety production in apical dominance, but usually inhibit the division in lateral meristem.
Answer: (d)

1998. Which of the following statement is NOT true?
A) Natural rubber is hydrocarbon
B) Natural rubber is isoprene
C) Natural rubber is polymer of 1, 3 Butadiene
D) Natural rubber can be volcanized
Hints: It contains other elements besides C and H.
Answer: (a)

1999. Modulus of a + I b is:
(a) a2 + b2
(b) $\sqrt{a2-b2}$
(c) $\sqrt{a2-b2}$
(d) a- I b
Hints: Modulus of a + i b → $\sqrt{(b)2+(B)2}$ = $\sqrt{a2+b2}$
Answer: (b)

2000. For the given set of ions in alkali metals, the hydration energy _____ with increase in ionic size:
(a) decrease (b) increase
(c) first decreases and then increases
(d)first increases and then decreases
Hints: Hydration energy depends on charge density
Answer: (a)

2001. m when rounded off is 1016 m which is equal to: 15 10 5.9
(a) Tera meter (b) pet a meter
(c)ex a meter (d) light year
Answer: (d)

2002. $\frac{lim}{x\to 0}\frac{sinx}{x}$ = ?
(a) 0 (b) 1 (c) 2 (d) 6
Hints: law of limits when θ is very very small.
Answer: (b)

2003. The hydrides of Be and Mg are classified as intermediate hydrides. Their behavior is:
(a) non-volatile and ionic in nature
(b) volatile and covalent in nature
(c) polymeric and covalent in nature
(d) crystalline and covalent in nature
Hints: be and mg being smaller size possess covalent characteristics.
Answer: (c)

2004. If 7.635 and 4.81 are two significant numbers, their multiplication in significant digits is:
(a) 36.72435 (b) 36.724 (c) 36.72 (d) 36.7
Hints: the least significant number is 3.
Answer: (a)

2005. $(-1)^{\frac{-21}{2}}$ =?
(a) – i (b) (c) 1 (d) – 1 i
Hints: $(-1)^{\frac{-21}{2}} = (i^2)^{-\frac{21}{2}} = (i)^{-21} = ((i^2)^{10}xi)^{-1} = i^{-1} = -i$
Answer: (a)

2006. The oxide of chlorine, Cl2O2 in nature is:
(a) strongly basic (b) weakly basic
(c)strongly acidic (d) weakly acidic
Hints: In Cl_20_7, Cl possess + 7 oxidation state, which makes it strongest acid
Answer: (c)

2007. The horizontal and vertical components of a force are 10N each. The direction of the resultant force with x – axis is:
(a) 30o (b) 45o (c) 60o (d) 75o
Hints: tan $\theta = \frac{fy}{fx}$ $\theta = \tan^{-1}(\frac{fy}{fx})$
Answer: (b)

2008. Many people have _____ about winning a big prize in the lottery
(a) imagined (b) visualized

(c) fantasized (d) discovered
Hints: Correct form of verb is "imagined"
Answer: (a)

2009. If $\frac{lim}{n\to\infty}(1+\frac{1}{n})^{2n}$ = ?
(a) e –1 (b) $e\frac{1}{2}$ (c) e^2 (d) e^3
$(\frac{lim}{n\to\infty}(1+\frac{1}{n})^{n})^2 = e^2$
Answer: (c)

2010. Calcium is found in nature as CaSO42H2O. This is commercially called:
(a) Epsom salt (b) Dolomite
(c)Magnesite (d) Gypsum
Answer: (d)

2011. If $\underset{a}{\rightarrow} = I + k$ and $\underset{b}{\rightarrow} = i + j$, then the angle between $\underset{a}{\rightarrow}$ and $\underset{b}{\rightarrow}$ is:
(a) 60o (b) 75o (c) 45o (d) 30o
Hints: $\underset{a}{\rightarrow}.\underset{b}{\rightarrow} = A\ B \cos\theta \rightarrow$
l+0+0 = $\sqrt{1+1}x\sqrt{1+1}\cos\theta \rightarrow l = 2\cos\theta$
$\rightarrow\cos\theta = \frac{1}{2}\ \theta = 60^o$
Answer: (a)

2012. $\frac{d}{dx}(\cot^{-1}x)$ = ?
a) $\frac{1}{1+x2}$
b) $\frac{1}{x\sqrt{x2-1}}$
c) $\frac{-1}{1+x2}$
d) $-\text{cosec}^2$
Answer: (c)

2013. Beryllium, an alkaline earth metal resists towards complete oxidation because:
(a) it is less reactive
(b) the oxidation process is slow
(c)it forms hard protective coat of Be O
(d) None of the above
Hints: Be o forms on surface which protects from further oxidation.
Answer: (c)

2014. If $\underset{a}{\rightarrow}.\underset{b}{\rightarrow} = 0$ then $\underset{a}{\rightarrow} x \underset{b}{\rightarrow}$ will be equal to:
(a) AB (b) Zero
(c) AB sin θ (d) AB Cos θ
Hints: if $\underset{a}{\rightarrow}.\underset{b}{\rightarrow} = 0$ neither $\underset{a}{\rightarrow} = 0$ nor $\underset{b}{\rightarrow} 0$, $\theta = 90^o$ sin $90^o = 1$ cos 90 = 0
Answer: (a)

2015. k-2 1 = 0 then k=
5 k+2
(a) 0 (b) 3 (c) – 3 (d) +3
Hints: (K-2) (K+2)-5=0$\rightarrow K^2 - 9 = 0 \rightarrow K = \pm 3$
Answer: (d)

2016. Which oxide sodium metal predominantly forms in oxygen?
(a) Na2O (b) Na2O2 (c) Na2O3 (d) NaO2
Hints: Na forms peroxide.
Answer: (b)

2017. Newton's first law of motion provides:
(a) 1st condition of equilibrium
(b) 2nd condition of equilibrium
(c) complete equilibrium
(d) rotational equilibrium
Hints: 1st condition F=0, a =0
Answer: (a)

2018. Most people like the ___of not having to work.
(a) scheme (b) suggestion
(c) design (d) idea
Answer: (d)

2019. The co-factor of an element aij denoted by Aij is: _____
(a) (– 1)ijMij (b) (– 1)i+jMij
(c) (– 1)i-jMij (d) (1)i+jMij
Answer: (b)

2020. The phenomenon of inert pair formation in boron family _____ down to group.
(a) decreases (b) increases
(c) first increases and then decreases
(d) first decreases and then increases
Hints: As "in" and "T i" possess inert pair effect
Answer: (b)

2021. The moment arm of a force of 0.6 N to produce maximum torque of 0.48 N. m is:
(a) 2.88m (b) 0.08m(c) 0.8 m (d) 0.288 m
Hints: $\theta = 90^o$ Use τ = r f sin$\theta = \frac{0.48}{0.6}$ 0.8m
Answer: (c)

2022. $f(x) = f(0) + f(0) + \frac{x2}{2!}f''(0) + \ldots + \frac{xn}{n!}\ f^n(0)$ is called :
(a) Taylor series (b) binomial series
(c) Laurent series (d) Maclauren series
Answer: (d)

2023. The compound, Borax is used in borax bead test for the detection of cations. The molecular formula of compound is :
(a) Ca2B6O115H2O (b) H3BO3
(c) Na2 B4 O7 . 10H2O (d) (C2H5)3BO3
Answer: (c)

2024. Bodies which fall freely under the action of gravity is an example of:
(a) uniform acceleration(b) variable acceleration
(c) uniform velocity (d) average acceleration
Hints: g does not depend on mass 'm'
Answer: (a)

2025. The roots of equation 25x2 – 30x + 9 = 0 are
(a) imaginary (b) rational and equal
(c) rational and unequal (d) irrational and equal
Hints: if $b^2 - 4ac > 0$ then roots are real and different if $b^2 - 4ac = 0$, roots are equal and real if $b^2 - 4ac > 0$, roots are imaginary.
Answer: (b)

2026. [NiCl4]–2 is tetrahedral shaped complex, the bond angler <Cl – Ni – Cl is
a) 120o (b) 107o (c) 105o(d) 109o
Hints: Tetrahedral structure has generally 109.5^o
Answer: (d)

2027. A man throws a ball vertically upward in a compartment of the train which is moving

with uniform velocity. The ball will fall:
(a) in his hand (b) in front of him
(c) behind him (d) beside him
Hints: Because train does not accelerate.
Answer: (a)

2028. When I told him about it, he ……
(a) is just laughing (b) has just laughed
(c) was just laughing (d) just laughed
Hints: " just laughed " is the compound sentence in clause the first clause is in past simple, the second clause must have the same tense.
Answer:

2029. The minimum value of the function is: $f(x) = x^2 - x - 2$ is:
a) – 2 (b) $\frac{1}{2}$ (c) – 1 (d) 0
Hints: $f'(x) = 2x - 1 = 0$, $x = \frac{1}{2}$ Double derivative test
Answer: (b)

2030. The formula of potassium manganate is
(a) KMnO4 (b) K2MnO4
(c) K3MnO4 (d) K2MnO3
Answer: (a)

2031. A missile is fired with the speed of 98ms–1 at 30ohorizontally. The missile is borne for
(a) 20 seconds (b) 25 seconds
(c) 10 seconds (d) 5 seconds
Hints: $T = \frac{2vosin\theta}{g} = \frac{2x98xsin30o}{9.8} = 10sce$
Answer: (c)

2032. For what value of will the equation have sum of roots equal to product of roots:
(a) 3 (b)– 2(c) – 4 d) 4
Hints: sum of roots = products of roots $\frac{+k}{1} = \frac{4}{1}$ →
K = 4
Answer: (d)

2033. Phosphorus acid H3PO3 is highly soluble in water and behaves as:
(a) Monobasic Acid (b) Dibasic acid
(c) Tribasic acid (d) None of the above
Hints: Two H- atoms are attached to O_2
Answer: (b)

2034. The change in momentum of the body is equal to:
A) Force (b) Torque (c) Impulse (d) Pressure
$F = \frac{\Delta p}{\Delta t}$, $\Delta p = F\Delta t$
Answer: (c)

2035. $\int xex\, dx = ?$
a) $X e^x - e^x + c$
b) $X e^x - e^x + c$
c) $e^x + cx + c$
d) $e^x + c$
Hints: $\int x e^x d^x \rightarrow x. e^x - \int 1.e^x dx = x e^x e^x + c$ i ii [integration by parts]
Answer: (a)

2036. Nitric oxide acts as / an:
(a) oxidizing agent (b) reducing agent
(c) both as reducing and oxidizing agent
(d) neither oxidizing nor reducing agent
Hints: N possess + 2 oxidation state which may be converted to + 5 or to -3.
Answer: (c)

2037. The dimension of work are similar to the dimensions of:
(a) impulse (b) torque
(c) power (d) angular momentum
Hints: Torque = r x f w = F. d
Answer: (b)

2038. Sabiha`s dress fits her like a glove. The underlined phrose means:
(a) is too big (b) is too short
(c) fits her very well (d) is very comfortable
Hints: The expression "fits like a glove" means fits really well
Answer: (c)

2039. $\int \frac{dx}{\sqrt{a2-x2}} = ?$
a) $\cos^{-1}(\frac{x}{a}) + c$
b) $\sin^{-1}(\frac{a}{x}) + c$
c) $\sin^{-1}(\frac{x}{a}) + c$
d) $\sin^{-1} x + c$
Answer: (c)

2040. Choose the inter halogen compound
a) OF2 (b) BrF5 (c) HgBr3 (d) H1
Answer: (b)

2041. The gravitational potential energy per unit mass is called:
(a) Gravitational potential
(b) Absolute potential energy
(c) Potential energy (d) potential hill
Hints: $U = \frac{P.E}{m}$
Answer: (a)

2042. The length of a quarter of a circle, whose radius is r1 is:
a) $4\pi r$ b) $2\pi r$ c) $\frac{1}{4}\pi r$ d) $\frac{1}{4}\pi r$
Hints: length of quarter circle = $\frac{1}{4}(2\pi r_1) = \frac{1}{4}\pi r$
Answer: (d)

2043. In contact process for the manufacture of sulphuric acid, the impurity Arsenic is removed by freshly precipitated ferric hydroxide which absorb Aseneous oxide to form:
(a) Fe As O4 (b) Fe As2 O4
(c) Fe As3 O4 (d) FeAsO3
Answer: (a)

2044. If the mass of the body is made three times and the velocity becomes double then the kinetic energy will increase:
a) 6 times (b) 12 times (c) 24 times (d) 18 times
Hints: $K.E = \frac{1}{2}mv^2$ put m'= 3m and v' =2v
Answer: (b)

2045. $X^2 + 3 = ?$
a) $(x + i\sqrt{3})(x - i\sqrt{3})$

b) $(x - i\sqrt{3})(x - i\sqrt{3})$
c) $(x + i\sqrt{3})(x + i\sqrt{3})$
d) $(x + i\sqrt{3})(x - i\sqrt{3})$
Hints: convert in $a^2 - b^2 = (a + b)(a - b)$ from
Answer: (a)

2046. Nitric oxide was passed through FeSO4 solution a brown compound was formed as formula is:
(a) FeSO4 NO (b) FeSO4 (NO)2
(c) Fe(SO4)2 NO (d) None of above

Hints: Also called as ring test for nitrate.

Answer: (a)

2047. A stone is rotated in vertical circle at the end of a string. When the stone is at the top of the circle then the tension in string is:
(a) Greater than the weight of stone
(b) equal to the weight of the stone
(c) Less than the weight of the stone
(d) None of the above

Hints: At top, T = mg $\frac{mv2}{\gamma}$

Answer: (c)

2048. Many People don't want their dirty linen washed in public The underline phrase means:
(a) to have their dirty clothes drying on a clothes line
(b) to have their private affairs talked about in public
(c) to speak about and criticize something in public
(d) to ask the public to help with a noble cause
Hints: Expression "dirty linen washed in public" means to discuss private affairs in public gatherings.
Answer: (b)

2049. Harmonic means between 3 and 7 is:
(a) $\frac{5}{21}$ b) $\frac{21}{5}$ c) 5 d)$\sqrt{21}$
Hints: Harmonic mean between 3 and 7 is
H.M = $\frac{2ab}{a+b} = \frac{2x3x7}{3+7} = \frac{21}{5}$
Answer: (b)

2050. Choose the correct name according to IUPAC nomenclature:
(a) 2 ethyl-3methyl pentane (b) 3-methyl-cycio hexane
(c) 3-ethyl-2methyl pentane(d) 3-ethyl-4methyl pentane
Hints:
Answer: (c)

2051. A 60 kg man in a lift which is moving upward with an acceleration of 4.9ms2 will have apparent weight of:
(a) 588 N (b) 294 N (c) 58.8 N(d) 882 N
Hints: T = m (g + a) = 60(9.8 + 4.9) = 882 N
Answer: (d)

2052. $\int \frac{1}{\sqrt{3}} \frac{dx}{1+x2}$ =?
a) $\frac{\pi}{2}$ b) $\frac{\pi}{4}$ c) $\frac{\pi}{3}$ d) $\frac{\pi}{6}$
Hints: $[\tan^{-1}]\frac{1}{\sqrt{3}} = \tan^{-1} 0 = \frac{\pi}{6} - 0 = \frac{\pi}{6}$
Answer: (d)

2053. Which molecular formula indicates 2-methyl pentane
(a) C5H12 (b) C4H20 (c) C6H14(d) C6H12
Hints: CH_3
Answer: (c) $CH_3 - CH - CH_2 - CH_3$

2054. the orbital velocity of satellite in an orbit around the earth depends upon
(a) value of _g' (b) radius of earth
(c) radius of the orbit (d) all of these
Hints: V $\sqrt{gR}$
Answer: (c)

2055. ${}^{n}C_r$ = ?
a) $\frac{n!}{(n-r)!r!}$
b) $\frac{n!}{(n-r)!}$
c) $\frac{n!}{r!}$
d) $\frac{(n-1)!+r!}{n!}$
Answer: (a)

2056. How many isomers are possible for pentane?
(a) 2 (b) 3 (c) 4 (d) 5
Hints: n – pentane, Is o pentane, neo-pentane
Answer: (b)

2057. When the drag force on the object becomes equal to its real weight then the
(a) object will become stationary
(b) object will fall freely
(c) object will fall with terminal velocity
(d) object will fall with critical velocity
Hints: T = m(g-a), a = g, T = 0
Answer: (c)

2058. You cant agree with both of them ……..
(a) make your opinion up
(b) make your mind up
(c) make brain up
(d) make up your mind
Hints: "make up mind" means to think and decide.
Answer: (d)

2059. The ratio in which y-axis divides the line joining point (2, –3) and (– 5, 6) is:
(a) 2 : 3 (b) 1 : 2 (c) 3 : 5 (d) 2 : 5
Answer: (a)

2060. Methane can be prepared by the reaction of
(a) Iodomethane with sodium in dry ether
(b) methanol with conc H2SO4
(c) sodium methanoate with soda lime
(d) reduction of idomethane
Hints: $CH_3 - I + 2H \rightarrow CH_4 + HI$ (catalyst: Zn + HC1)
Answer: (d)

2061. two boats moving parallel fastly; close to each other in the same direction will:
(a) attract each other (b) repel each other

(c) remain moving in the same direction
(d) sink
Hints: Because pressure decreases.
Answer: (a)

2062. The point of intersection of the medians of a triangle is called: (a) in-center (b) centroid
(c) orthocenter (d) circumcenter
Answer: (b)

2063. 2,3 dimethyl, 2 butene undergoes catalytic Hydrogenation to give
(a) 2,2 dimethyl butane (b) 2 – methyl pentane
(c) 2,3 dimethyl butane(d) 3 – methyl pentane
Hints:
Answer: (c)

2064. The angular frequency of then mass attached to spring when vibrates with the frequency of 0.6Hz is:
(a) 0.6 Hz (b) 3.77 Hz
(c) 0.06 rad. sec–4 (d) 3.77 rad. sec–4
Hints: $\omega = 2\pi f = 2\pi(0.6) = 3.77$
Answer: (d)

2065. Two lines $a_1x + b_1x + c_1 = 0$ and $a_2x + b_2x + c_2 = 0$ are parallel if:
a) $\frac{a1}{a2} = \frac{b1}{b2}$ b) $\frac{a1}{a2} = \frac{b1}{b2}$ c) $\frac{n1}{c2} = \frac{b2}{c2}$ d) $\frac{a1}{c1} = \frac{a2}{c2}$
Hints: for two lines to be parallel, $-\frac{a1}{b1} = -\frac{a2}{b2}$
$\rightarrow \frac{a1}{b1} = \frac{b1}{b2}$
Answer: (a)

2066. The combustion of one mole of propane C3H8 produces how many moles of water?
(a) 2 (b) 3 (c) 4 (d) 5
Hints: $C_3H_8 + 50_2 \rightarrow 3CO_2 + 4H_2O$
1mole of propane produces 4 mole of H_2O
Answer: (c)

2067. When length of a simple pendulum is increased four times, the frequency of its oscillation will become:
(a) one fourth(b) half (c) double (d) four times
Hints: $f = \frac{1}{2\pi}\sqrt{\frac{g}{l}} \rightarrow l' = 4i$
Answer: (b)

2068. Don‘t worry what other people think …….
(a) just take not note of them
(b) just take no sign of them
(c) just take not hint of them
(d) just take no notice of them
Hints: “take no notice” means not bothering about other people.
Answer: (d)

2069. The lines represented by $ax^2 + 2hxy + by^2 = 0$ are parallel if:
a) $h^2 - ab = 0$ b) $h^2 = < 0$ c)$h^2 - ab < 0$ d) $h^2 + ab = 0$
Hints: For parallel lines $\theta = 0$ tan 0 = 0
Answer: (a)

2070. Thermal decomposition of alkanes in the absence of air is called:
(a) combustion (b) oxidation
(c) cracking (d) hydrogenation
Answer: (c)

2071. [MT–2] are the dimension of:
(a) viscosity (b) intensity
(c) pitch (d) surface tension
Hints: $F = 6\pi^{\eta}r\ v$
Answer: (a)

2072. The solution of is: c y ax + 3y $\leq$ c is:
(a) closed half plane (b) open half plane
(c) circle (d) parabola
Answer: (a)

2073. The dehydrohalogenation of 2-bromobutane with alcoholic potassium hydroxide gives mainly:
(a) 2 – Butyne (b) 2 – butene
(c) 1 – Butene (d) 1 – butyne
Hints: $CH_3 – CH – CH_2 - CH_3 \rightarrow CH_3 – CH = CH – CH_3$
Reaction follow satzyf rule.
Answer: (b)

2074. A 3 meter long string resonates in three loops. The frequency of the stationary wave having velocity of 30 m/s mainly:
(a) 5 Hz (b) 30 Hz (c) 15 Hz(d) 10 Hz
Hints: $f = \frac{mv}{2l} = \frac{3x30}{2(3)} = 15$
Answer: (c)

2075. If A and B are not mutually exclusive events then B(AUB = ∅)
(a) P(A) + P(B)(b) P(A) + P(B)–P(A∩B)
(c) P(A) + P(B)+P(A∩B) (d) P(A) – P(B)
Answer: (b)

2076. Baeyer‘s reagent is:
(a) HC l + Zn Cl b) N_2NNH_2 c) Br_2in CCl_4 d)Dil K MnO4
Hints: Alkaline $KMnO_4$
Answer: (d)

2077. Which one of the following properties of light does not change with the nature of medium?
(a) frequency of light (b) wavelength of light
(c) speed of light (d) all of these
Hints: Frequency does not depend on medium.
Answer: (a)

2078. I don‘t like pasta and my sister doesn‘t …….
(a) too (b) neither (c) either(d) also
Hints: “Either” is determinor which is used for different purposes.
Answer: (c)

2079. The eccentricity of hyperbola is:
(a) e < 0 (b) 0 < e < 1(c) e = 1 (d) e > 1
Answer: (d)

2080. The addition of HX to a double bond the hydrogen goes to the carbon that already has more hydrogen is a statement of:
(a) Hund‘s rule (b) morkownikov`s rule
(c) Huckel rule (d) None of the above
Answer: (b)

2081. The phase change of 180o is equal to path

difference: (a) zero (b) half the wavelength
(c) double of wavelength
(d) quarter the wavelength
Hints: $\lambda = 360^0 \frac{\lambda}{2} = 180^0$
Answer: (b)

2082. The radius of the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ is:
a) $\sqrt{g2 + f2 + c}$ b) $\sqrt{g2 + f2 + c}$ c) $\sqrt{g2 + f2 + c}$ d) g + f- c
Answer: (c)

2083. Which of the following compounds on hydrolyses gives Ethyne?
(a) CaC2 (b) Mg2C3(c) Al4C3(d) CuCl2
Hints:
Answer: (a)

2084. If the width of the slit on the young's double slit experiment becomes double the fringe spacing will become:
(a) double (b) one quarter
(c) four times (d) half
Hints: Use = $\frac{\lambda D}{d}$, d' = 2d so x ' = $\frac{\lambda D}{2d}$
Answer: (d)

2085. The equation $ax^2 + by^2$ 2hxy + 2gx + 2fy + c = 0 represent a circle if:
a) a≠b, h≠0 b) a≠b, h = 0 c) a≠b, h≠0 d) a=b, h=0.
Answer: (d)

2086. When acetylene is passed through hot iron tube at 400 o C it gives:
(a) Benzene (b) O – xylene
(c) Toluene (d) polythene
Answer: (a)

2087. The magnification of a magnifying glass having focal length of 10 cm for an object lying at a distance of 20 cm is:
(a) 0.01 (b) 10 (c) 0.1 (d) 1
Hints: M = $(1 + \frac{d}{f}) = (1 + \frac{20}{10}) = 3$
Answer: (c)

2088. "MISOGYMIST" most nearly means A person who:
(a) misses his shots (b) hates marriage
(c) is against hunting
(d) is left out of a sporting team
Answer: (b)

2089. The sum of exponents of a and b in every term of the expansion (a + b)n is:
(a) n (b) 1 (c) 0 (d) 2n
Hints: Condition of Binomial theorem
Answer: (a)

2090. Which of the following compounds comparatively would react rapidly in an SN2reaction?
(a) $(CH_3)_3$ Cl b) $(HC_3)_2$ CHI
(c) CH_2 CH_2I d) CH_2 = CHI
Hints: SN^2 reaction is given by primary alkyl halides
Answer: (c)

2091. The ratio of universal gas constant to Avogadro number is equal to:
(a) plank's constant (b) boltzman`s constant
(c) Stefan`s constant (d) decay constant
Hints: K = $\frac{R}{NA}$
Answer: (b)

2092. 2^{nd} term in the expansion of (1-2x) $\frac{1}{3}$ is:
a) $\frac{7}{2}$ b) $\frac{x}{3}$ c) $\frac{2x}{3}$ d)- $\frac{2x}{3}$
Hints: Second term = $\frac{\frac{1}{3}(1)\frac{1}{3}(-2x)}{1!}$ = - $\frac{2x}{3}$
Answer: (d)

2093. Ethylamgnesium iodide reacts with formaldehyde to give product which one acid hydrolysis forms:
(a) an aldehyde (b) a primary alcohol
(c) a ketone (d) a secondary alcohol
Hints:
Answer: (b)

2094. In air at S.T.P the average speed of the
(a) nitrogen molecules is greater than oxygen molecules
(b) oxygen molecules is less than nitrogen molecules
(c) nitrogen molecules is less than oxygen molecules
(d) oxygen molecules is equal to nitrogen molecules
Hints: N_2 = 28g/*l* and O_2 = 32g/*l*
As N_2 is lighter and have greater average speed.
Answer: (a)

2095. Expansion of (8 – 2x)–1
(a) |x| > 4 b) |x| < 4 c) |x| = 0 d) |x| = 0
Answer: (b)

2096. Lucas reagent is:
(a) HC l / NaNo2 (b) H2 / P b
(c) HC l /ZnCl2 (d) HC l / HNO3
Answer: (c)

2097. The work done against friction will
(a) Not change the entropy of system
(b) decreases the entropy of system
(c) cause to drop the entropy to zero
(d) increase the entropy of system.
Hints: friction produces more heat.
Answer: (d)

2098. Driving to work,
(a) he saw many children going to school
(b) the traffic made him late
(c) the traffic jams infuriated him
(d) his car broke down many times
Answer: (a)

2099. Cosine of the angle between two nonzero vectors a and b is:
a) $\frac{a.b}{|a||b|}$ b) $\frac{|a||b|}{a.b}$ c) $\frac{a \times b}{|a||b|}$ d) a. b
Hints: $\underset{a}{\rightarrow} . \underset{b}{\rightarrow}$ = |a| |b| cosθ → cos θ = $\frac{a.b}{|a||b}$ = a. b
Answer: (d)

2100. The compound which reacts most readily with lucas reagent is:

(a) $CH_3 CH_2 Cl$ b) $(CH_3)_2 CHOH$
(c) $CH_3 CH_2 OH$ d) $(CH_2 COH$
Hints: tertiary alcohol is most reactive.
Answer: (d)

2101. The coulomb's force between the charges in air is 2.0N the coulomb's force between these charges in insulating medium having E r = 3.8 is:
(a) 5.26 N (b) 3.8 N (c) 2.0 N (d) 0.53 N
Hints: F' = $\frac{F}{\varepsilon r} = \frac{2}{3.8}$ = 0.53N
Answer: (d)

2102. If then terminal arc of the angle lies in quadrant: θ sinθ
(a) I (b) II (c) III (d) IV
Answer: (c)

2103. Which of the following alcohols will give a yellow pp t of lodofrom with iodine and diluted Na OH solution?
(a) 1-Propanol (b) 2-Propanol
(c) 1-Butanol (d) 2-Methyl-2-Propanol
Hints: lodoform reaction if given by alcohols which possess one methyl group to [CH_2-OH]
Answer: (b)

2104. The rate of change of electric potential with respect to displacement is equal to:
(a)Potential gradient (b)electric potential energy
(c) electric intensity (d) electric flux
Hints: E = $\frac{\Delta v}{\Delta r}$
Answer: (c)

2105. j.(k xi)
a) 1 b) I c) j d) k
Hints: k x *i* = +j→ j.j = i
Answer: (a)

2106. Which of the following compounds will not be easily oxidized?
(a) Primary alcohol (b) secondary alcohol
(c) tertiary alcohol (d) aldehyde
Hints: tertiary alcohol does not possess a-hydrogen, that is why it cannot be oxidized.
Answer: (c)

2107. The correct expression for the energy of the charged capacitor is:
(a) $\frac{1}{2}\frac{C2V}{C}$ b) $\frac{1}{2}\frac{Q2}{C}$ c) $\frac{1}{2}$ QV d) $\frac{1}{2}$ C^2V^2
Hints: U = QV
Answer: (b)

2108. The president ____ on TV tonight
(a) speaks (b) will speak
(c) has spoken (d) is speaking
Answer: (b)

2109. Sin 3 α =?
a) 4soc ^{3} α – 3cos α b) 3cos ^{3} α – 4cos α
c) 3sin α – 4sin^3 α d) 4sin α – 3sin^3 α
Hints: Triple angle identity
Answer: (d)

2110. The acid – catalyzed dehydration mechanism for alcohol is best described as a / an:
(a) E_1 b) E_2 c) $S\frac{1}{N}$ d) $S\frac{2}{N}$
Hints: dehydration is elimination reaction.
Answer: (a) & (b)

2111. The resistance of a conductor having a length of one meter and an area of cross section one square meter is called
(a) Conductance (b) resistivity
(c) conductivity (d) mho
Hints: $p = \frac{RA}{L}$
Answer: (b)

2112. Sin ($\frac{2\pi}{2} - \theta$) = ?
(a) Sin □□(b) Cos □□(c) □sin□□(d) – cos □
Answer: (d)

2113. Ethers are considered as:
(a) Lewis acids (b) Lewis bases 82
(c) both a & b (d) None of these
Hints: Ether possess lone pair of $\underset{es}{\rightarrow}$ which acts are base.
Answer: (b)

2114. The resistors of 5□□, 4□□and 3□□are connected in parallel. If
the potential difference across 4□□resistor is 6 volt, then the
potential difference across 5□□and 3□□will be:
(a) 6 volt (b) 3 volt (c) 12 volt (d) 9 volt
Hints: in parallel, voltage is same across all.
Answer: (a)

2115. The period of 3sin $\frac{x}{3}$ is:
(a) □□(b) 2□□(c) 3□□(d) 6□
Hints: period is $\frac{2\pi}{\frac{1}{3}} = 6\pi$
Answer: (d)

2116. Ethanol is isomeric with:
(a) Ethanal (b) Di-ethyl ether
(c) dimethyl ether (d) propanone
Hints: $CH_3 – CH_2 – OH$ $CH_3 – O – CH_3$
Functional group isomerism.
Answer: (c)

2117. The circuit in which the terminal voltage of the battery is equal to the e m f of the battery is the:
(a) open circuit (b) close circuit
(c) short circuit (d) electric circuit
Hints: ∈ = V_t + T r put I = 0
Answer: (a)

2118. Running into room,
(a) a rug caught her foot and she fell
(b) she caught her foot on a rug and she fell
(c) her foot was caught on a rug and she fell
(d) she had fallen after catching her foot on a rug.
Hints: (d) dest empresses the combination of past
Simple tense and past perfect tense.
Answer: (d)

2119. With usual notation, the value of a – b + c is:
(a) s + b (b) s – b (c) 2 s – b (d) 2(s – b)
Hints: Use s= $\frac{a+b+c}{2}$

Answer: (d)

2120. Which of the following will give a positive test with Fehling`s solution?
(a) acetic acid (b) ethyl acetate
(c) formaldehyde (d) acetone
Hints: Aldehyde give Fehling solution test.
Answer: (c)

2121. If the current in parallel conductor be flowing in opposite direction then two conductor will:
(a) attract each other (b) repel each other
(c) neither attract nor repel each other
(d) none of these
Hints: magnetic field support each other.
Answer: (b)

2122. Radius of the described circle opposite to the vertex A is:
(a) $\frac{\Delta}{a}$ b) $\frac{\Delta}{s}$ c) $\frac{\Delta}{s-a}$ d) $\frac{s-a}{\Delta}$
Answer: (c)

2123. Which of the following compound on treatment with NaHCO3 will liberate CO2 (g)
(a) Acetic acid (b) ethyl amine
(c) ethyl alcohol (d) phenol
Hints: alcohol phenol are weak acid & can`t react with weak base.
Answer: (a)

2124. The magnetic field due to current in solenoid can be increased by
(a) increasing the number of turns (b) using soft iron core
(c) increasing the current (d) all of these
Hints: $B = \mu_o n I$
Answer: (d)

2125. The domain of the function y = Cos–1x is:
(a) $0 \leq x \leq 1$ b) $-1 \leq x \leq 1$
(c) $1 \leq x \leq 2$ c) $-2 \leq x \leq 2$
Hints: the domain of $\cos^{-1}x$ is $-1 \leq x \leq 1$ because it is the range of cos x
Answer: (b)

2126. Acetic acid undergoes reduction with Li Al H4 to give:
(a) Ethanal (b) ethane (c) ethyne (d) ethanol
Answer: (d)

2127. Which of the following particles is not deflected when projected normal to magnetic field
(a) proton (b) α - Particles
(c) Photon (d) β - Particles
Hints: because photon is neutral.
Answer: (c)

2128. "CEMETERY" most nearly means:
(a) graveyard (b) factory (c) system (d) pattern
Answer: (a)

2129. The domain of principal sine function is:
a) $[0,\frac{\pi}{2}]$ b) $[-\frac{\pi}{2}\frac{\pi}{2}]$ c) $[0,\frac{3\pi}{2}]$ d) $[0,2\pi]$
Hints: principal function is a function whose

i
n

2130. Which of the following is ortho-para orienting and ring deactivation?
(a) – Cl b) – NH_2 c) – OCH_3 d) – OH
Hints: Halogens are ortho para & deactivating group.
Answer: (a)

2131. The magnitude of induced e. m. f in the loop depends upon
(a) Change of electric flux
(b) rate of change electric flux
(c) rate of change of magnetic flux
(d) change of magnetic flux
Hints: $\in = -\frac{\Delta\varphi}{\Delta t}$
Answer: (c)

2132. π in term of numbers is:
(a) a symbol (b) an integer (c) a rational number (d) a irrational number
Answer: (d)

2133. Azeotropic mixtures boil at constant temperature they:
(a) are non–ideal. solution
(b) are ideal solution (c) obey Raoult`s law
(d) are accompanied by no change in enthalpy
Hints: Zeotropic mixture is ideal while azeotropic mixture is non–ideal
Answer: (a)

2134. The energy used to magnetize and demagnetize the core of transformer causes power loss which is due to
(a) winding in coil of transformer (b) Eddy current
(c) hystersis (d) all of these
Answer: (d)

2135. $\forall$ a, b $\in$ R, the property either a = b or a > b or a < b is called:
(a) Archimedean b) Trichotomy c) Closure d) Transitive
Answer: (b)

2136. Phenol is an ortho-para orienting because the hydroxyl group:
(a) increases the electron density at meta position favouring nucleophilic attack
(b) increases the electron density at meta position favouring electrophilic attack
(c) increases the electron density at O/P positions favouring nucleophilic attack
(d) increases the electron density at O/P positions favouring electrophilic attack
Hints: - OH is $\underset{e}{\rightarrow}$ donating group and increases $\underset{e}{\rightarrow}$ density at ortho and pare so electrophile can attack.
Answer: (d)

2137. When the frequency of alternating voltage in capacitive circuit increases the alternating current
(a) decreases (b) increases
(c) remains the same (d) none of these
Hints: $I = \frac{V}{xc} = \frac{V}{1/\omega\varphi} = V\omega C$
Answer: (b)

2138. More than one student _____ absent the day before yesterday.
(a) was (b) were (c) had been (d) have been
Hints: "more than one student" means plural. "were" is the correct choice for the past tense.
Answer: (b)

2139. $\omega^{12} + \omega^{58} + \omega^{95} = ?$
(a) 0 (b) 1 (c) ω (d) –1
Hints: $\omega^{12} + \omega^{58} + \omega^{95} (\omega^3)^4 + \omega^1 . (\omega^3)^{19} + \omega^2 . (\omega^3)^{31} = 1 + \omega + \omega^2 = 0$
Answer: (a)

2140. Compared to benzene nitration of toluene takes place at:
(a) the same rate (b) slower rate
(c) faster rate (d) a and b both
Hints: Methyl group is activating group which increases reactivity of benzene.
Answer: (c)

2141. In RLC series circuit when the frequency of AC source is very high then such circuit will be
(a) resistive circuit (b) capacitive circuit
(c) resonance circuit (d) inductive circuit
Hints: at high frequency $X_L > X_c$
Answer: (d)

2142. Magnitude of the vector a = (i – j) + (j – i) + (k – j) is
a) $\sqrt{3}$ b) $\sqrt{2}$ c) $2\sqrt{2}$ d) $2\sqrt{3}$
Hints: $|(i - j) + (j - i) + (k - j)| = |i - i - j + j + k - j| = j + k$ $|A| = \sqrt{12 + 12} = \sqrt{2}$
Answer: (b)

2143. How many nucleons are there in an atom of $\frac{235}{92}$ U
(a) 92 (b) 235 (c) 123 (d) 327
Hints: No of uncleons = X + N = A
Answer: (b)

2144. The carrier waves on which the low frequency sound waves are super imposed are called
(a) micro waves (b) short waves
(c) modulated waves (d) medium waves
Answer: (c)

2145. Let m1 and m2 be the slopes of the lines l1 and l2 respectively l1 is perpendicular to l2 if:
(a) $m_1 = m_2$ b) $m_1 m_2 = 1$ c) $m_1 m_2 = -1$ d) $m_1 + m_2 = 0$
Hints: $m_1 \times m_2 = -1$, If l_1 l_2
Answer: (c)

2146. By which method order of reaction can be determined?
(a) differential method
(b) Ostwald`s isolation method
(c) graphical method (d) all of the above
Answer: (d)

2147. The applied force at which solids can be determined?
(a) strength (b) Ductility (c) stiffness (d) toughness
Hints: Strength before breaking.
Answer: (a)

2148. Only after my wife asked me the time _____ that I had lost my watch.
(a) did I realized (b) I realized
(c) I did realized (d) I did realize
Hints: Option (b) makes the combination of past indefinite + past perfect tense
Answer: (b)

2149. The set G = {1,–1,i,–i|} is a group under:
(a) + (addition) (b) – (subtraction)
(c) × (multiplication) (d) ÷ (division)
Hints: By the four properties of group
Answer: (c)

2150. The rate constant (k) for a first order reaction was found to be 0.2 seconds what will be its half life?
(a) 10 seconds (b) 5 seconds
(c) 2.5 seconds (d) 15 seconds
Answer: (b)

2151. The substance which breaks just the elastic limit is reached is:
(a) plastic substance (b) ductile substance
(c) ordinary substance (d) brittle substance
Hints: Brittle has no plastic region.
Answer: (d)

2152. The compound proposition $(p \wedge q) \wedge \sim (p \vee q)$ is a:
(a) Tautology (b) sequence
(c) quantity (d) self-contradiction
Hints: Use truth table
Answer: (d)

2153. Ethanol is manufactured by fermentation of starche. The starch conversion to maltose requires the enzyme
(a) Zymase (b) invertase (c) diastase (d) all
Hints: $C_6 H_{10} O_5 \xrightarrow{Diastase} 4C_{12} H_{22} O_{11}$
Answer: (c)

2154. The temperature at which the resistance of conductor approaches to zero is called
(a) curie temperature (b) critical temperature
(c) absolute temperature (d) normal temperature
Hints: Critical temperature use for super conductors.
Answer: (b)

2155. The multiplicative inverse of a complex number {a, b} is:
a) $(\frac{a}{a2+b2}, \frac{-b}{a2+b2})$ b) $(\frac{a}{a2-b2}, \frac{-b}{a2-b2})$ c)$(\frac{-b}{a2+b2}, \frac{b}{a2+b2})$ d) $(\frac{-a}{a2+b2}, \frac{-b}{a2+b2})$
Hints: $Z^{-1} = \frac{1}{a+bi} \times \frac{a-bi}{a-bi}$ simplify we get option (a)
Answer: (a)

2156. KNO3 exists in two crystalline forms Rhomohedral and Orthorhomic. the phenomenon is known as:
(a) polymorphism (b) isomorphism
(c) allotropy (d) None of these
Answer: (a)

2157. The depletion region contains:

(a) electrons (b) holes
(c) electrons and holes
(d) No holes and no electrons
Hints: depletion region contains ions
Answer: (d)

2158. "Moon" is to _Satellite' as _Earth' is to_____
(a) solar system (b) sun
(c) planet (d) asteroid
Hints: Here the analogy is based on the similarity. Moon is one of the satellites. Similarly Earth is one of the asteroids.
Answer: (d)

2159. If (1+3i) is one of the roots of the quadratic equation, than the equation is:
(a) $x^2 - 2x + 10 = 0$ b) $x^2 + 2x - 10 = 0$ c) $x^2 - 4x + 8 = 0$ d) $x^2 - 10 = 0$
Hints: If one root is $1+ 3i$, then other will be $1 - 3i$ S = $1+3i + 1 - 3i = 2$,
$P = (1)^2 - (3i)^2 = 1 - 9i^2 = a+9 = 10$
$X^2 - Sx + p = 0$, $x^2 - 2x + 10 = 0$
Answer: (a)

2160. If an ideal gas is allowed to expand adiabatically the work done by the gas is equal to:
(a) the loss of internal energy(b) the loss of entropy
(c) the rise in temperature (d) the decrease in pressure
Hints: During adiabatic $\Delta Q = 0$
Answer: (a)

2161. The circuit which is built of silicon chip, and ….. of transistor and capacitor is called:
(a) rectifier circuit (b) amplifier circuit
(c) operational amplifier (d) close circuit
Hints: Amplifier is a chip.
Answer: (a)

2162. If n is a negative integer or a fraction, then the binomial expansion (a + b)n terminates:
(a) after n terms (b) after n + 1 terms
(c) after n + 1 terms (d) Never
Hints: If n is – ive or fraction then the series obtained form the expansion is infinite.
Answer: (d)

2163. The vapour pressure of pure acetone is 347 mm Hg. A mixture of 58.0 g acetone and 2.0 g of water is made. According to raoult`s law, what is the partial pressure of the acetone in this mixture?
(a) 382 mm Hg (b) 298 mm Hg
(c) 242 mm Hg (d) 312 mm Hg
Hints: $p_{\text{Acetone}} = X_{\text{Acetone}} P^o = \frac{1}{1.11} \times 347 = 312$
Answer: (d)

2164. The inputs of gate are A and B , its output is Q then $Q = \overrightarrow{A+B}$ represent the operation of:
(a) NAND gate (b) NOR gate
(c) XOR gate (d) OR gate
Hints: A+B = Q is OR gate, Inverted ouput → NOR
Answer: (b)

2165. Let A and B any two matrices of the same order then (A+B)t =
(a) $A^t - B^t$ b) $A^t + B^t$ c) $A + B^t$ d) $A^t + B$
Answer: (b)

2166. What energy in joules would a photon of light have at wave length $3x10^{-3}$ cm? h = $6.6x10^{-34}$
a) $2.2x10^{-31}$ b) $2.64x10^{-34}$ c) $6.6x10^{-47}$ d) $6.6x10^{-21}$
Hints: $E = \frac{hc}{\lambda}$
Answer: (d)

2167. A clock is moving with the relativistic velocity with respect to an observer, this clock with respect to the observer will:
(a) run fast (b) run slow
(c) run normally (d) stop
Hints: Runs normally because in the same reference.
Answer: (b)

2168. —Influenza‖ is to —Virus‖ as _Typhoid' is to_____
(a) bacteria (b) bacillus
(c) parasites (d) protozoa
Hints: Influenza is a disease caused by virus. In the same way typhoid is a disease caused by bacteria.
Answer: (a)

2169. In binomial expansion (a + b)n pascal's triangle is used to find:
(a) in (b) a , b
(c) binomial coefficients (d) None
Answer: (c)

2170. The electronic configuration of gallium, atomic number 31 is:
a) [A r] $4s^2\ 3d^{10}\ 4p^1$ b) [A r] $3s^2\ 3d^{10}\ 3p^1$
c) [K r] $3s^2\ 3d^{10}\ 3p^1$ d) [K r] $4s^2\ 3d^{10}\ 4p^1$
Hints: "Ga" is present at 3rd group and 4th period.
Answer: (d)

2171. The threshold frequency for a metal having work function 6.4 eV is:
(a) $6.4x10^{-19}$ Hz b) $6.4x10^{-34}$ Hz c) $1.5x10^{15}$ Hz d) $1.5x10^{-15}$ Hz
Hints: $E = h f \frac{hc}{\lambda}$
Answer: (c)

2172. The length of l an arc of a circle in terms of r and θ is
a) $\frac{r}{\theta}$ b) $r\theta$ c) $\frac{\theta}{r}$ d) None
answer: (b)

2173. Li , Na, K ions in acidified solution can best be separated by:
(a) gas chromatography
(b) gas liquid chromatography
(c) thin layer chromatography
(d) ion exchange chromatography
Answer: (d)

2174. The kinetic energy of electron proton alpha particles and neutron is the same. Which one

will have the shortest wavelength
(a) electrons (b) protons (c) alpha particles (d) neutrons
Hints: Of all particles, α particles has greater mass
Answer: (c)

2175. If sin A + sin B + sin C = 3, then cos A + cos B + cos C =?
a) 3 b) 2 c) 1 c) 0
Hints: sin A + sin B + sin C + 3 only if < A = < B = < C = 90^o and cos A + cos B + cos C = 0
Answer: (d)

2176. 0.1000 Mole of Na Cl was dissolved in 1.000 dm3 distilled water at 298K. The concentration of resulting solution is:
(a) 5.85 M (b) 1.00 M (c) 0.1000 M (d) <0.1000 M
Answer: (c)

2177. If the transition from higher energy level ends on energy level 3, the series of the spectral lines emitted is called:
(a) Ballmer's series (b) Lyman's series
(c) Paschen's series (d) bracket's series
Hints: n = 3
Answer: (c)

2178. "ABORGINAL" most nearly means:
(a) unoriginal (b) native
(c) cheap (d) second rate
Hints: aboriginal means native/local.
Answer: (b)

2179. The sum of an infinite G.P is 4 and the sum of the cubes of its terms is 92. The common ratio of the original G.P is:
a) $\frac{1}{2}$ b) $\frac{2}{3}$ c) $\frac{1}{3}$ d) $-\frac{1}{2}$
Hints: S∞ =4→ $\frac{a}{1-r}$ → a=4(1-r), $a^3+a^3 r^3+a^3r^6$ +… = 92, $\frac{a3}{1-r3}$ = 92 → a^2 = 23 (1+r+r^2) => $[4(1-r)]^2$
Answer: options given are not correct.

2180. Moseley demonstrated a direct relationship between the frequency of x-rays emitted by an element bombarded with high energy electrons. On what characteristic of the element does it depend?
(a) electronic configuration (b) atomic number
(c) degree of ionization (d) atomic mass
Hints: $\sqrt{v}$ = a(z-6)
Answer: (b)

2181. The intensity of x-rays depends upon
(a) filament current (b) nature of material of target
(c) operating voltage (d) All of these
Hints: filament current increases no of electrons therefore intensity increases.
Answer: (a)

2182. If x>0, x y = 1 then minimum value of x + y is:
(a) 2 (b) -2 (c) 1 (d) -1
Hints: x > 0& x y 1= → x+ y = x+$\frac{1}{2}$ apply double derivative test
Answer: (a)

2183. Under which condition the change in enthalpy of a system is equal to the heat flow between the system and its surroundings (q)?
(a) constant volume(b) at constant pressure
(c) constant temperature (d) None of these
Hints: ΔH = q_p +pΔV if ΔV = 0 then ΔH = q_p
Answer: (a)

2184. The excited state which persists for unusually longer period of time is called:
(a) ground state (b) Ionized state
(c) metastable state (d) ordinary excited state
Hints: Meta stable is longer than normal excited state.
Answer: (c)

2185. If a 4-digited number is formed by using the digit. 1, 2, 3, and 5 with no repetition then the probability that the number is divided by 5 in:
a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{3}{4}$ d) $\frac{1}{4}$
Hints: A = event = 3! Sample space = 4! P(a) = $\frac{3!}{4!}$ =1/4
Answer: (d)

2186. Benzene and toluene form nearly ideal solution. The V.P of pure toluene is 22 torr at 20oC for equimolar mixture of benzene and toluene at 20oC the V.P of toluene is:
(a) 5.5 torr (b) 11.0 torr (c) 22 torr (d) 1.1 torr
Hints: $p_{toluene} = X_{toluene} \times p^o = p_{toluene} = \frac{1}{2}$ x22 = l ltorr
Answer: (b)

2187. The amount of energy required to break the nucleus into constituent nucleus is called:
(a) ionization energy (b) exaltation energy
(c) binding energy (d) work function
Hints: Binding energy is used to separate nucleon into free state.
Answer: (c)

2188. There is no <u>dearth</u> of talent in our country. The underlined word means:
(a) training (b) shortcoming
(c) encouragement (d) shortage
Hints: "Dearth" means shortage of something.
Answer: (d)

2189. Which of the following is not a solution of the equation 2x + 3y = 24?
a) (9,-2) b) (0,+8) c) (12,0) d) (6,4)
answer: (a)

2190. What will happen if a block of copper is dropped into a beaker containing a solution of 1.0 M ofZnSO4?
(a)The copper will dissolve with no other change
(b)The copper will dissolve zinc metal will be deposited
(c)The copper will dissolve with the evaluation of H2(g)

(d)No reaction will occur
Hints: As "Cu" has higher reduction potential than Z n, so Cu cannot replace Zn.
Answer: (d)

2191. Radium $_{88}RA^{226}$ when disintegrates into $_{86}Rn^{222}$ cause the emission of:
a) α – radiation b) γ – radiation c) β – radiation d) cosmic says
Hints: α – emission reduces A by 4
Answer: (a)

2192. In a G.P, if $a_{10} = l$,$a_{12} = m$, $a_{16} = n$, then :
a) $ln = m^2$ b) $ln = n^2$ c) $m\ n=1^2$ d) $m\ n=l$
Hints: $a_{10} = ar^9$, $a_{12} = ar^{11}$, $a_{16}=ar_{15}$ $l=ar^9$ … (i) $m=ar^{11}$….(ii) $n=ar^{15}$ (iii) $ar^9.ar^{15} = (ar^{12})^2 = m^2$
Answer: (a)

2193. Consider the reaction:
$N_{2(g)} + 3H_{2(g)}\ 2NH_3\ \Delta H = -45.19\ koml^{-1}$
(a) K(e q) increases with increase in temperature
(b) K(e q) decreases with increase in temperature
(c) K(e q)increases with increase in temperature
(d) K(e q)is independence of temperature and pressure
Hints: As reaction is exothermic, K_c increases with decrease in temperature and vice versa.
Answer: (b)

2194. The hadrons are
(a) protons (b) neutrons (c) mesons (d) all
Hints: Hadrons are heavy.
Answer: (d)

2195. $\frac{5x+2}{(x+1)(x-2)} = ?$
a) $\frac{1}{x+1} - \frac{1}{x-2}$ b) $\frac{2}{x+1} - \frac{3}{x-2}$ c) $\frac{5x}{x+1} - \frac{2}{x-2}$ d) $\frac{1}{x+1} - \frac{4}{x-2}$)
Hints: $\frac{A}{x+1} - \frac{B}{x-2}$ putting x=l for the value of A & putting x=2 for the value of B.
Answer: (d)

2196. A solution is provided which most likely constains carbonate ions. Which of the following would you choose for testing the ions?
(a) H2S (b) Na Cl (c) CaCl2 (d) None
Hints: $Ca\ Cl_2 + co_3^{-2} \rightarrow ca\ co_3 + Cl_2$
Answer: (c)

2197. The energy stored in 40 m h coil carrying 2 ampere is:
(a) 0.1 J (b) 0.8 J (c) 0.08 J (d) 0.01 J
Hints: $U = \frac{1}{2} LI^2$
Answer: (c)

2198. Their hospitality is proverbial. *The underlined word means*
(a) sensible (b) well-known
(c) exceptional (d) matchless
Hints: the word "proverbial" means "well known"
Answer: b)