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**The Pakistan Army as a  
Medical Cadet in all Army  
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(RAWALPINDI, LAHORE,  
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# AMC

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- Personality Tests
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# Introduction

The **High Scoring Guide for AMC** is a guide to a concrete learning methodology. Multiple levels of learning have been designed to enhance your preparation for the AMC Entry Test. The subjects included in this book have been covered in the following manner:

- ❖ **Solved Papers** are given, with correct answers and explanations. This will help the candidates get a fair idea of the nature of questions to be expected in the Entry Test as well as improve concepts.
- ❖ The **High Scoring Guide for AMC Online Learning Module** has been designed for intensive learning, which can be accessed by logging on to the **Online Module on Tabir.pk**. It familiarizes you with the nature of questions and how to attempt them. This will help you to work on your weak areas, improving your preparation.

After studying this guide, you will:

1. Be familiarized with the content for the AMC Entry Test through the Notes.
2. Acquaint yourself with the nature of questions to be expected in the Test, and how to attempt them.
3. Be able to test your knowledge.
4. Acquire new concepts.
5. Practice time management for the Entry Test.

Follow the steps below to log on The High Scoring Guide for AMC Online Module:

1. Go to [tabir.pk/book](http://tabir.pk/book)
2. Enter the Voucher Code given in the book

Good luck!

# BRIEFINGS

## What is an Intelligence Test?

**Meaning of Intelligence:** The word intelligence has been defined in different ways by various psychologists, but they all agree to one simple definition which says, Intelligence means "an innate ability to solve problems". This innate ability is not acquired in class-rooms and from the reading of books, but is available in a person from his birth. The intelligence is the essence of the faculties of understanding reasoning, judgment, adaptability, persistence and self-criticism.

There are some writers who believe in general intelligence, while there are some others who think that there is no general intelligence. To the first class belongs writers like Ster. Meanman and Ballard, whereas to the second class belongs writers like Thorndike. Wordsworth defines Intelligence" as that "which involves doing a miscellaneous lot of things and do them right". Cyril Burt says, "Intelligence is the power of reasoning and adjustment to new situations". Ebbinghaus considers that "intelligence is the ability to abstract, compare, contrast and classify. The formulator of "patient puzzle", Binet, a well-known psychologist is of the view that intelligence consists of (a) Consciousness of the ends to be attained; (b) The trial of possible means to end; (c) Auto-criticism of the trials made.

**Value of Intelligence Tests:** A man, apart from the general intelligence has special aptitude. Hence, it is essential that fit persons should be chosen to hold different appointments and to do different jobs.

Many experiments have been made and researches have been conducted in this connection and it has been established that intelligence tests are best suited for this object. Such intelligence tests have been evolved by the Public Service Commissions and other various civil and military examinations in Pakistan to select suitable persons for filling various appointments in the different departments. Such tests are conducted by Inter Service Selection Board (ISSB), for candidates who are anxious for joining Army, Air Force and Navy Therefore, the test of intelligence becomes the key Point of all vocation tests.

**Origin of Intelligence Tests:** The idea of Intelligence is said to have originated in France, where a French psychologist, M. Binet, conducted a great research in this field and finally designed different kinds of tests for the measurement of the aptitude of the candidates for the various jobs. M. Binet, in 1896, prepared various tests which enabled his Government to select candidates on those lines.

**Growth and decline of Intelligence:** Psychologists believe that the process of growth of intelligence continues in the child mental age increases rapidly to the age of 13 to 15, and more slowly to age of 15 to 18. Researches and experiments have brought out that intelligence comes to its climax at the age of 26 years. Then at a certain age the Law of Diminishing or Return of Intelligence begins and it actually starts decreasing in old age.

**Advantages of ISSB Intelligence Tests:** These tests are conducted to select those men who are sound both in their bodily and mental faculties. In their service, the officers face many complicated situations, in which not only their lives but the lives of numerous soldiers under their command are under risk. If the officers are wanting in sharp intellect, they cannot withstand heavy odds.

**Kinds of Intelligence Tests:** There are many kinds of intelligence tests. These tests comprise every day observations, elementary mathematical problems, military information, easy, scientific and technical knowledge.

**Mode of Intelligence Tests:** The mode of intelligence tests for the selection of suitable officers for the Defense Forces of Pakistan at the ISSB is rather simple. The candidate is required to make use of his acquired knowledge and his own inborn intelligence to solve problems. They not require long answers, but there are the questions

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set in these tests do required to reply in "yes" or "no" or put a tick around the correct answer or to write the serial number of the correct answer out of a few suggested answers on the given sheet. Although, questions set in these tests are not so difficult, but the time of answering these questions is very short. The candidate has to make up his high speed in answering these numerous questions.

**Instructions for solving Intelligence Tests:**

1. The Testing Officer, before putting the candidates to a test, imparts instructions to the candidates as to how they have to answer the questions. He gives instructions regarding the requirements of the tests, how and where they have to write the answers and the time limit, etc. The candidates must listen to those instructions carefully and try to grasp every detail. If a candidate finds even a slightest doubt about a question, etc., he should have to clarify there and then. But as soon as the candidates are ordered to begin solving the questions, they are not allowed to ask anything from any one.
2. The times for tests are very short. A candidate usually gets only 30 seconds for one question. Hence, he must work quickly. If the candidate fails to concentrate on solving the questions and is entangled in thinking, then he is sure to lag behind.
3. There may be some questions, the answers of which are not readily known to the candidates. In such situations, the candidates must leave them and pass on to answering the next questions. On reaching the end, candidates can find time and refer back to such unattempted questions and can answer them.
4. The candidates should not put any mark on the booklets which contain questions. They should not tear any page out of it. These booklets are to be returned to the testing officer intact.
5. Alongwith the question booklets, the candidates are given an answer sheet. The candidates should be very careful in filling the personal particulars on the top of their sheet. Before starting writing answers to the questions, the candidates must fill in these particulars.
6. Usually, in the first column of this answer sheet, serial number of the questions contained in the booklet are supplied. The candidates should start giving answers in the second column.

## KINDS OF INTELLIGENCE TESTS

There are two kinds of intelligence tests. They are Verbal Intelligence Tests and Non-Verbal Intelligence Tests.

**Verbal Intelligence Tests:** In a verbal intelligence the items are expressed in language forms. In this test, there are about 80 questions which are to be answered in a brief time of about half an hour.

The candidate must begin with solving the easy questions. He must try to solve them correctly. He must not be in much haste to spoil his work. He must be patient and steady in solving the problems. His confidence will help him to gain credit for himself in the tests. In order to gain a high number of marks, the candidate must concentrate on establishing relationships between different things or patterns given in the setting in the minimum time. He must observe very minutely the words, figures, patterns, etc. The candidate should note and analyse the particular relationship between these things. The verbal intelligence tests are of various types. They are Analogy Test, One-Word Substitution, Insertion of Missing Letter, Insertion of Missing Number or Figure, Word Forming, Jumbled words, Formation of Correct Sentence, Letter Distinction, General Knowledge Test, Alphabetical Test, Completion Test, Synonym Test, Direction Test, Spotting the Stranger, Code Test, Coding and Decoding, Commonsense Test, Multiple Choice Tests Arithmetic Test, etc.

**Non-Verbal Intelligence Tests:** In non-verbal intelligence tests, the items are expressed by materials for instance, line drawings, patterns, wooden or plastic pictures, etc.

These tests are usually arranged to remove the inconvenience of most of the candidates who are not fully familiar with the language. Besides, the Mujaheds or soldiers in the Pakistan Armed Forces have often to tackle such situations in their practical military life.

The non-verbal intelligence tests comprise of Matrix Test, Sequence Test, Mechanical Aptitude Test, Word Aptitude Test, Thematic Apperception (Picture-Story writing), The Psychological Situational Test (The story of THEO or Mr. "Block-Making Test, etc.

# HOW TO SOLVE VERBAL INTELLIGENCE TESTS

There are various methods for solving Verbal Intelligence Tests. They include, Analogy Test, One-Word Substitution, Insertion of Missing Letter, Insertion of missing number of Figure, Word-Forming, Jumbled Words, Formation of Correct Sentence, Letter Distinction, General Knowledge Test, Alphabetical Test, Synonym Test, Direct Test, Spotting the Stranger, Code Test, Coding and Decoding, Common sense Test, Multiple Choice Test, Arithmetic Test, etc.

Now, we shall take all these types in detail together with their meanings, examples, and questions with answers.

**Analogy Test:** The word analogy means "an agreement or correspondence in certain respects between things otherwise different-- a resemblance of relations, as in the phrase, "knowledge is to the mind, what light is to the eye": relation in general: likeness: correspondence of a word, a phrase with the genius of a language, as learned from the manner in which its words and phrases are ordinarily formed similarity of derivative or inflectional processes".

**Example 1:** Inserting the missing word.

Day is to night as truth is to falsehood.

**Answer 1.** In the above sentence the word Falsehood has been inserted.

**Example 2.** Which choice gives the answer"

1. Man is to run as bird is to \_\_\_\_\_

Choices: (i) Fly (ii) run (iii) weak.

Answer. (i)

**Example 3.** Ring is to Finger as watch is to \_\_\_\_\_

Choices: (1) Ann (ii) wrist (iii) leg.

Answer. (ii)

**Relationship Test:** In this test, there exists a certain relationship between the pairs of the words.

**Example:** Write the number of the two words which keep the same relationship as pen and ink in the following:

(i) Shoes (ii) Medicine (iii) Player (iv) Hockey (v) Doctor (vi) Cobbler

**Answer:** (vii) and (i)

**Jumbled Test or Jumbled Spelling Test:** In this test jumbled spellings of some common words are given and the candidates are desired to trace out the correct word and write it. Sometimes, a hint is also given about the nature of the word.

The word jumble "means to be mixed together without order: to be mixed together confusedly

**Example:** Which choice mentions the last letter of the word from the following jumbled spelling?

**BOOT FALL:**

Choices: (i) L, (ii) B, (iii) F, (iv) T.

**Answer:** L (The correct word is, Football).

**Jumbled Sentence Test:** In this test, the words which form a sentence are jumbled (mixed) up and the candidates are required to apply their common sense and rearrange these jumbled words to form an understandable or sensible sentence.

**Example:** Rearrange the following jumbled words to form a sensible sentence:

- (i) The bud nipped must be evil in the.
- (ii) All cats are not cats but all animals are animals.
- (iii) One of the foretell to share things cannot come.

**Answer:** (i) The evil must be nipped in the bud.

- (ii) All cats are animals but all animals are not cats.
- (iii) One cannot foretell the shape of things to come.

**Coding and Decoding Test:** Giving Code or artificial values to Letter of Alphabet. The word code means "a collection or digit of law: a system of rules and regulations, established principles or standards: a system of words, letters or symbols which represents sentences or other words to ensure economy or secrecy in transmission."

In the service of army, perfect secrecy is required about the information with regard to the movement or action of the army. For this object, often secret messages are to be conveyed in code and the same have to be decoded. Hence, it is essential that the candidates should be in a position to trace the key to the code.

Letters of alphabet, in this test, do not stand for themselves but they stand for some other letters which keep an artificial or code value. These artificial or code values are given to these alphabets according to some fixed law or pattern which are not difficult for the candidate to understand. By following the same law or principle, the coded message can be decoded into clear word message. This test can be solved with convenience, if all the letters of the alphabet are first written and then, by compositing the real and artificial value of letter, set the relationship or pattern of the code. For this object, usually alphabets are printed on the answer sheet for the use of the candidates.

**Example:** If Y C V G T means W A T E R, then what does H K T G mean?

**Solution:** In this question:

Y stands for W

C stands for A

V stands for T

G stands for E

T stands for R

A careful observation brings out that each letter in the alphabet (A B C D E F G H I J K L M N O P Q R S T U V W X Y Z) stands for the letter two places preceding it.

Using the same principle, the letters H K T G will stand for FIRE.

It may be noted that in the ISSB tests, the method of giving the same question is, usually, as under:

Which choice mentions the first letter of the correct answer to the following?

If Y C V G T means W A T E R, what does H K T G mean?

Choices: (i) F (ii) R (iii) E

The answer is obviously (i) as F is the first letter of the code.

The candidate will be required to write figure (i) in the suitable column in the answer sheet provided. The candidate should not write the word FIRE because, then the answer will be wrong.

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Giving artificial or *Code Values to Arithmetical Digit*. In this kind of intelligence test, the digits do not carry their real values, but they are given artificial values. These artificial values are given to the digits according to fixed principles which can be very easily understood by a minute observation.

**Example:**

If  $2 = 0$   
 and  $3 = 3$   
 and  $4 = 8$   
 Then  $7 = ?$

Choices (1) 30 (ii) 35 (iii) 40.

**Solution:** In this question number (or figure) 2 is multiplied by zero and therefore, it is equivalent to zero. Number 3 is multiplied by 1 and therefore, it is equivalent to 3. Figure or number 4 is multiplied by 2 and therefore, it is equivalent to 8. Number 5 is multiplied by 3 and therefore, it is equivalent to 15. Careful observation will disclose that the number by which each succeeding figure is multiplied goes on increasing by number one in order to assume an artificial value.

Using the same principle, the figure 7 is to be multiplied by 5 in order to assume an artificial value.

Therefore, its artificial or coded value will be  $7 \times 5 = 35$ .

But note that the answer to the question will be choice (ii) and the number or figure 35. Hence, the answer is choice (ii).

**Best Reason or Multiple Choice Test:** In this test, an incomplete statement is followed by some alternative choice as answers. The candidate is asked to choose one or more suitable choices of answers that complete the question or the statement.

**Example:** Which choice answers the following question?

Islamabad is famous because:

- (i) It is a very beautiful city.
- (ii) Numerous foreigners, live in it.
- (iii) The President lives in it.
- (iv) It is the capital of Pakistan.

**Answer:** (iv)

**Same Class Test:** The candidates are supplied a group of words in this test. Some of the words in group relate to one particular class but one or more words do not belong to that class. The candidates are desired to simply pick up such word or words which do not relate to that particular class.

**Example 1:** In the following collection, write the number of the subject which is dissimilar from the other subjects:

- (i) Principal
- (ii) Professor
- (iii) Headmaster
- (iv) Teacher
- (v) Student

**Answer:** (v)

**Example 2:** Write the number of the pair which is odd from the other pairs in the following:

- (i) Wrong and Right.
- (ii) Long and Short.
- (iii) Please and Happy.
- (iv) Curved and Straight.

**Answer:** (iii)

**Synonym Test:** The word Synonym means "a name or word having the same meaning with another: one or two or more words which have the same meaning."

The candidates in this test are supplied with pairs of words with the same meaning. But a certain pair is such that the meaning of the two words in the pair is not the same. Here the job of the candidate is simply to pick up a pair of words which do not carry the same meaning and write down the number of that pair.

**Example:** Write the number of the pair of the words, which does not possess the same kind of meaning as the others:

- (i) Honesty and Integrity.
- (ii) Bondage and Freedom.
- (iii) Risk and Danger.
- (iv) Pain and Agony.

**Answer:** (ii)

**Antonym Test:** The word antonym means "a word which is the opposite of another. The Urdu meaning of this word is (متضاد).

**Example:** Write the number of the pair which have a relationship different from the other pair:

- (i) Excess, Surplus
- (ii) Food, Famine
- (iii) Compulsory, Voluntary

**Answer:** (i)

**Direction Sense Test:** This test requires a keen sense of direction. The candidate must remember the distance covered in the direction. This will help him to answer the question correct.

**Example:** If you start from point A and walk 5 miles towards the West, then turn right and walk 4 miles towards the North, then turn right again and walk 3 miles, then which choices mention the direction in which are you going?

**Choices:** (i) North (ii) South (iii) West (iv) East.

**Answer:** (iv)

**Common Sense Test:** This is a simple and easy test and it requires only a common sense. In some cases, alternative choices for appropriate answers are given and the candidates are desired to select or pick up the correct answer and write down its serial number.

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**Example 1:** 5 years ago, Ahdullah was 10 years older than Iqbal. What is the difference between their ages at present?

**Choices:** (i) 10. (ii) 5, (iii) 15

**Answer 1:** (i)

The instructions are confusing. The candidate should study the question carefully and try to know in which way the answer is to be expressed. As soon as this is done, the question can at once be answered.

**Example:** In case  $1/2$  when added to  $1/4$  makes  $3/4$  write "wrong unless  $3/4$  when divided by  $1/4$  gives  $1/2$ , in which case write "right".

**Answer:** Wrong

**Assigning Correct Mathematical Signs:** This test is concerned with the application of elementary and simple arithmetic. It deals with only addition, multiplication and division. All these signs, in this test are omitted and the candidate has to insert these signs.

**Example:** Insert mathematical signs between the following figures:

(i)  $25 \quad 5 \quad 4 \quad = 1$

(ii)  $3 \quad 5 \quad 8 \quad = 23$

(iii)  $9 \quad 3 \quad 4 \quad = 2$

**Answer:**

(i)  $\div, -$

(ii)  $\times, +$

(iii)  $-, -$

**Words Building Test:** This test measures the ability of the candidates in word building. Here, the words are built either by prefixing (before) or suffixing (fixing at the end) new letters or taking off from or adding new letters to the body of the words.

**Example:** Imagine a single word which when added to the body of the following words forms entirely new words:

FIST, TICK, HEAT, BUST.

**Solution:** The candidates will see that if the word "R" is added to each of the given words, the new formed words will be:

FIRST, TRICK, HEART, BURST.

Hence, the answer is R.

**Alphabetical Test:** This test is based on alphabet. If a candidate has sharp memory, then this question becomes quite simple.

**Example 1:** Given the alphabet:

**Example 2:** It takes 3 minutes to boil an egg. How much time will it take to boil 6 eggs together?

**Choices:** (i) 18 (ii) 6 (iii) 3

**Answer 2:** (iii)

**Sequence Test:** The word sequence means "state of being sequent or following order of succession or a series of things following in a certain order as a set of three or more cards in order of value that which follows consequence."

In this test, the candidate should at first, carefully observe the correct sequence of words in the dictionary. Sequence of months of the year, etc. should be observed minutely by the candidate. This will lead him to arrive at correct answer.

**Example:** If 5th of the month falls two days after Monday what day of the week will fall on 19th of the month?

**Answer:** Wednesday.

**Blood Relationship:** The candidates in this test are required to know about blood relations of a man. This test is very interesting and simple.

**Example:** A and B are children of C. C is the father of A but B is not the daughter of C. What is B to C?

**Answer:** Son

**Confusing Instructions Test:**

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- (i) Write the letter 3 letters before Z.
- (ii) Write the eighteenth letter of the alphabet given above.
- (iii) Write down the fourth vowel after the fourth consonant.

**Answers:** (i) V (ii) R (iii) O (In the 26-letter alphabet, there are five vowels: A, E, I, O, U, and the rest 21 letters are consonants).

**Letter Completion Test:** In this test, some letters of the words the meaning of which are given against them are missing. The candidates are asked to fill in those letters.

**Example:** Insert suitable letters in the following:

- (i) \_\_\_\_ar\_\_\_\_ e (big)
- (ii) quick\_\_\_\_ y (fast)
- (iii) \_\_\_\_h\_\_\_\_ rt (not tall)
- (iv) \_\_\_\_m\_\_\_\_ ll (not big)
- (v) \_\_\_\_LL\_\_\_\_ H (Creator)

**Answer:** (i) L g. (ii) I, (iii) S o. (iv) S a (v) A a.

**General Knowledge Test:** This is a test of general knowledge where the candidate is required to keep his general knowledge up-to-date.

**Example:** Answer the following questions in "Yes" or "No".

- (i) Karachi is the capital of Sindh.
- (ii) Harappa is situated in Multan district.

**Answer:** (i) Yes (ii) No

**Word Finding:** In this test, the ability of the candidate is tested in word finding. Usually, the first and the last alphabets of the word is given and the candidate is asked to write one or more words that start and close with the alphabet's given in the question. The word should be the names of some places, persons or foreign words. This detail is usually supplied in the test.

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**Example:** Write a word that begins with K and ends with I. The word may be the name of a person, places or foreign words.

**Answer:** Karachi.

**Absurdity Test:** The word absurd means "obviously un-reason able or false: ridiculous."  
In the "absurdity test", generally a statement is given which is absurd. The candidates are desired to trace that absurdity.

**Example:** Trace the absurdity in the following statements:

- (i) The smoke of the electric engine which was running at a speed of 60 miles per hour was running in an opposite direction.
- (ii) A horse fell down when it was running at a speed of 60 miles per hour.

**Answers:** (i) Electric train does not have any smoke.

(ii) A horse cannot run at a speed of 60 miles per hour.

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## Non-Verbal Intelligence Tests or Matrix Test

The candidates are also put to another test, known as "Non-Verbal Intelligence Test" or Matrix Test".

In "Matrix Test", the meaning of the word matrix or matrix is "the cavity in which an animal is formed before its birth, the womb: the cavity in which anything is formed, a mould earthy or stony substances in which minerals are embedded: (in mathematical meaning) a rectangular array of quantities usually square—a multiple quantity having as many dimensions as it has spaces."

In matrix or Matrices Test lines, shaded designs, etc. are used. This test is mostly, similar to other tests of letter-figure type test. In this test, a series of designs is displayed. The candidate is required to complete the series or delete any particular design which does not relate to the series. This test measures the qualities of the candidate in the field of quick grasping of problems, sharpness of the eye, keenness in observation, etc.

As in other tests, in this too, a separate answer sheet is given to the candidate. He is required to give the number or the figure or the pattern in question.

The time for this test is also limited one. The candidate must try to make best use of the time. He must start with attempting easier questions. If he finds that some questions are tough, then he must switch over the others. He must go on solving the questions in a quick but correct way. He must try to save sometime at the end. In the manner he will be able to find some time in solving the difficult questions which he has left out in the first attempt. This methodology helps the candidate to strengthen his position in the test. Thus, he can be able to secure a high credit for him.

Helpful hints for solving Matrix Test questions: in the Non-Verbal Test or Matrix Test, we shall find that there is a great similarity in this chapter 1 viz. "Kinds of Verbal Intelligence Tests. In the chapter 1, we were dealing with: Analogies, synthesis, Completion of letters and numbers whereas in this chapter, we are dealing with Analogies, Synthesis, Movement Sequence, Pattern Completion of figures etc.

In solving questions of Matrix Test, we have to establish some sequence in the figures, sometimes, we have to establish the relations of analogy, synthesis, movement sequence, pattern completion, etc. in these test, we have to observe the figures minutely and have to establish some link or relationship between the figures, after tracing the principle, we pick out the figures which solve our problems.

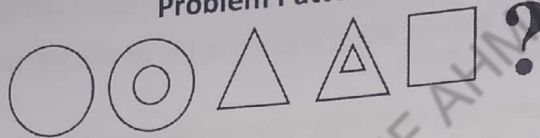
# HOW TO SOLVE NON-VERBAL INTELLIGENCE TEST

## Method of Solving of Question No. 1 – 10 Completion of Series or What Will Come Next

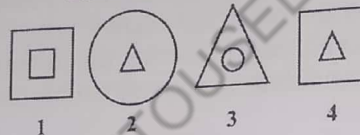
In this kind of Non-Verbal Intelligence Test or Matrix Test, a series of drawings or patterns or designs are arranged in a particular pattern and the candidate is asked to choose the required figures out of the choice indicated, which will come next in the series. Upon minute observation of the figures, the candidate can find that there exists a certain relationship between the first, the second, the third figures, and so on. Pursuing this relationship, the candidate can establish the fact that the figures move in a particular manner or in some cases, a figure may move in the clockwise or anti-clockwise direction.

**Example 1:** which figure out of the choices given occurs next in the series of drawings given below:

**Problem Pattern**



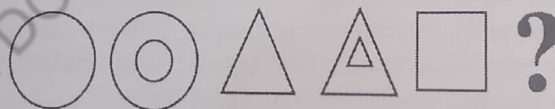
**Answer Pattern**



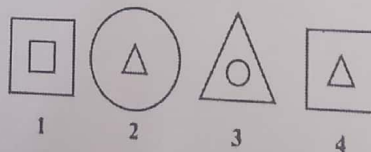
**Answer is 1**

1.

**PROBLEM PATTERNS**



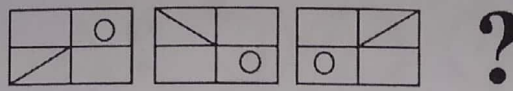
**ANSWER PATTERN**



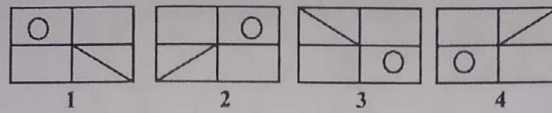
**Solution 1:** In the Problem Patterns we see that the first figure is a circle. In the second figure there is a smaller circle enclosed in a bigger one. The third figure is a triangle. In the fourth figure a smaller triangle is enclosed in a bigger triangle. The fifth figure is a square. By pursuing the previous pattern. We learn that a smaller square should be placed in a bigger square and it will supply the next figures to continue the series. The answer therefore, is choice 1 in the Answer Patterns.

2.

PROBLEM PATTERNS



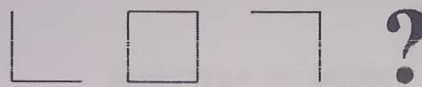
ANSWER PATTERN



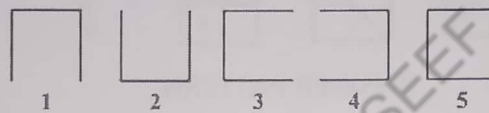
Answer is 1

3.

PROBLEM PATTERNS



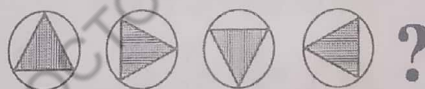
ANSWER PATTERN



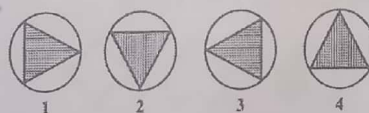
Answer is 5

4.

PROBLEM PATTERNS



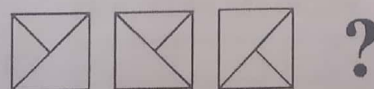
ANSWER PATTERN



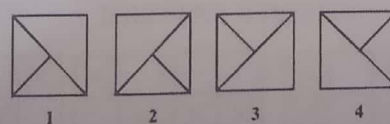
Answer is 4

5.

PROBLEM PATTERNS

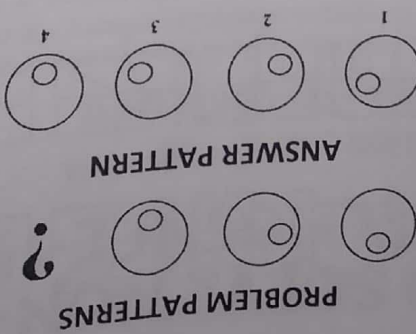


ANSWER PATTERN



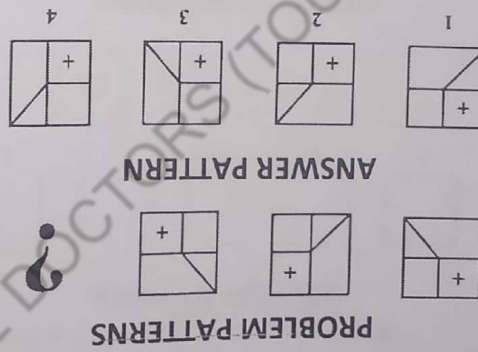
Answer is 1

6.



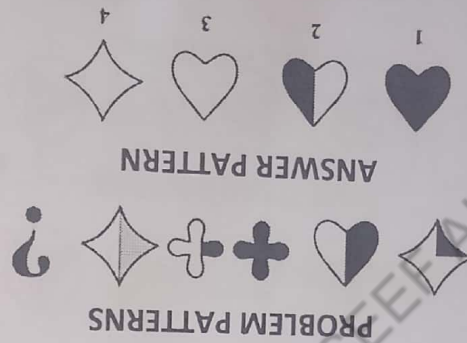
Answer is 3

7.



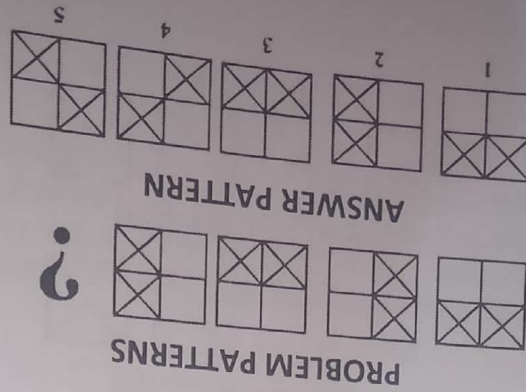
Answer is 4

8.



Answer is 1

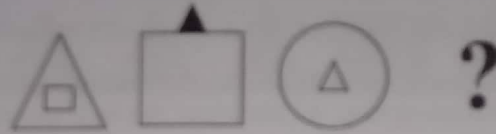
9.



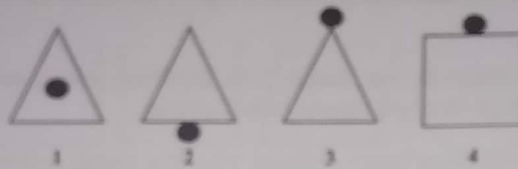
Answer is 1

10.

PROBLEM PATTERNS



ANSWER PATTERN



Answer is 3

MDCAT BY FUTURE DOCTORS (TOUSEEF AHMAD) 03499815886

# Career Finder

## Questions No. 11 to 15

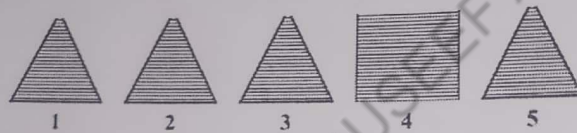
Tracing out Odd, Strange, Different or Dissimilar Figures from a Group of Similar Figures.

In this kind of Non-Verbal Intelligence test, try to identify the odd or dissimilar figure. In some way, it is odd, stranger, different or dissimilar to others in the group. A candidate has to trace out that figure and to give its serial number only.

The oddness, difference, dissimilarity or variation in a certain figure exists in various forms. Some of these variation forms are as follows.

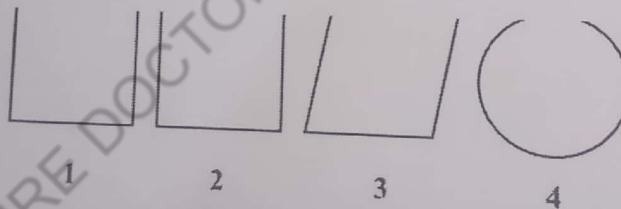
1. There may be difference or variation in the shape, size, position, class, number, etc. Sometimes, figure are paired together and an odd or strange figure is left alone.
2. All figures, in a certain group may have been divided into the same number of equal parts except in which case the number of the parts may be varied.
3. All figures or their parts, in some cases, may be moving in a particular direction. That direction may be clockwise or anti-clockwise except one in which the movement may be in the direction opposite to the other figures.

Example 1: Find out odd in the figures given below:



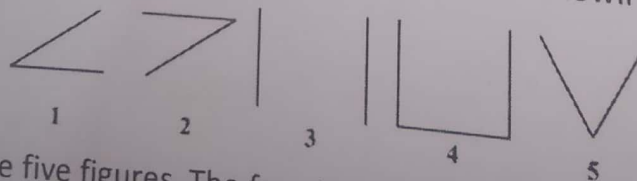
Solution 1: in these five shaded figures, four figures are triangles, and the fourth figure which is rectangular is odd. Therefore, the answer is shaded rectangular figure. Serial number 4.

Example 2: Trace out the dissimilar figure in the following group of figures:



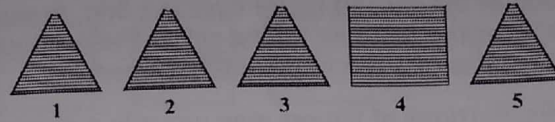
Solution 2: in these four figures. The first three figures, are four sided, and the fourth is a circle, which is different from the other three figures. Therefore, the answer, obviously is figure 4.

Example 3: Give the serial number of the figure which is strange in the following group:



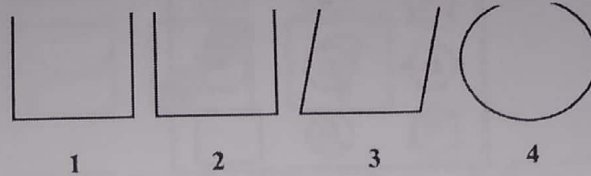
Solution 3: In this group, there are five figures. The four figures number 1, 2, 3 and 5 have got two loose end except figure number 4. Thus, it is strange from others. Therefore, the answer is figure No. 4.

11.



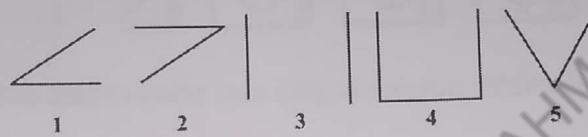
Answer is 4

12.



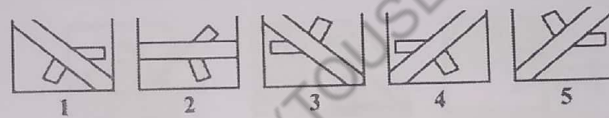
Answer is 4

13.



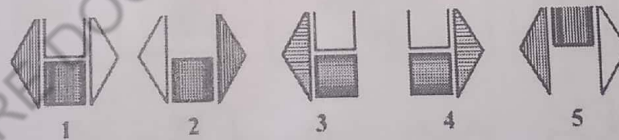
Answer is 4

14.



Answer is 2

15.



Answer is 1

**Question No. 16-20**

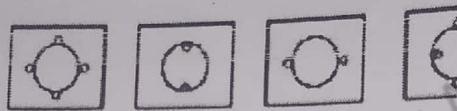
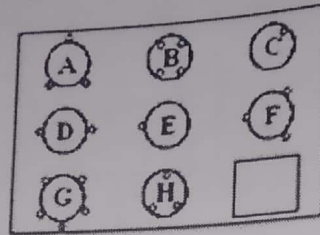
In this test, the patterns are arranged in three rows. The first two rows contain three figures each, and the third row contains only two figures and one is required to select the requisite pattern out of the given choices numbered 1, 2, 3, 3 etc. the fourth row which when placed in the blank space in the third row will complete the series.

A careful observation will show that there is a certain relationship between the three figures of the first row. The same relationship exists between the three figures in the second and the third row. But the third figure in the third row is missing. However, it is placed among the numbered figures in the last or fourth row. You have to select such a figure out of the fourth row which when placed in the blank space in the third row should establish the same relationship.

**The Relationship:** A very careful observation will help the candidate to discern the relationship between the figures in each row. The following are some of the commonly occurring relationships.

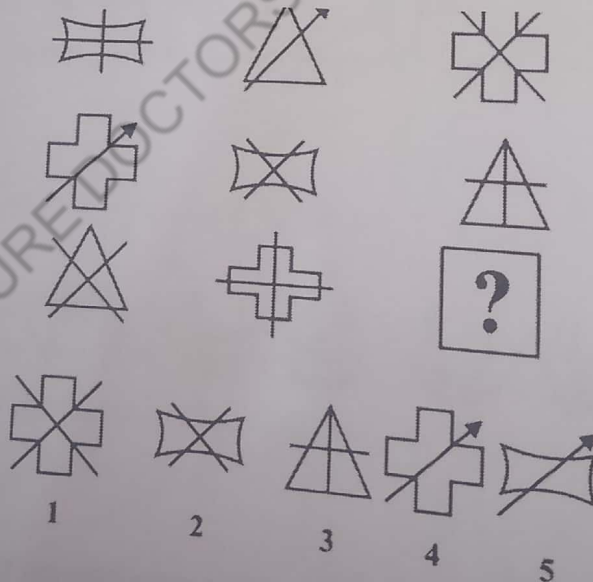
Career Finder

- a. Combination or Superimposition: The third figure is sometimes obtained by combination of the first and the second figure or the superimposition of the second figure over the first. In some cases the third figure is obtained by superimposing the second over the first and taking either the portions common to the first two figures or leaving the common portions and taking the remaining portions.
- b. Movement of portion of Figures: Portions of figures may move in a particular pattern or in clockwise or anti-clockwise direction. In addition to these, there may be others which one can tackle with practice.



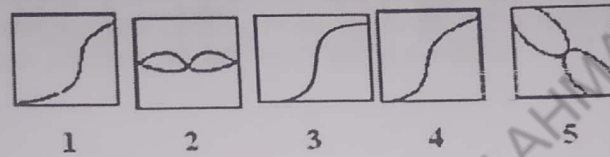
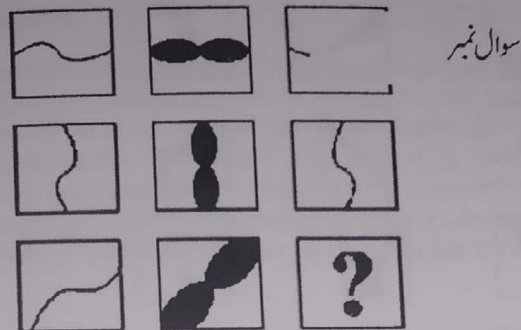
Hint: A plus D is equal to G: Three small circles outside A, plus two small circles outside D, gives you five small circles outside G.

A minus B is equal to C: Three small circles outside A, minus four small circles inside B, give you one small circle inside C; Similarly C minus F is equal to two small circles outside, or G minus H is equal to two small circles outside. So the answer is design No. 3.



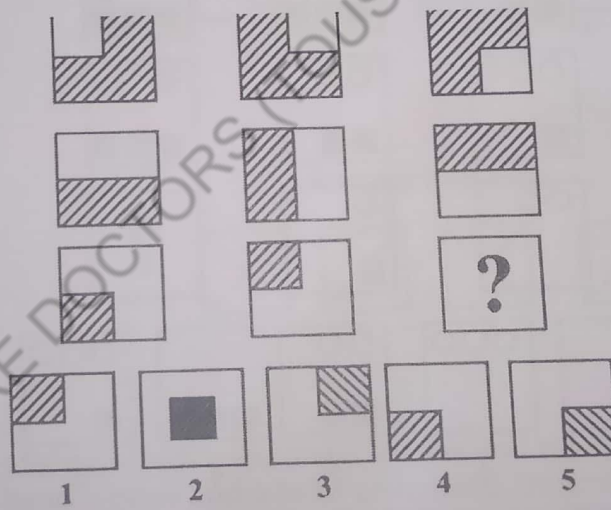
Answer is 5

17.



Answer is 1

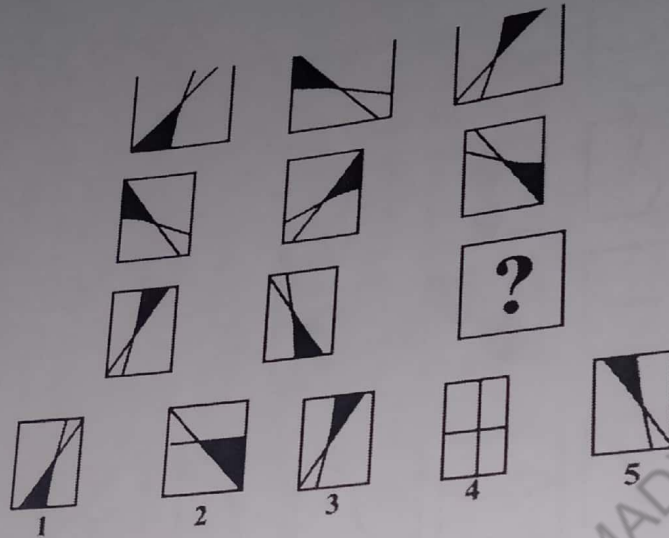
18.



Answer is 3

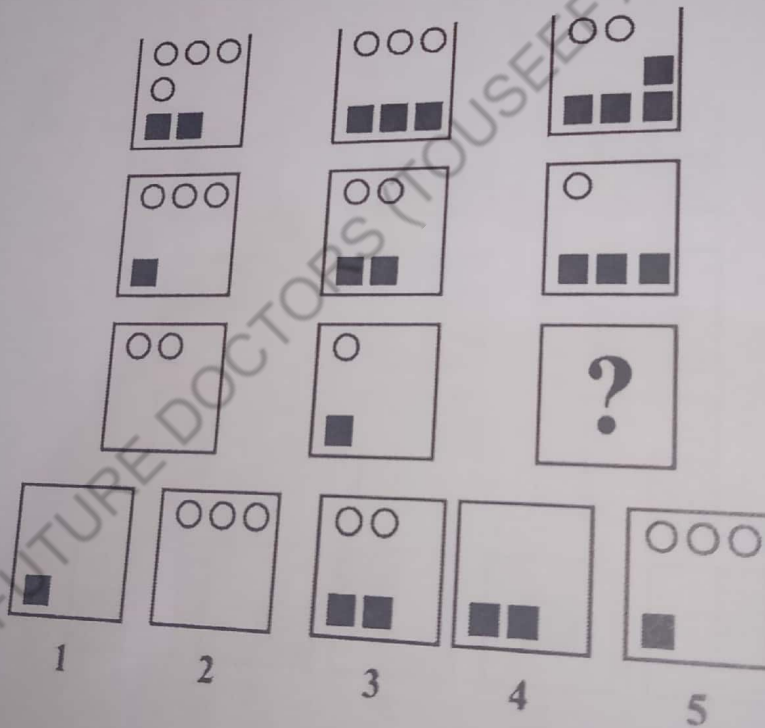
Career Finder

19.



Answer is 1

20.



wer is 4

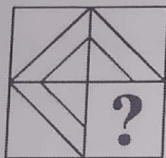
## Questions No. 21 – 30

## Completion of an Incomplete Pattern

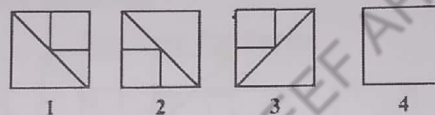
In this type of Non-Verbal Intelligence Tests, there is a symmetrical pattern, a portion, of which is left blank or incomplete. A number of small pieces of patterns, alongside this main pattern, are shown. One of these can suitably fit into the blank portion of the main pattern and the whole put together form a complete or whole pattern. The smaller pieces of patterns are numbered, viz.. 2, 3, 4, 5, etc. selecting one portion out of these small pieces, which are numbered, the candidate is required to complete the main pattern. The job of the candidate is to choose out of the given choices the suitable choice piece which fits into the incomplete or blank space in the main pattern and write the serial number of that choice in the suitable column in the answer sheet supplied for that aim.

Example: In the following figures, there are main Problem Patterns on the left hand side and on its right hand, there are four serially numbered small Answer Patterns. One portion of the main pattern is left blank or incomplete. We have to choose the suitable choice, from the Answer Patterns, which suits into the blank space in the main pattern or the problem pattern, and write its serial number.

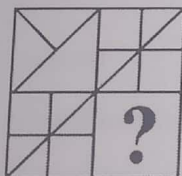
## Problem Patterns



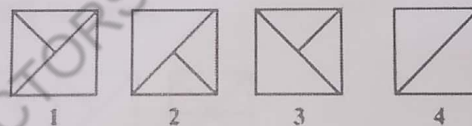
## Answer Patterns



## Problem Patterns



## Answer Patterns



21.

**Solution:** In the Problem Patterns figure, which is rectangle, we see that the right hand bottom quarter of the main rectangle figure on the left hand is blank and is to be completed. Observing minutely the three other completed quarters, will show us that the pattern in the blank rectangle will have the lines as shown below:

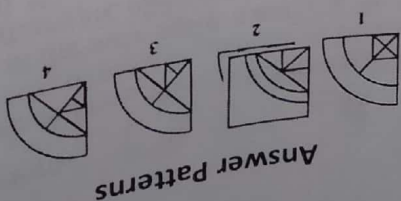
A Diagonal joining the right hand top corner to the left hand bottom corner.

A vertical line, from the center of this diagonal, and a horizontal line are to be in such a manner that these reach up to the top side and left hand side of the small rectangle. Now, we should carefully see the choices in the Answer Patterns and should find that the only choices which fits out purpose is the figure which is represented in the number 3. We place it in the blank quarter and find that it completes the main pattern in a correct manner. Hence, choice 3 in the Answer Patterns is the required answer.

22.



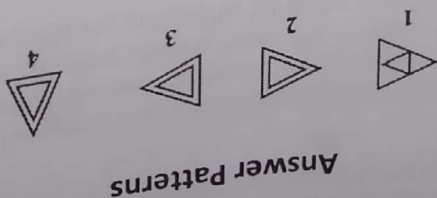
Answer is 2



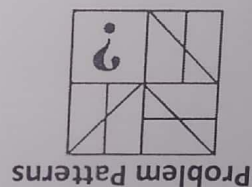
23.



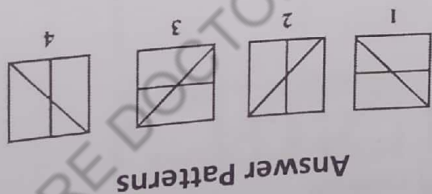
Answer is 2



24.



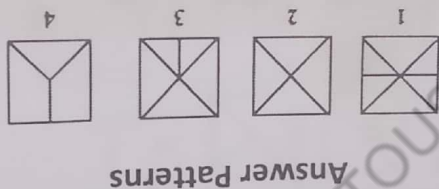
Answer is 3



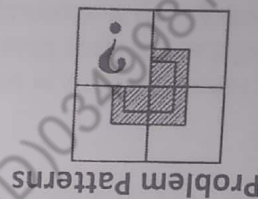
25.



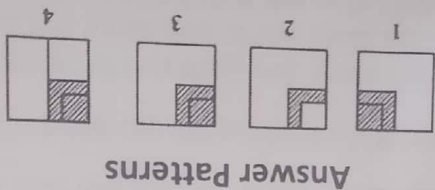
Answer is 3



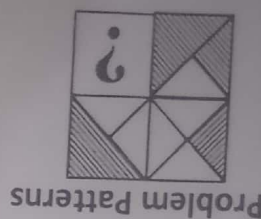
26.



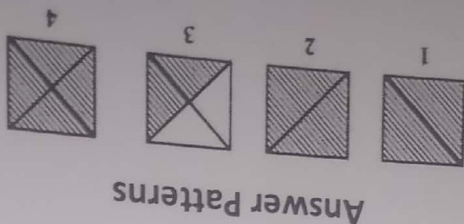
Answer is 3



27.

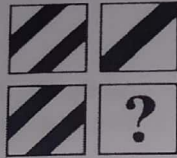


Answer is 4

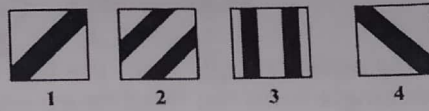


## Problem Patterns

28.



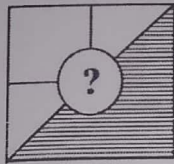
## Answer Patterns



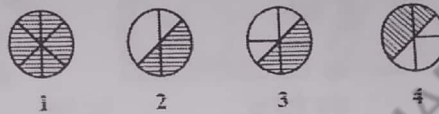
Answer is 1

## Problem Patterns

29.



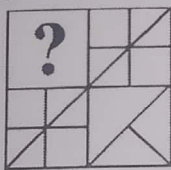
## Answer Patterns



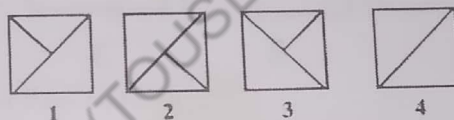
Answer is 3

## Problem Patterns

30.



## Answer Patterns



Answer is 1

## Questions No. 31-40

## Completion of Relationship

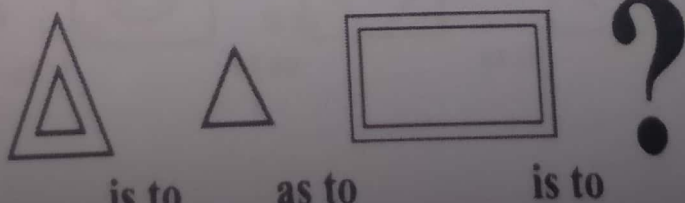
The non-verbal intelligence tests regarding "Completion of Relationship" contain three figures and we have to select a fourth figure out of the given choices.

In this type of test, there is a certain kind of relationship between the first two figures in the group and the relationship continues to exist between the third and the missing fourth figure. To complete this relationship, we have to choose the required figure out of the various choices given. These relationships are of two kinds explained below:

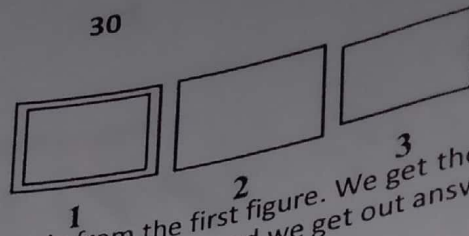
1. In the first pair of figures. The main outer figure may be the same and the inner figure may be different.
2. The first main figure may have similarity with the third figure, and the same relationship should exist between the second and fourth figure.

**Example:** In the following Problem Patterns, choose the appropriate figure from the answer pattern to complete the pattern.

## Problem Patterns

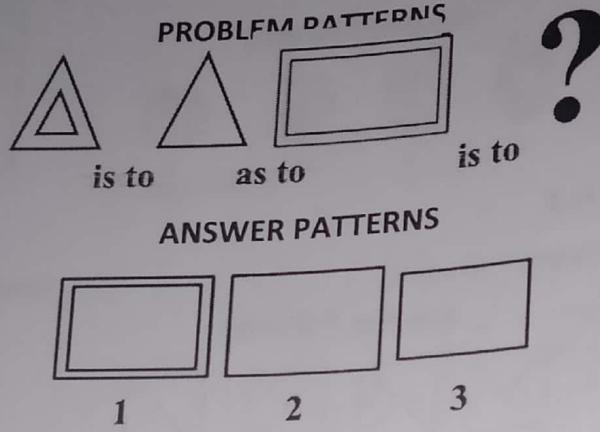


Answer Patterns



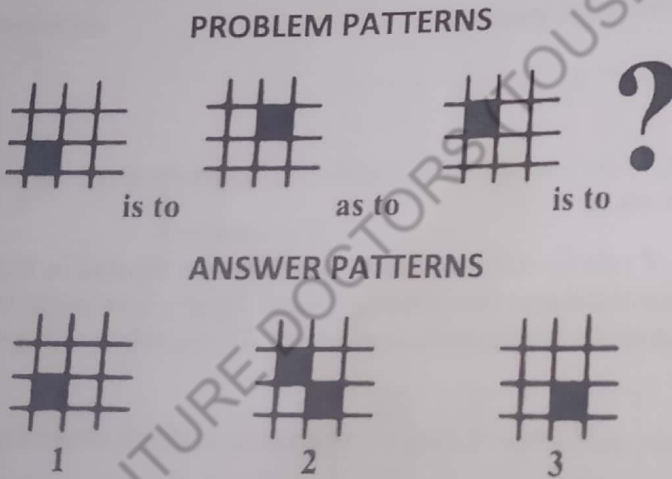
Solution: Here, we see that by removing outer triangle from the first figure. We get the second figure. Following this process. We remove the outer rectangle from the third figure and we get out answer in the third figure of the Answer Patterns.

31.

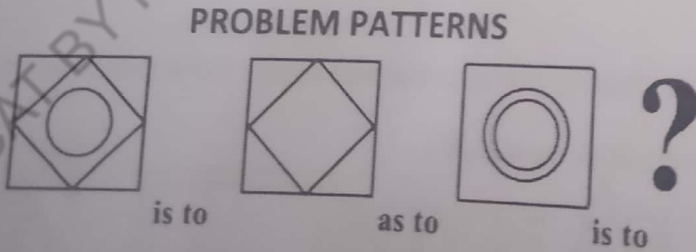


Answer is 3

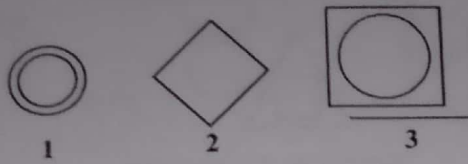
32.



Answer is 3



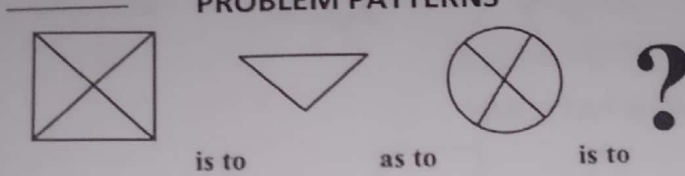
ANSWER PATTERNS



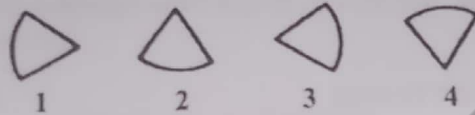
Answer is 1

34.

PROBLEM PATTERNS



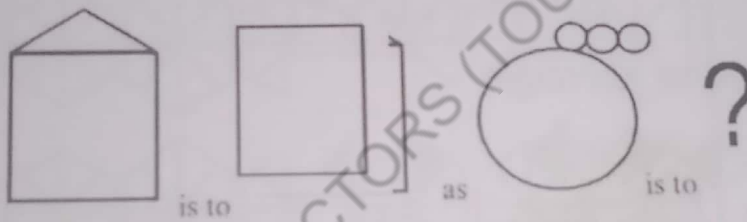
ANSWER PATTERNS



Answer is 4

35.

PROBLEM PATTERNS



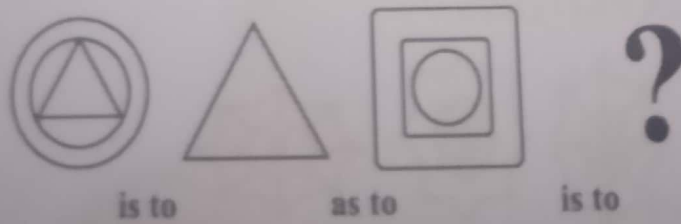
ANSWER PATTERNS

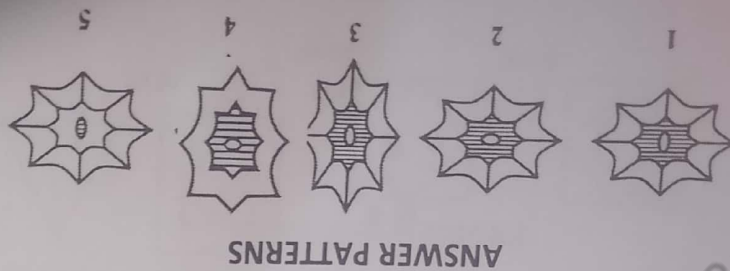
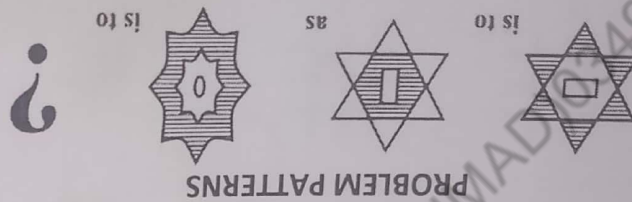
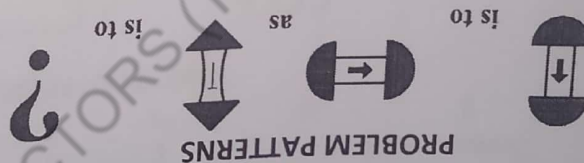
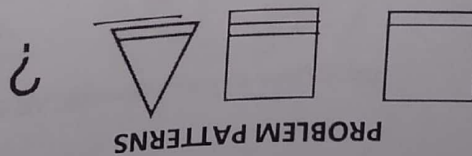
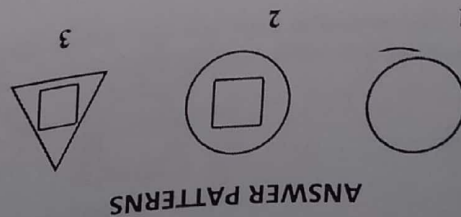


Answer is 2

36.

PROBLEM PATTERNS





37. Answer is 4

38. Answer is 1

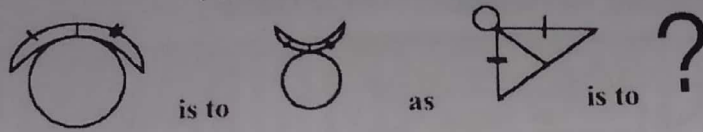
Answer is 3

39.

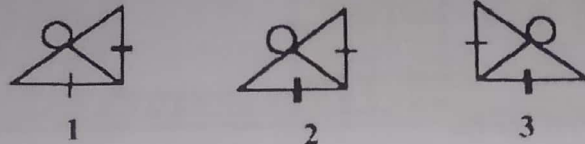
Answer is 2

40.

PROBLEM PATTERNS



ANSWER PATTERNS



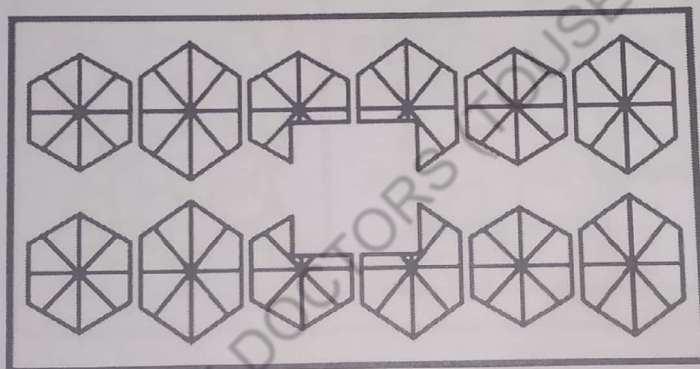
Answer is 2

Questions 41 – 60

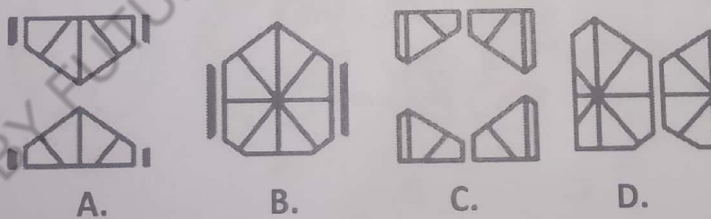
This is a simple test you are given a design with a part of missing. You have to complete the design by filling it with the four figures provided below:

41.

PROBLEM PATTERNS

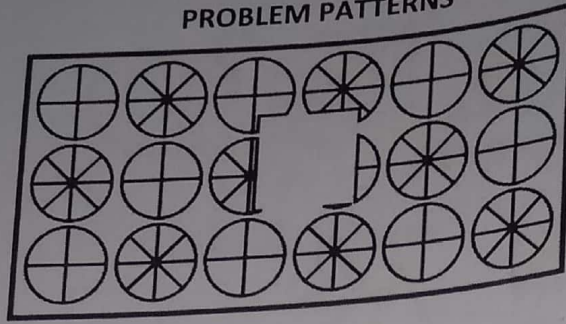


ANSWER PATTERNS

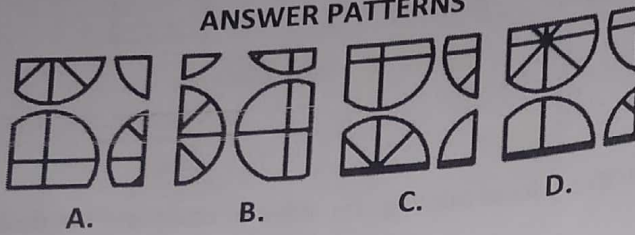


42.

PROBLEM PATTERNS

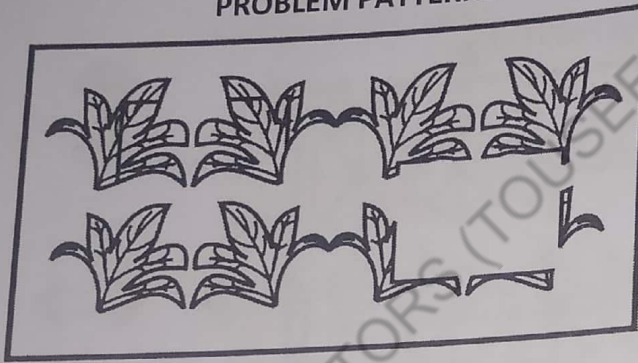


ANSWER PATTERNS

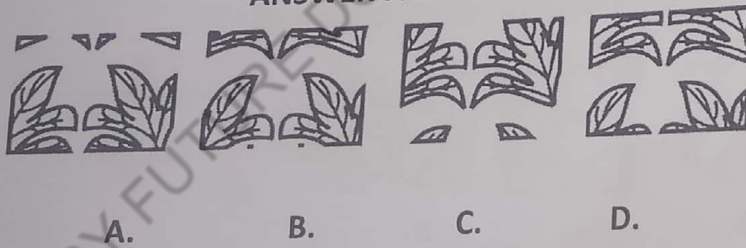


43.

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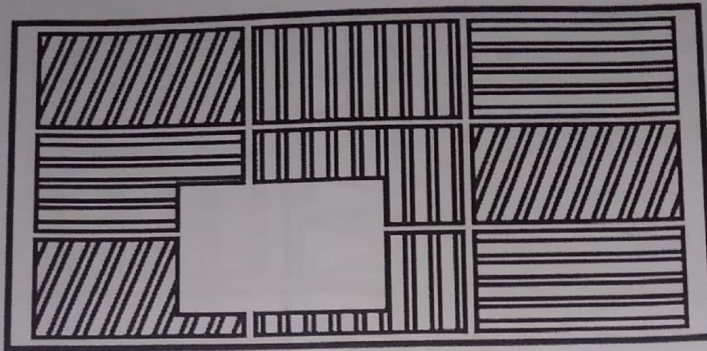


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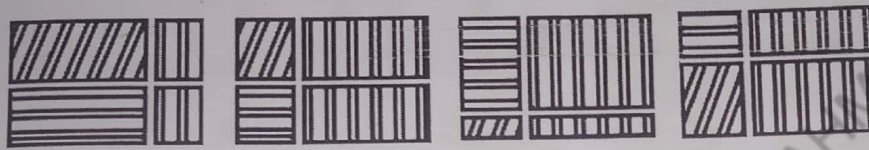


44.

PROBLEM PATTERNS



ANSWER PATTERNS



A.

B.

C.

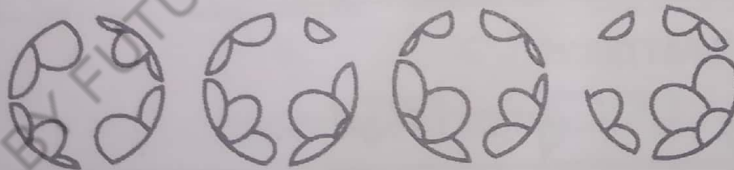
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45.

PROBLEM PATTERNS



ANSWER PATTERNS



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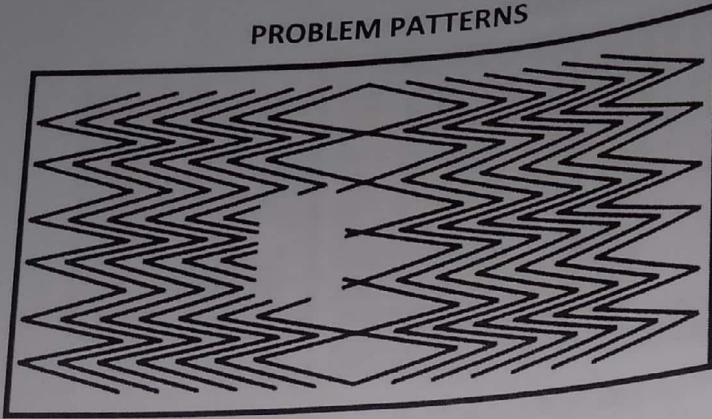
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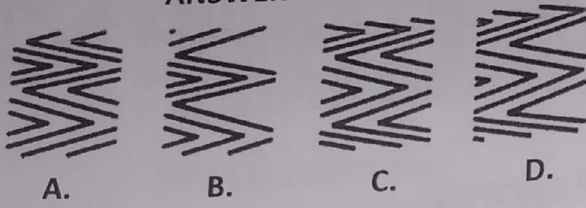
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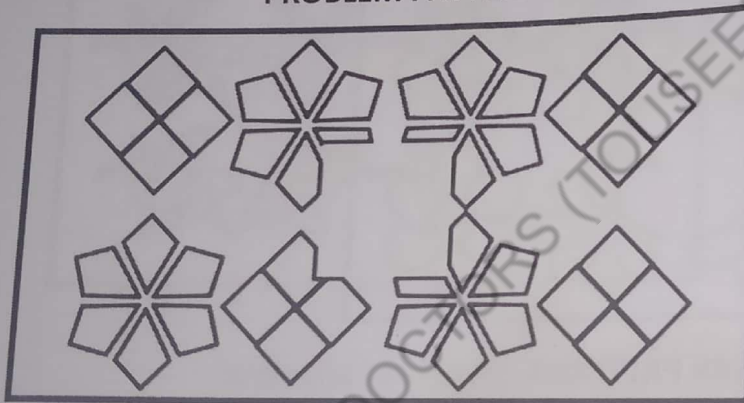


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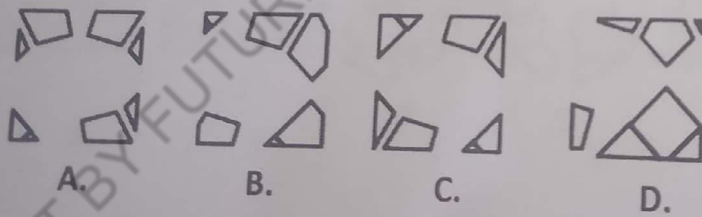


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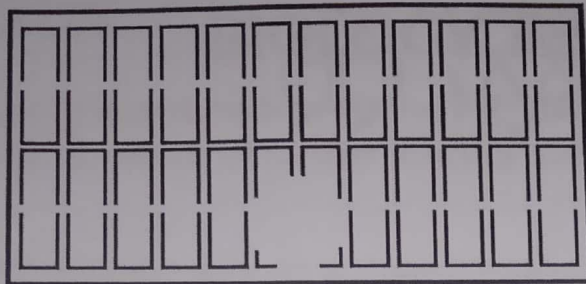


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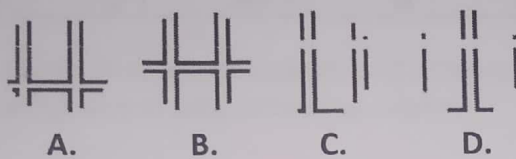


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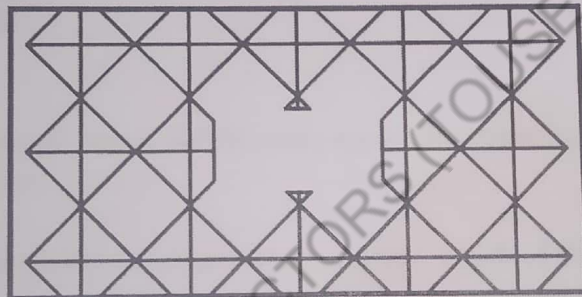


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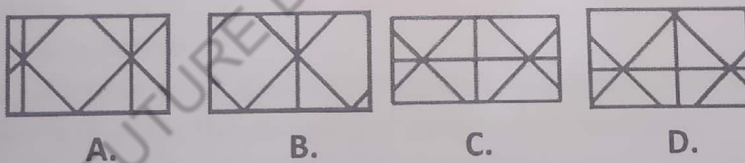


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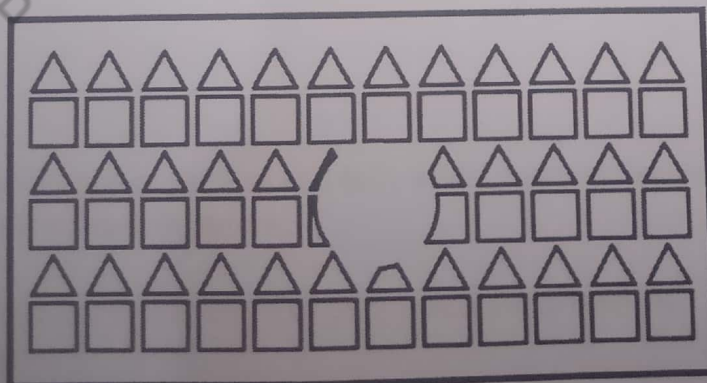


ANSWER PATTERNS



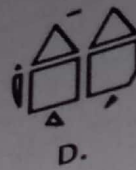
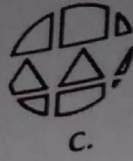
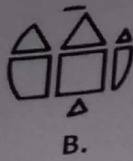
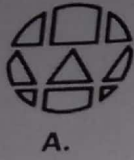
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PROBLEM PATTERNS



Career Finder

ANSWER PATTERNS



Answer Key

41.	C	42.	B	43.	A	44.	D	45.	C
46.	B	47.	A	48.	D	49.	C	50.	B

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# DIAGNOSTIC TEST

## BIOLOGY TEST

Attempt the following questions from biology to practice for your biology section of the test. To attempt hundreds of further practice questions on biology visit [tabir.pk](http://tabir.pk)

1. The distribution of organisms in space can be studied through

- A. **Biome**
- B. Zoogeography
- C. Community
- D. Social biology

In a biome, we can study the kinds of animals, plants and other organisms. Whereas, zoogeography involves the study of hereditary and distribution of only animals in nature.

2. Age of trilobites lies in which of the following era?

- A. Proterozoic era
- B. **Palaeozoic era**
- C. Mesozoic era
- D. Cenozoic era

Age of trilobites was present about 400 M years ago in the Palaeozoic era. The trilobites evolved to give the modern-day invertebrates.

3. To produce lactose, glucose and galactose undergo which of the following reactions?

- A. Hydrogenation
- B. Hydrolysis
- C. **Dehydration**
- D. Dehydrohalogenation

When glucose and galactose react, a water molecule is released and a glycosidic bond is formed between them. This type of reaction falls under the category of dehydration reactions.

4. Acylglycerols are formed by the reaction of glycerol (alcohol) and fatty acids. They fall under the category of

- A. Ether
- B. Ketone
- C. **Ester**
- D. Aldehyde

As a result of reaction between glycerol and fatty acids, water molecules are released, and an ester is formed. Hence, acylglycerols are esters in nature.

5. The enzymes involved in the synthesis of proteins are present in

- A. Chloroplasts
- B. Mitochondria
- C. Nucleolus
- D. **Ribosomes**

## Career Finder

- B. Absorption of carbon dioxide
- C. **Asexual reproduction**
- D. Sexual reproduction

The gemma cups present in a liverwort *Marchantia* function in asexual reproduction.

19. The phylum of animals in which there is no body cavity is/are

- A. **Platyhelminthes**
- B. Aschelminthes
- C. Annelids
- D. Chordates

In phylum platyhelminthes, there is no body cavity or coelom, hence are called acoelomates. Aschelminthes are pseudocoelomates and Annelids and Chordates are coelomates.

20. Sponges are mostly protandrous, which means

- A. Both sexes develop simultaneously
- B. **Male sex develops first**
- C. Female sex develops first
- D. None of the above

The sponges are mostly protandrous, i.e. male sex cells develop first.

21. The hydrogen produced by splitting of water is used to

- A. Produce glucose
- B. **Phosphorylation**
- C. Krebs cycle
- D. Respiration

The hydrogen produced by splitting of water reduces NADP to  $\text{NADPH}_2$  during phosphorylation.

22. The pigments that absorb yellow to orange light are

- A. Carotenoids
- B. **Xanthophylls**
- C. Chlorophyll
- D. Bacteriochlorophylls

Xanthophylls are accessory photosynthetic pigments that absorb yellow to orange light.

23. Puccinia is a parasitic fungus that destroys

- A. **Wheat**
- B. Corn
- C. Barley
- D. Sugar cane

The parasitic fungi Puccinia attacks and destroys wheat plant.

24. Horse is an example of

- A. Rodents
- B. **Ungulates**
- C. Both
- D. None

A horse is a hoofed grazing animal and falls under the category of ungulates.

25. The respiratory system of cockroach consists of tracheae lined up by

- A. Cellulose
- B. Lignin
- C. **Chitin**
- D. Pectin

The respiratory system of cockroach is very specialized. It consists of branching system of air tubules called tracheae lined by chitin.

26. When abdomen of cockroach contracts

- A. The first four pairs of spiracles open
- B. The anterior four pairs of spiracles close
- C. The posterior six pairs of spiracles open
- D. **Both B and C**

When the abdomen contracts, the anterior four pairs of spiracles close and the posterior six pairs open. This forces air through the tubes and eventually out of the body.

27. The speed of water carried upward by xylem tissue in tall trees is

- A. 8 ft/min
- B. 8 ft/h
- C. 8 m/min
- D. **8 m/h**

In tall trees, large quantities of water are carried at relatively high speed, up to 8 m/h.

28. Which of the following factors is responsible for bleeding in plants?

- A. Hydrostatic pressure
- B. Root pressure
- C. Cohesion-tension forces
- D. **Both A and B**

There are two main factors responsible for bleeding, the hydrostatic pressure in xylem and phloem, and the root pressure which is exerted by xylem cells.

29. Ammonia is the excretory product of \_\_\_\_\_ animals.

- A. Marine
- B. **Freshwater**
- C. Mammals
- D. Birds

Freshwater is hypotonic in nature and 1g of ammonia requires 500ml of water for its removal. Hence, in freshwater animals, the excretion of excretory products as well as water takes place simultaneously.

30. Urea cycle occurs in

- A. Kidney
- B. Spleen
- C. **Liver**
- D. Urinary bladder

Urea cycle occurs in liver because all enzymes required for it are present in liver.

31. Opening of a flower bud is a type of \_\_\_\_\_ movement.

- A. Phototactic movement
- B. Nutation
- C. Hyponasty
- D. **Epinasty**

In epinasty, the upper surface of leaf in bud condition shows more growth as compared to the lower surface which leads to opening of the bud.

32. Auxins are involved in

- A. Phototropism
- B. Negative gravitropism
- C. Positive gravitropism
- D. **All of the above**

Auxins cause unequal cell enlargement which causes bending in different directions and all phototropism, negative gravitropism and positive gravitropism are related to the bending of plants.

33. During wilting, \_\_\_\_\_ hormone comes into action.

- A. Ethene
- B. Gibberellins
- C. **Abscisic acid**
- D. Cytokinins

Abscisic acid promotes closing of stomata under conditions of water stress (wilting).

34. In humans, baroreceptors (blood pressure receptors) are present in

- A. Left ventricle
- B. **Carotid artery**
- C. Hypothalamus
- D. Branchial vessels

Baroreceptors are present in carotid and aortic arteries of tetrapods. They play important roles in the regulation of blood pressure.

35. In plants, there is alternation of generation, meiosis occurs during

- A. Gametogenesis
- B. **Sporogenesis**
- C. Both
- D. None

Sporogenesis is the spore forming generation of plants. Meiosis takes place during sporogenesis and haploid spores are produced.

36. The disadvantage of cloning is/are

- A. Rapid aging
- B. Resistance to environmental stress
- C. Resistance to diseases
- D. **All of these**

## Career Finder

The organisms produced as a result of cloning are susceptible to environmental stress and diseases. Clones also age rapidly.

37. Lateral meristem is not present in

- A. **Monocot plants**
- B. Dicot plants
- C. Gymnosperms
- D. None of the above

Lateral meristems are cylinders of dividing cells. They are present in dicots and gymnosperms but not in monocot plants.

38. Which of the following is not present in zone of elongation?

- A. Volume increases
- B. Plasticity increases
- C. **Pressure increases**
- D. Cytoplasm synthesis

During the zone of elongation, volume increases, plasticity increases, cytoplasm is synthesized but pressure decreases during the zone of elongation.

39. During DNA strand synthesis, the link between the phosphate group and two sugars is by means of

- A. 1 ester bond
- B. **2 ester bonds**
- C. 1 ether linkage
- D. 2 ether linkages

Phosphodiester bond is formed by dehydration synthesis and is made up of two ester bonds between the phosphate group and two sugars.

40. The number of base pairs in a complete helical turn is/are

- A. 1
- B. 5
- C. **10**
- D. 15

The distance between two corresponding base pairs is 0.34 nm and a complete helix is of 3.4 nm. So the base pairs in a complete helix will be 10.

41. Which of the following is the shortest phase?

- A. Gap 1 phase
- B. Synthesis phase
- C. Pre-mitotic phase
- D. **Mitotic phase**

Mitotic phase is the shortest phase that lasts only 30 minutes. G<sub>1</sub> phase is of 9 hours, S phase 10 hours and the G<sub>2</sub> phase is of 4.5 hours.

42. During karyokinesis, there are \_\_\_\_\_ number of centrioles in the cell.

- A. 1
- B. 2

## Career Finder

- C. 3  
D. 4

One pair of centrioles is present on each side of the nucleus to maintain bipolarity of dividing cell and to form spindle fibers.

43. Which of the following is not true about law of segregation?

- A. Alleles segregate during meiosis.  
B. Each gamete receives only one allele.  
C. **Alleles unite during specific fertilization.**  
D. All are true.

According to law of segregation, the two coexisting alleles for each trait segregate at meiosis, so that each gamete receives only one of the two alleles. Alleles unite again at random fertilization of gametes when zygote is formed.

44. For each trait, there is \_\_\_\_\_ number of elements.

- A. 1  
B. **2**  
C. 3  
D. 4

Each trait has a pair of these particulate hereditary factors; one from male and the other from female parent.

45. Which of the following is not true about plasmids?

- A. They are extra-chromosomal DNA  
B. They carry genes for fertility  
C. They carry genes for anti-biotic resistance  
D. **None of the above**

Plasmids are natural extra-chromosomal circular DNA molecules which carry genes for antibiotic resistance and fertility etc. Hence, all of these are true about the characteristics of plasmids.

46. Which of the following is false?

- A. Plasmid DNA and viral DNA both serve as vectors.  
B. **Only cloned bacteria or organisms are referred as a clone not genes/molecules.**  
C. Recombinant DNA is formed when DNA ligase joins the sticky ends.  
D. Both cloned gene and protein can be isolated after cloning.  
A clone can either be a cell, molecule, gene or a complete organism.

47. The change of a reducing atmosphere to oxidizing atmosphere means life can no longer arise \_\_\_\_\_

- A. Biotically  
B. **Abiotically**  
C. Photosynthetically  
D. None of the above

When a reducing atmosphere changes to an oxidizing one, organisms can no longer arise by abiotic means because now they have oxygen in the air that can be used to produce energy.

48. According to endosymbiont hypothesis, flagella may have arisen by the ingestion of \_\_\_\_\_ bacteria.

- A. **Spirochetes**

- B. Bacillus with flagella
- C. Vibrio
- D. Cocci

According to endosymbiont hypothesis, spirochetes engulfed by larger bacteria that were not digested, rather were stabilized inside the cell resulted in the formation of flagella that helped the cell in locomotion.

49. In synecology we study
- A. Origin of community
  - B. Structure of community
  - C. Composition of community
  - D. **All of the above**

Synecology is the study of various aspects of community like the origin, structure and composition of community.

50. Cactus has water stored in \_\_\_\_\_ tissue.
- A. Sclerenchyma
  - B. Collenchyma
  - C. **Parenchyma**
  - D. Vascular cambium

Succulent plants such as cactus have water stored in large parenchyma tissues, thus they can withstand prolonged periods of water shortage.

Attempt the following questions from chemistry to practice for your chemistry section of the test. To attempt hundreds of further practice questions on chemistry visit [tabir.pk](http://tabir.pk)

1. An organic sample has the molecular formula  $C_xH_yO_z$  in the simplest ratio of 1 : 1.33 : 1. The Mr of the compound is 176. Which could be the value of Z?

- a. 6
- b. 8
- c. 2
- d. 3

**Explanation:** First of all, multiply by 3 to get the ratios in whole numbers. We get,

$$3 : 4 : 3$$

Now calculate the Mr of the empirical formula. We get,

$$3(12) + 4(1) + 3(16) = 88$$

Now calculate the value of n by dividing the Mr of the molecular formula with the Mr of the empirical formula.

We get,

$$n = \frac{176}{88} = 2$$

2. Which of the following compounds has the highest percentage of Oxygen?

- a.  $CH_3CO_2H$
- b.  $CH_3OH$
- c.  $H_2O$
- d.  $C_6H_{12}O_6$

**Explanation:** Simple calculate the percentage of Oxygen by  $\frac{\text{Mass of oxygen in compound}}{\text{Total mass of compound}} \times 100$ . Water has the highest percentage i.e. 88.9%

3. The molar gas constant, R, has the value:

- a.  $8.31 \text{ kJ K}^{-1} \text{ mol}^{-1}$
- b.  $62.4 \text{ dm}^3 \text{ torr K}^{-1} \text{ mol}^{-1}$
- c.  $0.0821 \text{ dm}^3 \text{ torr K}^{-1} \text{ mol}^{-1}$
- d.  $760 \text{ mm Hg K}^{-1} \text{ mol}^{-1}$

**Explanation:** The correct value for R with the correct units is only shown in (b)

4. Which statement about Hydrogen Bonding is not true?

- a. Hydrogen bonding gives tensile strength to our fabrics
- b. Hydrogen Bonding can be both an intramolecular and intermolecular force
- c. The high surface tension of water is a result of Hydrogen Bonding that keeps water molecules close to each other
- d. All are true

**Explanation:** (a) is true. The surface tension of water is related to the intermolecular attractive and cohesive forces, so molecules having high Hydrogen Bonding will also have high surface tension, hence (c) is incorrect. Intramolecular Hydrogen Bonds are found in macromolecules like DNA, and intermolecular Hydrogen bonds are present in water so (b) is incorrect.

5. Among the following, electron in which of these sets of quantum numbers will have the highest energy?

- a. 4, 0, 0,  $-\frac{1}{2}$
- b. 3, 2, +1,  $+\frac{1}{2}$
- c. 1, 0, 0,  $-\frac{1}{2}$
- d. 2, 1, -1,  $+\frac{1}{2}$

**Explanation:** According to Aufbau Principle, smaller the value of  $(n + l)$ , smaller the energy of electron in that subshell. The value of  $(n + l)$  for (b) is 5, while for (a), it is 4. Hence, (b) is the correct choice.

6. When an electron in Hydrogen de-excites to  $n = 1$ , the energy emitted is in the spectrum of:

- a. Lyman series
- b. Pfund series
- c. Balmer series
- d. Paschen series

**Explanation:** The level  $n = 1$  produces spectra in the uv region which is also called the Lyman series.

7. DNA (deoxyribonucleic acid) is bonded covalently into a double helix structure. What type of force that is responsible to maintain this structure of DNA? Choose the best answer.

- a. Dipole-Dipole Force
- b. Hydrogen Bonding
- c. London Force
- d. Ion-Dipole Force

Ans: b

**Explanation:** Hydrogen bonding is responsible for keeping the DNA in shaped. The hydrogen atom attached from the ends of polar molecules (either guanine or cytosine) is attracted to the electronegative elements of the compound such as O and N located at the ends of the same molecule. Because of this dipole contact between polar bonds to hydrogen polar dipole charge, it creates attractions at the ends of electronegative molecules making a chain to form a double helix structure.

8. What type of bonding is involved in  $\text{BeCl}_2$  and  $\text{AlCl}_3$ ?

- a.  $\text{BeCl}_2$  has ionic bonds while  $\text{AlCl}_3$  has covalent bonds
- b.  $\text{BeCl}_2$  has covalent bonds while  $\text{AlCl}_3$  has dative covalent bonds
- c. Both have ionic bonds
- d. None of the above

**Explanation:** Be is a metal and Cl is a non-metal, however, they form a covalent bond because the electronegativity difference between Be (electronegativity 1.57) and Cl (electronegativity 3.16) is 1.59. Ionic bonds form when the electronegativity difference is equal to or more than 1.7. (b) is wrong because  $\text{AlCl}_3$  has only covalent bonds. Dative bonds occur when  $\text{AlCl}_3$  exists as dimer i.e. in the state of  $\text{Al}_2\text{Cl}_6$ .

9. What is true about the enthalpy of  $\text{O}_2$  at standard conditions?

- a. It is negative
- b. It is positive

## Career Finder

- c. It is unity  
d. It is zero

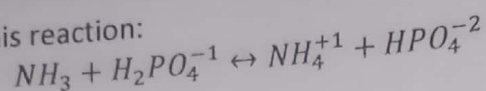
**Explanation:** It is a fact that the enthalpy of pure elements in their standard states is always zero.

10. In a gas stove, a match stick lights up fire as long as the gas is supplied.

- a. The reaction reaches completion  
b. It is highly exothermic  
c. It is an irreversible reaction  
d. None of these

**Explanation:** Most spontaneous reactions are highly exothermic which is why they tend to proceed to completion once initiated

11. What is the conjugate base of this reaction:



- a.  $\text{NH}_3$   
b.  $\text{H}_2\text{PO}_4^{-1}$   
c.  $\text{NH}_4^{+1}$   
d.  $\text{HPO}_4^{-2}$

Ans: d

**Explanation:**  $\text{NH}_3 + \text{H}_2\text{PO}_4^{-1} \leftrightarrow \text{NH}_4^{+1} + \text{HPO}_4^{-2}$

$\text{H}_2\text{PO}_4^{-1}$  is the acid and its

conjugate base is  $\text{HPO}_4^{-2}$

12. In a reaction  $2\text{A} + \text{B} \rightleftharpoons 3\text{C} + \text{D}$ , where all A, B, C, and D are gases, the pressure of the equilibrium mixture is increased. What happens to the value of  $K_p$ ?

- a. Increases  
b. Decreases  
c. Remains the same  
d. Cannot be determined

**Explanation:** The value of  $K_p$  does not change with a change in the pressure. The equilibrium constants only change with temperature.

13. For which of the following solutions, the concentration should be calculated in parts per million?

- a. 10g of salt in a cup of water  
b. 2 cm<sup>3</sup> ethanol and 5 cm<sup>3</sup> water  
c. Oxygen dissolved in a 10 cm<sup>3</sup> sample of sea-water  
d. Urea concentration in a 10 cm<sup>3</sup> sample of urine

**Explanation:** Parts per million is only used for solutions containing very low concentrations. Sea-water has  $5.65 \times 10^{-3}\text{g}$  of Oxygen dissolved in 1kg of water, which makes it a very low concentration. All the other options have higher concentrations.

14. Which of the following is false about mole fraction

- A. It is unitless  
B. It can be greater than 1

C. It is always less than 1

D. It is the ratio of mole component to the total number of moles

Mole fraction is the ratio of a mole component to the total number of moles. It will give you values that is unitless and will not exceed to one.

$$Y = \frac{\text{mole component}}{\text{total number of moles}} \leq 1$$

15. What is the spectator ion of  $\text{Zn}(s) + \text{CuSO}_4(aq) \rightarrow \text{Cu}(s) + \text{ZnSO}_4(aq)$ ?

a. Zn

b. Cu

c.  $\text{SO}_4$

d. None of the above

Ans: c

**Explanation:**  $\text{Zn}^{0}(s) + \text{Cu}^{+2}\text{SO}_4(aq) \rightarrow \text{Cu}^0(s) + \text{Zn}^{+2}\text{SO}_4(aq)$

*Spectator ions do not participate in the reaction. Therefore,  $\text{SO}_4$  is the spectator ion.*

16. In an electrochemical cell, the current flows from:

a. Cathode to anode in the external circuit

**b. Anode to cathode in the external circuit**

c. The solution to the electrodes in the electrolyte

d. Positive to negative terminal inside the cell

**Explanation:** In an electrochemical cell, the negative electrode is called the anode instead of cathode like we conventionally use in electrolysis. Therefore, the flow of current is from the anode to cathode in the external circuit that connects both the electrodes.

17. Calculate the pH of 1M of NaOH solution.

a. 14

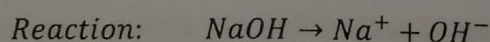
b. 13

c. 12

d. 11

Ans: a

**Explanation:** NaOH is a strong base. Therefore, it will be completely ionized.



Initial: 1M 0 0

Change: -1M 1M 1M

Equilibrium: 0 1M 1M

$$pOH = -\log [\text{OH}^-] = -\log (1) = 0$$

## Career Finder

$$pH + pOH = 14$$

$$pH = 14 - pOH = 14 - 0 = 14$$

18. What is true for a reaction with order zero?

- a. The rate of reaction is equal to rate constant
- b. The half life is constant
- c. The rate of reaction does not depend on temperature
- d. None of the above statements is true

**Explanation:** It is a fact that for zero order reactions the rate of reaction equals the rate constant. The rate of reaction is not altered by changes in the concentration of reactants but is altered by the changes in temperature etc.

19. Which of the following has highest melting point.

- A. Mg
- C. Li

- B. Be
- D. Na

**Answer:** B

**Explanation:** Be has the highest melting point because it has the smallest atomic radius among the choices. But that shouldn't be the basis since there are no corresponding trend for melting point in alkali metals or other groups of the periodic table. The trend on melting point depends on how atoms pack when metallic crystal forms. In this case, the melting point decreases down the group except magnesium and calcium.

20. Which of the following is correct according to increasing boiling point?

- A.  $H_2O < HF > NH_3 < CH_4$
- C.  $H_2O < CH_4 > NH_3 < HF$

- B.  $HF < CH_4 > NH_3 < H_2O$
- D.  $CH_4 < H_2O > NH_3 < HF$

**Answer:** D

**Explanation:** Increase in boiling point indicates a trend in electronegativity and size. The larger the surface area, the larger the force. The shorter the bond length due to electronegativity, the stronger the bond. Therefore, the increasing trend is  $CH_4 < H_2O > NH_3 < HF$  or it can be rearranged as  $CH_4 < NH_3 < H_2O < HF$ .

21. Which of the following oxides are amphoteric in nature?

- a.  $GeO_2$
- b.  $SnO$
- c.  $PbO$
- d. All of these
- e. None of these

**Explanation:** These oxides show both acidic and basic character in nature

22. Why do transition metals undergo a color change?

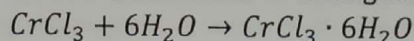
- A. The ability of ligands to split the d-orbital energy of the metal to change color.
- B. The ability to create attractions between ligands to form colors.
- C. The ability to produce color by forming ionic bond between ligands.
- D. It's because of the incompletely filled d-orbital.

**Answer:** A

**Explanation:** Transition metal is incompletely filled until ligands will attach to it. When ligands are linked to the metal, it fills the empty orbital and that explains why complex ions change its colors. No transition metal

is colorless. That is because **ligands have the relative abilities to split d-orbital energy in order to change the color.**

23. A student sprayed water to a ribbon of  $\text{CrCl}_3$  and the color changed to violet.

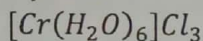


In this equation, what is the complex ion produced?

- A.  $[\text{Cr}(\text{H}_2\text{O})_5\text{Cl}]^{2+}$                       B.  $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]^{1+}$   
C.  $[\text{Cr}(\text{H}_2\text{O})_6\text{Cl}_3]^{3+}$                       D.  $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$

**Answer: D**

**Explanation:**  $\text{CrCl}_3 \cdot 6\text{H}_2\text{O}$



Since Cl has  $-1$  oxidation number, then there are  $-3$  ions of chlorine surrounded by the complex ion.

To counteract, we need  $3+$  ions. Therefore, the complex ion is  $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$ .

24. Which of the following property does not describe a noble gas?

- a. It is an odorless and colorless gas  
b. It is monoatomic in nature  
c. It has low reactivity  
d. It produces light when burned

Ans: d

**Explanation:** Noble gas doesn't burn to produce light because it has low reactivity.

25. The oxidizing power of halogens increases or decreases with

- a. Atomic radii  
b. Ionization energy  
c. Electro negativity  
d. **Atomic number**

**Explanation:** A species which oxidizes some other substance by accepting electrons is called oxidizing agent and atomic number is the number of protons in the nucleus of an atom, which is characteristic of a chemical element and determines its place in the periodic table as halogens are electronegative and act as oxidizing when they react with metals or nonmetals they get positive state which depends upon the number of protons present in the atom hence showing its oxidizing power depends upon the atomic number.

26. Which is not a single-bond functional group?

- A. Amines                      B. Alcohols  
C. Ethers                      D. Esters

**Answer: D**

**Explanation:** Single-bonded functional groups are attached as substituents by single bonds. Alcohol has hydroxyl group which is a single bond. Amines have amine group which is a single bond. Ethers have oxygen atom connected to two alkyl groups by a single bond. **On the other hand, esters have carbonyl group ( $\text{C}=\text{O}$ ) and  $-\text{O}$ -alkyl group.**

27. What can be the products of cracking dodecane?

- A. Octane and Butane                      B. Octane and Butene

## Career Finder

C. Octane and Butyne

D. Octene and Butene

**Answer: B**

**Explanation:** Cracking of hydrocarbons will produce a product of alkene and alkane. The cracking of dodecane have varieties but in this case, it can be cracked to **octane and butene**.

28. Which of the following hydrocarbons that will produce less carbon dioxide when completely combusted?

- Natural gas
- Gasoline
- Kerosene
- Diesel fuel

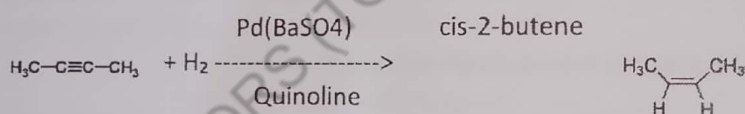
**Explanation:** Natural gases are collected at the top of the fractional distillation and they are the lightest hydrocarbons among all ranging from C1 to C5. Less carbon atoms would mean less carbon dioxide produced. **Therefore, natural gases have the least carbon dioxide emission when completely burned.**

29. Conversion of 2-Butyne to cis-2-Butene is done through

- Partial hydrogenation
- Hydro halogenations
- Substitution
- Nitrification

**Explanation:** As partial hydrogenation is the process through which H atom is only added across one of the 2 pi-bonds

Moreover by the reaction



30. What is the leaving group of methyl bromide when it is reacted with aqueous potassium hydroxide?

- $\text{OH}^-$
- $\text{C}^+$
- $\text{CH}_3\text{OH}$
- $\text{Br}^-$

**Answer: D**

**Explanation:** Methyl bromide undergoes  $\text{S}_{\text{N}}2$  reaction where OH ion from KOH attacks the carbon atom to form a bimolecular transition intermediate for Br atom to leave. **Therefore, the leaving group is  $\text{Br}^-$ .**

31. Potassium cyanide is often dissolved in alcohol solution before it reacts with an alkyl halide. What does potassium cyanide do with alkyl halide?

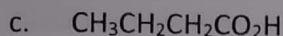
- Produce hydroxide ion that is beneficial in many industries
- Generate many electrophiles
- Precursor in making alcohol
- Lengthens carbon chain

**Answer: D**

**Explanation:** Potassium cyanide is often dissolved in alcohol solution before it reacts with an alkyl halide. The purpose of potassium cyanide is to **lengthen the carbon chain**.

32. In its reaction with sodium, 1 mole of a compound X gives 1 mole of  $\text{H}_2$ ? Which compound might X be?

- $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
- $(\text{CH}_3)_3\text{COH}$

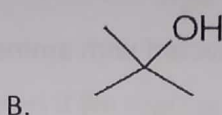
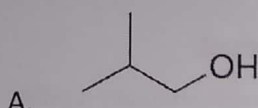


**Explanation:**  $\text{R-OH} + \text{Na} \rightarrow \text{R-O}^-\text{Na}^+ + \frac{1}{2} \text{H}_2$



mole of  $-\text{OH}$  group or  $-\text{COOH}$  group each given  $\frac{1}{2}$  mole of  $\text{H}_2$ . Hence to form 1 mole of  $\text{H}_2$ , 2 moles of  $\text{H}$ , 2 moles of  $-\text{OH}$ , 2 moles of  $-\text{CO}_2\text{H}$  or 1 mole of  $-\text{OH}$  and 1 mole  $\text{OH}-\text{CO}_2\text{H}$  are required.

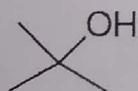
33. Which of the following is a secondary alcohol?



**Answer:** C

**Explanation:** Phenol cannot be classified as alcohol because it has a benzene ring and it is  $\text{sp}^2$  hybridized. So, the second degree alcohol is

34. Name this compound:



A. 2-methyl-2-butanol

B. 1-methyl-2-ethanol

C. 2-methyl-2-ethanol

D. 2-methyl-2-propanol

**Answer:** D

**Explanation:** The methyl group and hydroxyl group is attached at 2<sup>nd</sup> position of propane base. Therefore, the name of the compound is **2-methyl-2-propanol** or also known as **tert-butanol**.



35. What happens if we react carboxylic acid with acyl chloride?

- It forms an acyl halide
- It does not react due to bad leaving group
- It does not react due to resonance
- It forms an acid anhydride

Ans: d

**Explanation:** When carboxylic acid is reacted with acyl chloride, it forms a carboxylic acid derivative called **acid anhydride** and small molecule  $\text{HCl}$ .

## Career Finder

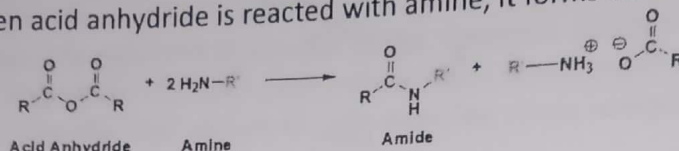


36. What is the product when acid anhydride is reacted with amine?

- a. Nitrile
- b. Amide
- c. Ammonia
- d. Acid nitrile

Ans: b

**Explanation:** When acid anhydride is reacted with amine, it forms an **amide product**.



37. Oxidation of primary alcohol gives

- a. Ketone
- b. Aldehyde
- c. Ester
- d. Amide

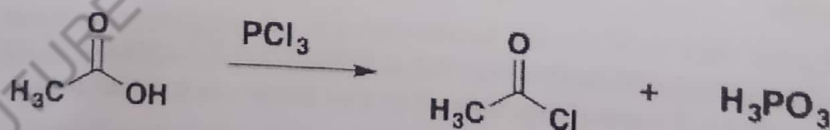
**Explanation:** Alcohol oxidation is an important organic reaction. Primary alcohols ( $R-CH_2-OH$ ) can be oxidized either to aldehydes ( $R-CHO$ ) or to carboxylic acids ( $R-CO_2H$ ), while the oxidation of secondary alcohols ( $R^1R^2CH-OH$ ) normally terminates at the ketone ( $R^1R^2C=O$ ) stage. Tertiary alcohols ( $R^1R^2R^3C-OH$ ) are resistant to oxidation.

38. Which of the following reactions will produce acyl chloride and phosphorous acid?

- A. Acetic acid +  $HCl + H_3PO_4$
- B. Acetic acid +  $PCl_5$
- C. Acetic acid +  $PCl_3$
- D. Acetic acid +  $Cl_2 + H_3PO_4$

Answer: C

**Explanation:** Acyl chloride and phosphorous acid are the products of the reaction of acetic acid and  $PCl_3$ .

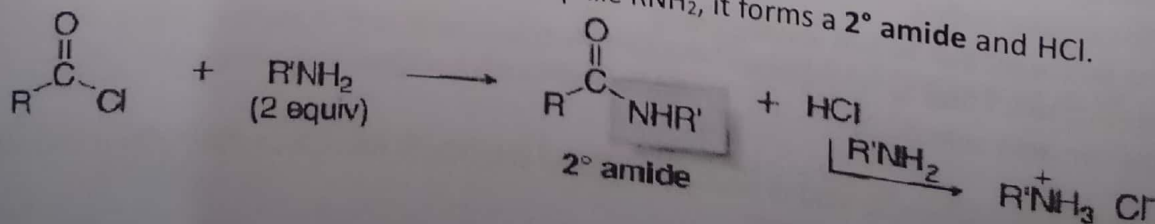


39. Which classification of amine will be produced if we react acyl chloride with  $RNH_2$ ?

- A. 1° amide
- B. 2° amide
- C. 3° amide
- D. No reaction

Answer: B

**Explanation:** If we react acyl chloride with a nucleophile  $RNH_2$ , it forms a **2° amide** and  $HCl$ .

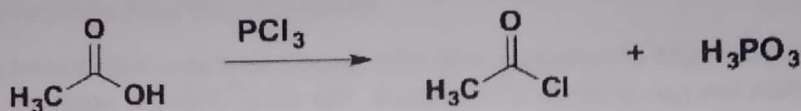


40. Which of the following reactions will produce acyl chloride and phosphorous acid?

- A. Acetic acid + HCl + H<sub>3</sub>PO<sub>4</sub>      B. Acetic acid + PCl<sub>5</sub>  
C. Acetic acid + PCl<sub>3</sub>                      D. Acetic acid + Cl<sub>2</sub> + H<sub>3</sub>PO<sub>4</sub>

**Answer: C**

**Explanation:** Acyl chloride and phosphorous acid are the products of the reaction of acetic acid and PCl<sub>3</sub>.

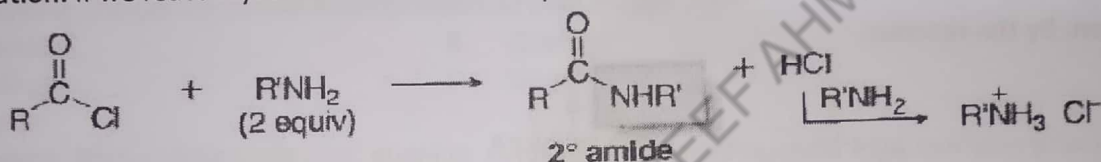


41. Which classification of amine will be produced if we react acyl chloride with RNH<sub>2</sub>?

- A. 1° amide                                      B. 2° amide  
C. 3° amide                                      D. No reaction

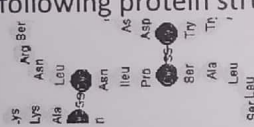
**Answer: B**

**Explanation:** If we react acyl chloride with a nucleophile RNH<sub>2</sub>, it forms a 2° amide and HCl.



42. Identify the following protein structure:

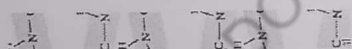
i.



ii.



iii.

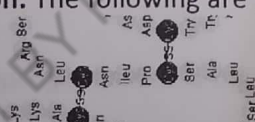


- A. i. Primary, ii. β-pleated, iii. α-pleated      B. i. Primary, ii. Tertiary, iii. Secondary  
C. i. Primary, ii. Quaternary, iii. Secondary      D. i. Primary, ii. β-pleated, iii. α-helix

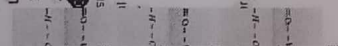
**Answer: D**

**Explanation:** The following are protein structure:

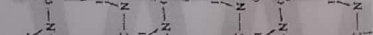
i.



ii.



iii.



**Primary Structure**

**β-pleated sheet Secondary Structure**

**α-helix sheet Secondary Structure**

43. Copolymers undergo what type of polymerization:

- A. Addition polymerization                      B. Condensation polymerization  
C. Radical polymerization                      D. Anionic polymerization

**Answer: A**

**Explanation:** Copolymers undergo an **addition polymerization** which is a chain reaction of two different monomers without losing a small molecule.

## Career Finder

44. Arrange the following in increasing strength of carboxylic acid with respect to chloro-substituted acids?

- A.  $\text{CCl}_3\text{COOH} < \text{CHCl}_2\text{COOH} < \text{CH}_2\text{ClCOOH} < \text{CH}_3\text{COOH}$   
 B.  $\text{CHCl}_2\text{COOH} < \text{CH}_2\text{ClCOOH} < \text{CH}_3\text{COOH} < \text{CCl}_3\text{COOH}$   
 C.  $\text{CH}_2\text{ClCOOH} < \text{CH}_3\text{COOH} < \text{CCl}_3\text{COOH} < \text{CHCl}_2\text{COOH}$   
 D.  $\text{CH}_3\text{COOH} < \text{CH}_2\text{ClCOOH} < \text{CHCl}_2\text{COOH} < \text{CCl}_3\text{COOH}$

**Answer: D**

**Explanation:** Increasing strength of carboxylic acid with respect to chloro-substituted acids is defined on how effectively a carboxylate ion can stabilize a resonance. The more chlorine atoms that are substituted, the more it stabilizes the conjugate base giving high acidity and decreasing pka trend.

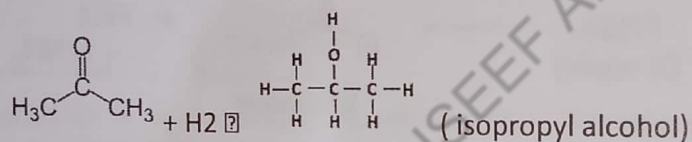
$\text{CH}_3\text{COOH}$  (pka=4.76) <  $\text{CH}_2\text{ClCOOH}$  (pka=2.86) <  $\text{CHCl}_2\text{COOH}$  (pka=1.29) <  $\text{CCl}_3\text{COOH}$  (pka=0.65)

45. Reduction of acetone gives?

- A. Isopropyl alcohol  
 B. Pentahydride  
 C. Propionic acid  
 D. Acetic acid

**Answer: A**

**Explanation:** By the reaction



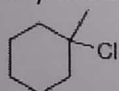
46. Phenols can't react with

- A. NaOH  
 B. O  
 C.  $\text{Na}_2\text{CO}_3$   
 D.  $\text{CH}_3\text{COCl}$

**Answer: C**

**Explanation:** Phenol can't really react with  $\text{Na}_2\text{CO}_3$  and  $\text{NaHCO}_3$  giving  $\text{CO}_2$  and  $\text{H}_2\text{O}$  because carbonates are weaker bases. In other words, as an acid, phenol itself is not strong enough to liberate  $\text{CO}_2$  from carbonates.

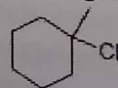
47. Classify this alkyl halide:



- A.  $1^\circ$  alkyl halide  
 B.  $2^\circ$  alkyl halide  
 C.  $3^\circ$  alkyl halide  
 D.  $4^\circ$  alkyl halide

**Answer: C**

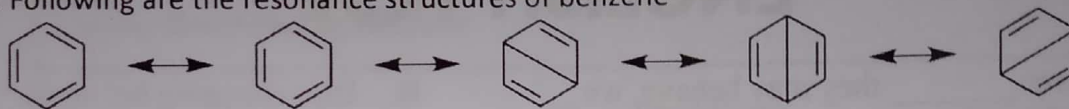
**Explanation:** This is a  $3^\circ$  alkyl halide because the halogen atom is surrounded with 3 alkyl groups.



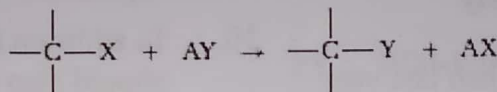
48. The reason for benzene molecule being chemically stable is

- A. Greater number of resonance structures  
 B. Having double bonds  
 C. Ring structure  
 D. Even number of carbon atoms

**Explanation:** The stability of molecule increases with number of its resonance structure so it is chemically quite stable. Following are the resonance structures of benzene



49. What type of organic reaction does this represent?



- A. Addition reaction  
B. Elimination reaction  
C. Condensation reaction  
D. Substitution reaction

**Answer: D**

**Explanation:** It represents **substitution reaction** replacing X with Y from AY to produce AX.

50. The following choices are possible components of DNA except

- A. Adenine  
B. Guanine  
C. Cytosine  
D. Uracil

**Answer: D**

**Explanation:** **DNA** contains adenine, guanine, cytosine, and **thymine** while RNA contains adenine guanine, cytosine, and uracil.

# ENGLISH TEST

1. However \_\_\_\_\_ they may behave, we will reform them.  
A. rude B. rudely  
C. nice D. nicely
2. She did \_\_\_\_\_ M.A in English last year.  
A. a B. an  
C. one
3. They passed \_\_\_\_\_ a dense forest at night.  
A. through B. thorough  
C. from
4. He was advised \_\_\_\_\_.  
A. to abide by rules  
B. to abide at rules  
C. to abide with rules  
D. to abide rules
5. The deeper he went, \_\_\_\_\_ his body became.  
A. heavy B. the heavy  
C. the heavier
6. If the sun rose at 5:30.  
A. I will come B. I should come  
C. I would come D. I came
7. Since last Sunday he \_\_\_\_\_ badly sick.  
A. is B. was  
C. has been
8. Since when \_\_\_\_\_ working here?  
A. are you B. have you been  
C. were you
9. His mother had hoped.  
A. That he would change his mind  
B. Him changing his mind  
C. That he may change his mind  
D. That he changed his mind
10. In addition to \_\_\_\_\_ to the library, you should also study books at home.  
A. go B. going  
C. gone
11. The child has been missing, \_\_\_\_\_.  
A. has not he B. is he  
C. was he
12. Ten years ago, they \_\_\_\_\_ live in a village.  
A. will B. would  
C. may D. can
13. I would rather that he \_\_\_\_\_ to me.  
A. came B. come  
C. coming D. to come
14. She would rather \_\_\_\_\_ drink a Pepsi.  
A. not B. no  
C. don't
15. The chairman with his wife and children \_\_\_\_\_ coming tonight.  
A. are B. is  
C. will D. can
16. They are envious \_\_\_\_\_ your success.  
A. to B. with  
C. of D. from
17. I am not familiar \_\_\_\_\_ him.  
A. of B. with  
C. from D. to

## Directions:

Choose the correct synonyms:

18. Ancestors:  
A. Forefathers    B. Disciples  
C. Followers    D. Accomplices
19. Wicked:  
A. Alert    B. Cunning  
C. Active    D. Receptive
20. Lean:  
A. Bend    B. Tend  
C. Mend    D. Straighten
21. Reluctantly:  
A. Willingly    B. Unwillingly  
C. Happily  
D. Sympathetically
22. Ducklings:  
A. Baby ducks    B. Baby hens  
C. Baby lambs
23. Whiskers:  
A. Moustache    B. Beard  
C. Locks
24. Bald:  
A. Hairy    B. Without hair  
C. Blond hair
25. Grieved:  
A. Saddened    B. Aided  
C. Favoured    D. Supported

## Directions:

Choose the correct answer from the choices given below each sentence:

26. There was a match between the professional and amateur players:  
A. Between professional and their rivals  
B. Between professional and non professional  
C. Between only professionals  
D. Between non professionals
27. They commenced with the recitation from the Holy Quran:  
A. They began with  
B. They concluded with  
C. They continued with  
D. They consulted with
28. He submitted reverence to the entitled ladies:  
A. He showed honour to  
B. He showed revenge to  
C. He showed obstinacy  
D. he showed hard temper
29. He is a big stingy:  
A. He is a big miser  
B. He is a big liar  
C. He is a big glutton  
D. He is a big funky
30. He is so obstinate that he listens to none:  
A. He is so stubborn  
B. He is so proud  
C. He is so rude  
D. He is so inactive

## Career Finder

31. They saw that some tramps were standing there:  
 A. They saw some vagabonds  
 B. They saw some panderers  
 C. They saw some magicians  
 D. They saw some heaps
32. The meanings in this essay are obscure:  
 A. Concealed B. Erased  
 C. Disclosed D. Elucidated
33. His father patronized many charitable organizations:

- A. His father chaired many  
 B. His father obstructed  
 C. His father financed  
 D. His father agitated against
34. He is culpable for his brother's misdeed:  
 A. He is blameworthy  
 B. He is responsible  
 C. He is entitled  
 D. He is deserving

## Directions:

Fill in the blanks; choose the correct answer from the choices given below each sentence:

35. Who is annoyed \_\_\_\_\_ you?  
 A. at B. with  
 C. to D. of
36. They demanded of me \_\_\_\_\_ their rights.  
 A. of B. for  
 C. to D. on
37. He is badly suppressed \_\_\_\_\_ the burden of loan.  
 A. by B. with  
 C. from D. of
38. Why is she very much jealous \_\_\_\_\_ you.  
 A. from B. of  
 C. on D. for
39. He is eager \_\_\_\_\_ learn new things.  
 A. to B. of  
 C. on D. for
40. His mother forbids him \_\_\_\_\_ mingle with bad boys.  
 A. to B. of  
 C. from D. for

## Directions:

Choose the correct synonyms:

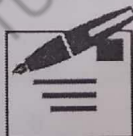
41. Stroke:  
 A. Blow B. Knit  
 C. Collide D. Smash
42. Rigorously:  
 A. Strictly B. Pleasantly  
 C. Lavishly D. Optimistically

43. Expensive:  
A. Cheap      B. Dear  
C. Rotten      D. Stale
44. Eradicate:  
A. Finish from root  
B. Finish from top
45. Tone:  
A. Manner      B. Voice  
C. Drawing      D. Sculpture
- C. Finish timely  
D. Negate

**Directions:**

*Choose the correct answer given below in each sentence closest in meaning to the original sentence:*

46. We need to muster up men for the work:  
A. We need to gather  
B. We need to master  
C. We need to develop  
D. We need to acquire
47. Would you like cider?  
A. Apple juice    B. Coke  
C. Sour Milk      D. Milk
48. They were astounded to see the results:  
A. Astonished to see  
B. Scared to see  
C. Furious to see
- D. Annoyed to see
49. The Muslims would have had to live under the Hindus as perpetual political minority:  
A. The Muslims would forcibly have lived  
B. The Muslims would hardly live  
C. The Muslims were minor in numbers to live  
D. The Muslims did not consent to live
50. He is a callous person:  
A. Insensitive    B. Indifferent  
C. Irrational      D. Unreasonable

**ANSWER KEY**

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

# PHYSICS TEST

- What type of science is physics?
  - Living things
  - Non-Living things
  - Experimental science
  - Study of action and reaction and Experimental science
- The magnitude of the resultant of two forces is  $2F$ . If the magnitude of each force is  $F$ , Then the angle between these forces is:
  - $0^\circ$
  - $90^\circ$
  - $120^\circ$
  - $180^\circ$
- If the measuring scale has a least count of 10 Kg then in 8,000 kg the significant figures are
  - 4
  - 1
  - 3
  - 0
- Supplementary S.I units of radian and steradian were established to measure
  - Geometrical quantities
  - Luminous intensity
  - Electric current
  - Temperature
- S.I unit of magnetic flux is
  - Weber meter<sup>-2</sup>
  - Weber
  - Weber per meter
  - Weber per meter<sup>4</sup>
- The physical quantity which produces angular acceleration in the body is:
  - Force
  - Moment of inertia
  - Impulse
  - Torque
- When a vector is multiplied by a scalar of positive value, the product of the quantity will be
  - multiple of the vector quantity in the same direction
  - multiple of the vector quantity in the opposite direction
  - multiple of the vector quantity perpendicular to the original vector
  - none of the above
- The magnitude of vector  $\vec{A}$ ,  $\vec{B}$  and  $\vec{C}$  are respectively 12, 5 and 13 units and  $\vec{A} + \vec{B} = \vec{C}$  then the angle between  $\vec{A}$  and  $\vec{B}$  is
  - 0
  - $\pi$
  - $\pi/2$
  - $\pi/4$
- Three vectors satisfy the relation  $\vec{A} \cdot \vec{B} = 0$  and  $\vec{A} \cdot \vec{C} = 0$ , then  $\vec{A}$  is parallel to
  - $\vec{B} \times \vec{C}$
  - $\vec{B} \cdot \vec{C}$
  - $\vec{C}$
  - $\vec{B}$
- No work is done by the body when angle between force and displacement is
  - $0^\circ$
  - $45^\circ$
  - $90^\circ$
  - $60^\circ$
- If the acceleration due to gravity at the earth's surface is  $9.8 \text{ m/s}^2$  and the mass of the earth is 80 times that of the moon and radius of earth 4 times that of moon, the value of  $g$  at the moon's surface will be:
  - $9.8 \text{ m/s}^2$
  - $1.96 \text{ m/s}^2$
  - $4.9 \text{ m/s}^2$
  - None
- A particle of mass ' $m$ ' at rest is acted upon by a force ' $P$ ' for a time ' $t$ '. Its kinetic energy after an interval ' $t$ ' is
  - $\frac{P^2 t^2}{m}$
  - $\frac{P^2 t^2}{2m}$
  - $\frac{P^2 t^2}{3m}$
  - $\frac{Pt}{2m}$

13. The dot product of force and velocity is equal to:
- A. Power                      B. Impulse  
C. Couple                     D. Momentum
14. If a force acts on a body, whose action line does not pass through its centre of gravity, then the body will experience
- A. Angular acceleration  
B. Linear acceleration  
C. No acceleration  
D. None of these
15. In which case application of angular velocity is useful?
- A. When a body is rotating  
B. When velocity of body is in a straight line  
C. When velocity is in a straight line  
D. None of these
16. Centre of mass is a point
- A. Which is geometric centre of a body  
B. From which distance of particles are same  
C. Where the whole mass of the body is supposed to be cantered  
D. Which is the origin of reference frame
17. Angular momentum has the same unit as
- A. Impulse  $\times$  distance  
B. Linear momentum  $\times$  time  
C. Work  $\times$  frequency  
D. Power  $\times$  time
18. The flow is said to be streamline or laminar when every particle
- A. Moves in different direction  
B. Moves along the same path as  
C. Slowly moves in one direction  
D. None of these
19. The pressure will be low where the speed of the fluid is
- A. Zero                        B. High  
C. Low                        D. Constant
20. A two meter high tank is full of water. A hole is made in the middle of the tank. The speed of efflux is
- A.  $4.9 \text{ ms}^{-1}$                       B.  $9.8 \text{ ms}^{-1}$   
C.  $4.42 \text{ ms}^{-1}$                     D.  $3.75 \text{ ms}$
21. In case of a vibrating Pendulum, the potential energy is maximum at
- A. Mean Position  
B. Extreme Position  
C. Both A and B  
D. None
22. Specific response of a system which is able to oscillate with a certain period, to an external force acting with the same period is called
- A. Time period    B. Wavelength  
C. Resonance  
D. Doppler's effect
23. A simple harmonic oscillator has a period of 0.01 second and an amplitude of 0.2 m. The magnitude of the velocity in  $\text{ms}^{-1}$  at the centre of oscillation is
- A. 100                        B.  $100\pi$   
C.  $20\pi$                         D.  $40\pi$
24. A spherical wave front is that which has
- A. A source  
B. A point source  
C. An extended source  
D. None of these
25. We can hear sound around the corner but cannot see because of:
- A. Interference    B. Diffraction  
C. Polarization    D. Dispersion
26. Huygens's wave theory of light cannot explain
- A. Diffraction  
B. Interference  
C. Polarization  
D. Photoelectric effect
27. The tip of a needle does not give a sharp image. It is due to

## Career Finder

- A. Polarization B. Interference  
C. Diffraction D. None
28. Sun has elliptical shape, when it rises and sets due to  
A. Refraction  
B. Reflection  
C. Scattering  
D. Dispersion
29. Number of electric lines of force passing through a certain area is known as:  
A. Electric field  
B. Electric flux  
C. Electric intensity  
D. Gravitational field
30. When a ray of light enters a glass slab from air  
A. Its wavelength night increases  
B. Neither its wavelength nor its frequency changes  
C. Is frequency increases  
D. Its wavelength decreases
31. Which of the following statements is correct for any thermodynamic system?  
A. The internal energy changes in all processes.  
B. Internal energy and entropy are state functions.  
C. The change in entropy can never be zero.  
D. The work done in an adiabatic process is always zero.
32. Kelvin scale can be applied at very low temperature because  
A. It is independent of nature of working substance  
B. It is linear over a wide range of temperature  
C. It is based on triple point of water  
D. None
33. Two metal rods A and B have their initial lengths in the ratio 2: 3 and coefficients of linear expansion in the ratio of 4:3. When they

are heated through same temperature difference the ratio of their linear expansio

- A. 1: 2 B. 2: 3  
C. 3: 4 D. 8: 9
34. Melting point of ice  
A. Increases with increasing pressure  
B. Decreases with increasing pressure  
C. Is independent of pressure  
D. Is proportional to pressure
35. Two metallic wires are lying parallel. If the current in these wires be flowing in the same direction, the wires will:  
A. attract each other  
B. repel each other  
C. have no force of attraction or repulsion  
D. remain stationary
36. On moving a charge of 20 coulombs by 2 cm, J of work is done, then the potential difference between the points is  
A. 0.1 V B. 8 V  
C. 2 V D. 0.5 V
37. In a Millikan's oil drop experiment the charge on an oil drop is calculated to be  $6.35 \times 10^{-19}$  C. The number of excess electrons on the drop is  
A. 3.9 B. 4  
C. 4.2 D. 6
38. A charge Q is divided into two parts q and Q - q and separated by a distance R. The force of repulsion between them will be maximum when:  
A.  $q = Q/4$  B.  $q = Q/2$   
C.  $q = Q$  D. None
39. The colour coded resistances are made by  
A. High grade Silver rods  
B. High grade Ceramic rods  
C. High grade Copper rods  
D. High grade Iron rods

40. A wire of radius  $r$  has resistance  $R$ . If it is stretched to a wire of  $\frac{r}{2}$  radius, then the resistance becomes
- A.  $2R$                       B.  $4R$   
C.  $16R$                      D. Zero
41. A uniform resistance wire of length  $L$  and diameter  $d$  has a resistance  $R$ . Another wire of same material has length,  $4L$  and diameter  $2d$ , the resistance will be
- A.  $2R$                       B.  $R$   
C.  $R/2$                      D.  $R/4$
42. In RLC series circuit when the frequency of AC source is very low, the circuit is a / an:
- A. Resistive circuit  
B. Capacitive circuit  
C. Inductive circuit  
D. Resonant circuit
43. An electron of charge  $e$  coulomb passes through a potential difference of  $V$  volts. Its energy in 'joules' will be
- A.  $V/e$                       B.  $eV$   
C.  $e/V$                      D.  $V$
44. The resistance of voltmeter must have very high resistance because
- A. It does not draw any current  
B. It is very accurate  
C. It does not change circuit current considerably  
D. None of these
45. The voltage that is applied across the X plates is usually provided by a circuit that is built in the CRO. It is known as
- A. Time base generator  
B. Electric generator  
C. X supplier  
D. Power supply
46. A voltmeter has resistance of 2000 ohms and it can measure up to 2V. If we want to increase its range to 10V then required resistance in series will be
- A.  $2000 \Omega$                       B.  $4000 \Omega$   
C.  $6000 \Omega$                      D.  $8000 \Omega$
47. In A.C. through capacitor circuit the  $v$  and  $q$  are as
- A.  $v$  leads  $q$   
B.  $v$  lags  $q$   
C.  $v$  and  $q$  are in phase  
D. None of these
48. At resonance, the phase angle for RLC series resonance circuit equals
- A.  $0^\circ$                           B.  $90^\circ$   
C.  $180^\circ$                       D.  $270^\circ$
49. An inductor coil when consume no energy is called
- A. A coil                      B. Choke  
C. Toroid                     D. None
50. The color of light emitted by light emitting diode depends upon:
- A. forward voltage  
B. reverse current  
C. forward current  
D. type of semiconductor

**Answer key: Physics**

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

**Explanations:**

2. For  $0^\circ$  angle both forces will be parallel and give maximum resultant i.e  $F+F=2F$
6.  $\tau = I\alpha$  where  $I$  = moment of inertia =  $mr^2$  constant and  $\tau \propto \alpha$  = angular acceleration
13. When object is moving at constant velocity due to a constant force, then  $P = \vec{F} \cdot \vec{V}$
20.  $v = \sqrt{2g(h_1 - h_2)} = \sqrt{2 \times 9.8(2-1)} = 4.42 \text{ ms}^{-1}$
25. Sound waves are easily diffracted through building corners but not light waves, they required diffraction grating.
35. According to right hand rule magnetic field b/w the wires cancel each other and on the sides of wires push them to close each other.
42.  $X_c = \frac{1}{\omega C}$  and  $X_L = \omega L$ , so at low frequency " $X_c$ " will dominate over " $X_L$ " and circuit will behave as a capacitive circuit and vice versa.
43. A unit of energy equal to the work done on an electron in accelerating it through a potential difference of one volt is called electron volt. One electron volt is equal to  $1.6 \times 10^{-19} \text{ J}$   
Electric potential energy = charge  $\times$  potential =  $q \times V$
50. (a) It increases the forward current  
(b) It breaks the junction  
(c) It produces heat at the junction

# VERBAL INTELLIGENCE TEST

1. Which one is different from the rest?  
A. Chameleon      B. Lizard  
C. Snake            D. Lion  
E. Turtle
2. Give the most sensible answer. People end up in jails due to:  
A. Unemployment  
B. Unfair laws  
C. Criminal activities  
D. Their choice  
E. Bad habits
3. Teacher is to student as doctor is to:  
A. Other doctors  
B. Surgeons  
C. Patients  
D. Friends  
E. Nurses
4. What will come next?  
19, 24, 29, 34, 39, .....?  
A. 44                      B. 43  
C. 32                      D. 42  
E. 45
5. What will come next?  
5, 15, 30, 90, 180?  
A. 360                    B. 380  
C. 520                    D. 540  
E. 580
6. What is the square root of 361?  
A. 12                      B. 15  
C. 17                      D. 19  
E. 21
7. Math tutor is to math as dermatologist is to:  
A. Surgery              B. Skin  
C. Checkup              D. Kindness  
E. Work
8. What will come next?  
43, 55, 46, 58, 49, .....?  
A. 48  
B. 56  
C. 61  
D. 40  
E. 58
9. Husband is to wife as grandfather is to:  
A. Son  
B. Daughter  
C. Granddaughter  
D. Grandson  
E. Grandmother
10. If the area of a rectangular place is 168 and the difference between the length and the width is 2, what are the width and the length?  
A. 12, 14  
B. 14, 16  
C. 10, 12  
D. 13, 15  
E. 15, 17
11. What will come next?  
2, 12, 4, 12, 12, 12, 48, 12, .....?  
A. 240  
B. 260  
C. 244  
D. 144  
E. 136
12. What is the perimeter of square that has a side with the length of 8 cm?  
A.  $64\text{cm}^2$   
B. 16cm  
C.  $512\text{cm}^3$   
D. 32cm  
E. 4096cm
13. Love is to marriage as education is to:  
A. Degree  
B. Job  
C. Respect  
D. Loyalty  
E. Relationships
14. Which one is different from the rest?  
A. High School  
B. University  
C. PhD  
D. Secondary school  
E. College
15. What will come next?  
CC, BB, CC, DD, CC, EE, CC, .....?  
A. DD  
B. GG  
C. CC  
D. EE  
E. FF
16. What will come next? (+2, -3, +5)  
19, 21, 18, 23, 25, 22, .....?  
A. 23  
B. 24  
C. 25  
D. 26  
E. 27

## Career Finder

17. If  $2 \times 6 = 2824$   
 $3 \times 9 = 1236$   
 $5 \times 4 = 2016$   
 Then  $3 \times 2 = ?$
18. What will come next?  
 81, 64, 49, 36, 25, .....?  
 A. 16  
 B. 20  
 C. 4  
 D. 9  
 E. 12
19. Give the most sensible answer. There's no place like:  
 A. Office  
 B. U.S. A  
 C. Pakistan  
 D. Home  
 E. Abroad
20. Which one is different from the rest?  
 A. Plant  
 B. Human  
 C. Zebra  
 D. Paper  
 E. Ant
21. If  $2 \times 10 = 15$   
 $6 \times 4 = 32$   
 $8 \times 6 = 43$   
 Then  $16 \times 28 = ?$
22. What is 10% of 15% of 1000?  
 A. 18  
 B. 17  
 C. 16  
 D. 15  
 E. 14
23. What is the opposite of cynicism?  
 A. Mocking  
 B. Appreciation  
 C. Debauchery  
 D. Dissipation  
 E. Dissolution
24. What will come next?  
 ZBA, YDC, XFE, .....?  
 A. FGR  
 B. WHG  
 C. VGH  
 D. VHG  
 E. WGH
25. Which one is different from the rest?  
 A. Hammer  
 B. Spade  
 C. Axe  
 D. Blacksmith  
 E. Mallet
26. What is the same as abscond?  
 A. Sense  
 B. Avoid  
 C. Pass  
 D. Flee  
 E. Hold
27. What is 2% of 5% of 500?  
 A.  $\frac{3}{2}$   
 B.  $\frac{1}{2}$   
 C.  $\frac{3}{5}$   
 D.  $\frac{3}{7}$   
 E.  $\frac{1}{9}$
28. Sunrise to sunset is as morning to:  
 A. Twilight  
 B. Midnight  
 C. Night  
 D. Dawn  
 E. Noon
29. If 90 is greater than a multiple of 100 write A, otherwise B.  
 A. A  
 B. B
30. What was the speed of a car that covered 80 miles in 2 hours?  
 A. 40 miles/hour  
 B. 20 miles/hour  
 C. 30 miles/hour  
 D. 50 miles/hour  
 E. 55 miles/hour
31. Get-togethers take place to:  
 A. Respect traditions  
 B. Bring people together  
 C. Wear branded clothes  
 D. Enjoy good food  
 E. None of the above
32. Border to country is as frame to:  
 A. Cover  
 B. Book  
 C. Photography  
 D. Picture  
 E. None of the above
33. What will come next?  
 22, 20, 16, 10, 2, .....?  
 A. 0  
 B. -2  
 C. -6  
 D. -8  
 E. -10
34. Nun is to convent as hen is to:  
 A. Cote  
 B. Shed  
 C. Cell  
 D. Nest

- E. House
35. Which one is different from the rest?  
A. 288  
B. 444  
C. 388  
D. 977  
E. 122
36. In a jar, black and green beans are in a ratio of 1:1. 300 beans are black beans. How many beans are there in a jar?  
A. 150  
B. 300  
C. 250  
D. 600  
E. 900
37. What will come next?  
49, 47, 44, 39, .....?  
A. 31  
B. 32  
C. 34  
D. 35  
E. 37
38. What will come next?  
1/52/53/54/5?  
A. 0  
B. 1  
C. 2  
D. 3  
E. 4  
F. 5
39. Which one is different from the rest?  
A. Refrigerator  
B. Air Conditioner  
C. Sandwich maker  
D. Air cooler  
E. Freezer
40. In the following series, take the number in the center. Add it to the sum of total numbers and multiply it with the smallest figure in the series. What is the answer?  
37, 8, 3, 40, 19, .....?  
A. 310  
B. 320  
C. 560  
D. 380  
E. 330
41. What will come next?  
202123212521?  
A. 26  
B. 27  
C. 28  
D. 29  
E. 30
42. What is the meaning of accuse?  
A. Blame  
B. Prosecute  
C. Judge  
D. Punish  
E. None of the above
43. If Alina is younger than Sana but Sana and Aliza are studying in the same class. Can it be assumed from the given information that Alina is younger than Aliza?  
A. Yes  
B. No  
C. Uncertain  
D. None of the above  
E. All of the above
44. Why do we brush our teeth?  
A. To maintain whiteness  
B. To look good  
C. To avoid stomach issues  
D. To keep healthy teeth  
E. To maintain confidence
45. Lion is to deer as cat is to:  
A. Deer  
B. Dog  
C. Othercats  
D. Snakes  
E. Mouse
46. What will come next?  
28, 56, 46, 92, 84, .....?  
A. 128  
B. 188  
C. 168  
D. 140  
E. 136
47. If  $52 + 18 = 16$   
 $38 + 42 = 17$   
 $13 + 28 = 14$   
Then  $37 + 78 = ?$
48. What will come next?  
101, 103, 107, 113, .....?  
A. 121  
B. 118  
C. 119  
D. 116  
E. 115
49. Blood is to heart as sight is to:  
A. Ears  
B. Eyes  
C. Vision  
D. Nose  
E. Human
50. What will come next?  
A, D, G, J, M, .....?

## Career Finder

- A. O  
B. P  
C. Q  
D. R  
E. S
51. What will come next?  
9, 10, 18, 20, 27, 30, .....?  
A. 45  
B. 44  
C. 43  
D. 40  
E. 36
52. Which one of the following is different from the rest?  
A. Justice  
B. Truth  
C. Loyalty  
D. Deceit  
E. Fidelity
53. If 0.9 is less than  $\frac{2}{5}$  mark A, otherwise mark B.  
A. A  
B. B
54. What will come next?  
893, 858, 823, 788, .....?  
A. 777  
B. 798  
C. 745  
D. 753  
E. 758
55. 6 is to hexagon as 3 is to:  
A. Square  
B. Triangle  
C. Circle  
D. Octagon  
E. Line
56. What will come next?  
98, 88, 93, 83, 88, .....?  
A. 78  
B. 85  
C. 83  
D. 81  
E. 91
57. Which one of the following is different from the rest?  
A. Religion  
B. Ideology  
C. Belief  
D. Faith  
E. Arab
58. What will come next?  
3, 9, 27, 81, .....?  
A. 228  
B. 243  
C. 288  
D. 279  
E. 299
59. Money is to rich as piety is to:  
A. Man  
B. Nice  
C. Friendly  
D. Pious  
E. Poor
60. What will come next?  
58, 54, 46, 34, .....?  
A. 18  
B. 30  
C. 22  
D. 26  
E. 20
61. What will come next?  
11, 11, 22, 11, 33, 11, 44, 11, .....?  
A. 54  
B. 53  
C. 48  
D. 55  
E. 11
62. Which one of the following is different from the rest?  
A. Car  
B. TV  
C. Laptop  
D. Cell Phone  
E. Tablet
63. If the square root of 36 is 6, mark A; otherwise B.  
A. A  
B. B
64. If  $4 - 2 = 12$                        $9 - 6 = 45$   
Then  $3 - 1 = ?$
65. Clot to blood is as curdle to:  
A. Water  
B. Camphor  
C. Milk  
D. Coffee  
E. Butter
66. What is the relationship of Anna with her paternal uncle's wife's children's paternal aunt's mother?  
A. Grandmother  
B. Mother  
C. Paternal aunt  
D. Maternal aunt  
E. Sister

67. Complete the series.  
27 , 9 , 21 , 7 , 24 , 8 , 15 , 5 , 18 , .....?  
A. 2  
B. 3  
C. 4  
D. 5  
E. 6
68. Book is to reading as kitchen is to:  
A. Playing  
B. Cutting  
C. Painting  
D. Cooking  
E. Furnishing
69. Agenda is to conference as map is to:  
A. Agents  
B. Trip  
C. friends  
D. Book  
E. Adventurer
70. If  $12/2$  is less than  $3/5$ -mark A, otherwise mark B.  
A. A  
B. B
71. What is the area of a square that has length of one side as 10?  
A. 20  
B. 100  
C. 10  
D. 40  
E. 55
72. On Valentine's Day, the price of a bouquet of flowers containing 12 roses increased from 500 to 1000 rupees. What was the price of a single rose on the Valentine's Day?  
A. 83.33rupees  
B. 41.6rupees  
C. 50.9rupees  
D. 100rupees  
E. 50rupees
73. Pick the odd one out:  
A. VXZ  
B. ACE  
C. GIK  
D. LOP  
E. QSU
74. Arrange the following words into a complete sentence using each word only once, and then write the last letter of the last word as your answer:  
1. Moon  
2. Shoot  
3. Stars  
4. For  
5. Land  
6. The  
7. Among
8. And  
9. You  
10. Will  
A. M  
B. L  
C. S  
D. F  
E. A
75. A professional who operates on people is called:  
A. Psychologist  
B. Dietitian  
C. Nurse  
D. Surgeon  
E. Respiratory therapist
76. Deer is an animal as gold is a:  
A. Metal  
B. Iron  
C. Thing  
D. Jewel  
E. Ornament
77. Pick the odd one out:  
A. Table  
B. Chair  
C. Bed  
D. Comb  
E. Dressing Table
78. What is the square root of 25?  
A. 3  
B. 2  
C. 7  
D. 9  
E. 5
79. Find the area of a rectangle with a width of 8 feet and length of 20 feet.  
A. 160 ft square  
B. 250ft square  
C. 2560 ft square  
D. 180ftsquare  
E. 120ftsquare
80. The meaning of zeal is:  
A. Passion  
B. Truth  
C. Ability  
D. Mentality  
E. Life
81. Pick the odd one out:  
A. Shirt  
B. Ring  
C. Hair dye  
D. Trouser  
E. Shoes
82. What will come next?  
4 , 7 , 13 , 22 , 34 , .....?  
A. 64  
B. 44

## Career Finder

- C. 42                      D. 49  
E. 48
83. Alex is younger than Caleb. Clay is older than Caleb. Caleb is younger than Bryan and Bryce. Who is the youngest?  
A. Alex                      B. Bryce  
C. Bryan                    D. Caleb  
E. Clay
84. What will come next?  
100, 110, 130, 140, 170, 180, 220, 230, .....?  
A. 250                      B. 260  
C. 270                      D. 280  
E. 290
85. What will come next?  
3, 13, 20, 30, 37, 47, .....?  
A. 55                      B. 54  
C. 53                      D. 52  
E. 51
86. Find the odd one.  
A. Football                B. Hockey  
C. Cricket                D. Ludo  
E. Rugby
87. What will come next?  
43, 38, 33, 35, 30, 25, 27, 22, 17, .....?  
A. 20                      B. 19  
C. 18                      D. 16  
E. 23
88. Dog is to puppy as cat is to:  
A. Kitten                    B. Pup  
C. Cubs                    D. Skulk  
E. Vixen
89. Bees are to hive as bears are to:  
A. House                    B. Nest  
C. Den                      D. Dwelling  
E. Place
90. The branch of science that deals with celestial objects, space and universe is called:  
A. Physiology  
B. Astronomy  
C. Biology  
D. Psychology  
E. Aeronautical science
91. What will come next?  
200, 100, 33.33, 8.33, .....?  
A. 2.29                      B. 1.66
- C. 1.89  
E. 2.33
92. Chef is to food as sculptor is to:  
A. Statue                    B. Painting  
C. Drawing                D. Art  
E. Stone
93. What will come next?  
92, 184, 368, 736, .....?  
A. 1472                    B. 1500  
C. 1486                    D. 1490  
E. 1300
94. Pick the odd one out:  
A. XYZ                      B. ABC  
C. GHI                      D. JKM  
E. NOP
95. The opposite of significance is:  
A. Impact                    B. Ethics  
C. Lowliness                D. Drift  
E. Tenor
96. What will come next?  
3, 7, 9, 13, 15, 19, 21, .....?  
A. 23                      B. 25  
C. 27                      D. 22  
E. 24
97. Yellow is to color as rose is to:  
A. Red                      B. Flower  
C. Plants                    D. Trees  
E. Orchids
98. Who is the current President of the USA?  
A. Barack Obama  
B. Mike Pence  
C. Hillary Clinton  
D. Donald Trump  
E. George W. Bush
99. Elsa has 10 guitars. Each guitar has 5 strings. How many strings does Elsa have in total?  
A. 5                          B. 10  
C. 50                        D. 25  
E. None
100. The meaning of awful is:  
A. Beautiful  
B. Awesome  
C. Unpleasant  
D. Base  
E. High ranked

## ANSWERS

1	D	2	C	3	C	4	A	5	D
6	C	7	B	8	C	9	E	10	A
11	A	12	D	13	A	14	C	15	E
16	E	17	128	18	A	19	D	20	D
21	814	22	D	23	B	24	B	25	D
26	D	27	B	28	C	29	B	30	A
31	B	32	D	33	D	34	A	35	D
36	D	37	B	38	B	39	C	40	E
41	B	42	A	43	C	44	D	45	E
46	C	47	25	48	A	49	B	50	B
51	E	52	D	53	B	54	D	55	B
56	A	57	E	58	B	59	D	60	A
61	D	62	A	63	A	64	8	65	C
66	A	67	E	68	D	69	B	70	B
71	B	72	A	73	D	74	C	75	D
76	A	77	D	78	E	79	A	80	A
81	C	82	D	83	A	84	D	85	B
86	D	87	B	88	A	89	C	90	B
91	B	92	E	93	A	94	D	95	C
96	B	97	B	98	D	99	C	100	C

## EXPLANATION:

- The answer is "lion" because it's the only large animal.
- The answer is "criminal activities" because that explains why "people end up in jails" better than any of the other answers.
- The answer is "patients" because a "teacher" helps a "student" like a "doctor" helps "patients."
- The answer is "44" because the pattern shows that you add 10 to the second and fourth numbers.
- The answer is "540" because the pattern shows that you multiply every other number by 6. Therefore,  $90 \times 6 = "540."$
- The answer is "19" because  $19 \times 19 = "361."$
- The answer is "skin" because "math tutor" is a professional at "math" just like a "dermatologist" is a professional with "skin."
- The answer is "61" because the pattern shows that you add 3 to the second and fourth numbers.
- The answer is "grandmother" because a "husband" is married to his "wife" just as a "grandfather" is married to a "grandmother."
- The answer is "12,14" because the area of a rectangle is determined by multiplying the length and the width. Therefore,  $12 \times 14 = "168."$
- The answer is "240" because the pattern shows that you multiply the first number by 2 to get the third number, the third number by 3 to get the fifth number, the fifth number by 4 to get the seventh number, and finally the seventh number by 5 to get the missing ninth number of "240."

## Career Finder

12. The answer is "32 cm" because to find the perimeter you add all the sides. Therefore  $8+8+8+8= "32."$
13. The answer is "degree" because "love" leads to "marriage" like an "education" leads to a "degree."
14. The answer is "PhD" because it is the only answer that is a degree and not a place you go to learn.
15. The answer is "FF" because the pattern shows that you add the same next letter twice every other one starting with the first "CC."
16. The answer is "27" because the pattern is +2, -3, +5, and then repeat.
17. Multiply the two numbers on the left by 4 in each case and place them in the same manner together on the right to make the required number. Thus  $7 \times 6$  would be  $7 \times 4$  and  $6 \times 4$  placed together or 2824 and so on.
18. The answer is "16" because the pattern shows that you take the square root of each number starting with 9, then 8, and so on.
19. The answer is "home" because the popular expression is "there is no place like home."
20. The answer is "paper" because it is the only answer that is not alive.
21. Halve the digits and place them side by side. Thus  $(6 \times 28 = 814)$ .
22. The answer is "15" because  $1000 \times 0.15 = 150$ , and  $150 \times 0.10 = 15$ .
23. The answer is "appreciation" because none of the other answers is the opposite of "cynicism."
24. The answer is "WHG" because the pattern is you go back one letter for the first letter and then forward two letters for the next two letters. Therefore, the "X" goes back one letter to "W" while "FE" go forward two letters each to "HG" for the answer of "WHG."
25. The answer is "blacksmith" because it's the only person. The other answers are all tools.
26. The answer is "Flee" because none of the other answers mean quite the same thing as "abscond."
27. The answer is "1/2" because  $500 \times 0.05$  is 25, and  $25 \times 0.02$  is 0.05, or "1/2."
28. The answer is "night" because "sunrise" is the opposite of "sunset" just like "morning" is the opposite of "night."
29. The answer is "B" because "90" can never be greater than any multiple of "100" since "100" alone is already greater than "90."
30. The answer is "40 miles/hour" because when you divide "80 miles" by "2" younger "40."
31. The answer is "bring people together" because that is the primary reason "get-togethers" happen.
32. The answer is "picture" because a "border" surrounds a "country" just like a "frame" surrounds a "picture."
33. The answer is "-8" because the pattern shows that you decrease by multiples of 2. Therefore, you subtract 2, then 4, then 6, then 8, and finally 10 to get "-8."
34. The answer is "cote" because a "nun" lives in a "convent" just like a "hen" lives in a "cote."
35. The answer is "977" because it is the only odd number among the answers.
36. The answer is "600" because we know there must be 300 black and 300 green beans. Therefore,  $300 + 300 = 600$ .
37. The answer is "32" because the pattern shows that you subtract prime numbers, 2, 3, 5, and finally 7.
38. The answer is "1" because the pattern shows that you add  $1/5$  to each number, so the missing number is  $5/5$ , which equals "1."

39. The answer is "sandwich maker" because all of the other answers are large appliances.
40. The answer is "330" because  $37+8+3+3+40+19=110$ , and  $110 \times 3 = "330."$
41. The answer is "27" because the pattern shows that starting with the first, then third, then fifth, and finally the seventh missing number you add 3 to the first number, then 5 to the first number, and finally 7 to the first number.
42. The answer is "blame" because it more closely matches the meaning of "accuse" than any of the other answers.
43. The answer is "uncertain" because we don't know how old "Aliza" is compared to "Alina."
44. The answer is "to keep healthy teeth" because that is the primary reason web rush hour teeth.
45. The answer is "mouse" because a "lion" eats a "deer" like a "cat" eats a "mouse."
46. The answer is "168" because the second number is double the first, the fourth number is double the third, and the missing sixth number is double the fifth. Therefore,  $84 \times 2 = 168$ .
47. Consider all digits as independent units and add them up to get the sum in each case.
48. The answer is "121" because you add multiples of 2 to each number. Therefore, you add 2 to the first number, 4 to the second number, 6 to the third number, and finally 8 to the fourth number to find the answer of "121."
49. The answer is "eyes" because a "heart" pumps "blood" like "eyes" are required for "sight."
50. The answer is "P" because there is a 2-letter difference between each letter in the series.
51. The answer is "36" because you add 9 to the first, third, and fifth number. Therefore, the pattern is 9, 18, 27, and finally 36.
52. The answer is "deceit" because the other answers are good, but "deceit" is a bad thing.
53. The answer is "B" because "0.9" is equal to 90% while  $2/5$  is only 40%.
54. The answer is "753" because the pattern shows that you subtract 35 from the previous number.
55. The answer is "triangle" because a "hexagon" has "6" sides like a "triangle" has "3" sides.
56. The answer is "78" because the pattern shows that you subtract 10 from the first number, 5 from the second number, and then you repeat. Therefore,  $88-10$  is 78.
57. The answer is "Arab" because an "Arab" is a type of person while the other answers describe what a person believes.
58. The answer is "243" because the pattern shows that you multiply each number by 3. Therefore,  $81 \times 3 = 243$ .
59. The answer is "pious" because if you're "rich" you have a lot of "money" like you're "pious" you have a lot of "piety."
60. The answer is "18" because the pattern shows that  $58-4=54$ ,  $54-8=46$ ,  $46-12=34$ , and finally  $34-16= "18."$
61. The answer is "55" because you add 11 to the first number and every other number after. Therefore, the pattern is 11, 22, 33, 44, and finally 55.
62. The answer is "car" because it's the only vehicle in the list.
63. The answer is "A" since  $6 \times 6$  is 36.
64. Difference of the squares of the first two numbers is equal to the third number.
65. The answer is "milk" because "blood" can "clot" just like "milk" can "curdle."

## Career Finder

66. The answer is "grandmother" because the paternal aunt and uncle are siblings, and therefore their mother would be Anna's "grandmother."
67. The answer is "6" because the pattern shows that you divide the larger number by 3. Therefore,  $18/3$  is 6.
68. The answer is "cooking" because you're "reading" a "book" and "cooking" in the "kitchen."
69. The answer is "trip" because you use an "agenda" at a "conference" like you use a "map" on a "trip."
70. The answer is "B" because  $12/2$  is more than  $3/5$ .
71. The answer is "100" because you multiply two sides to find the area of a square and since all sides are the same length, it's just  $10 \times 10$ , which is 100.
72. The answer is "83.33 rupees" because dividing 1000 by 12 (the total cost by the total number of roses), you get "83.33" which represents the cost per rose.
73. The answer is "LOP" because all of the other answers have only one letter between each of the letters in the group.
74. The answer is "S" because the correct complete sentence is: Shoot for the moon, and you will land among stars.
75. The answer is "surgeon" because none of the other people perform operations on patients.
76. The answer is "metal" because "deer" is a type of "animal" just as "gold" is a type of "metal."
77. The answer is "comb" because the other answers are kinds of furniture.
78. The answer is "5" because  $5 \times 5$  is 25.
79. The answer is "160 ft square" because  $8 \times 20$  is 160, and you always multiply width by length to find the area of a rectangle.
80. The answer is "passion" since the other answers do not mean the same thing as "zeal."
81. The answer is "hair dye" because the other answers are kinds of clothes.
82. The answer is "49" because you add ascending multiples of three to each previous number. That's why  $4+3$  is 7,  $7+6$  is 13, and so on. Therefore,  $34+15$  is 49.
83. The answer is "Alex" because everyone else is older than "Caleb" except for "Alex."
84. The answer is "280" because the pattern is to add 10, then 20, then 10, then 30, then 10, then 40, then 10, then 50.
85. The answer is "54" because the pattern is to add 10, then 7 and repeat.
86. The answer is "Ludo" since it is the only board game in the list. Football, Hockey, Cricket and Rugby are played on the field.
87. The answer is "19" because the pattern is to subtract 5, then 5, then add 2, and then repeat that same pattern.
88. The answer is "kitten" because a "puppy" is a young "dog" like a "kitten" is a young "cat."
89. The answer is "den" because "bees" live in a "hive" just like "bears" live in a "den."
90. The answer is "astronomy" because none of the other options deals with celestial objects, space, and the universe.
91. The answer is "1.66" because you divide the first number by 2, the second number by 3, the third number by 4, and finally the fourth number by 5. Therefore,  $8.33/5$  is 1.66.
92. The answer is "stone" because a "chef" works with "food" just as a "sculptor" works with "stone."

93. The answer is "1472" because the pattern shows that you double the previous number. Therefore,  $736 \times 2$  is 1472.
94. The answer is "JKM" because the other answers show three letters in a row, but "JKM" are not in a row.
95. The answer is "lowliness" because it means the total opposite of "significance" unlike all of the other answers.
96. The answer is "25" because the pattern is to add 4 to the first number, then 2 to the second number, and repeat.
97. The answer is "flower" because "yellow" is a "color" just as "rose" is a "flower."
98. The answer is "Donald Trump".
99. The answer is "50" because  $10 \times 5$  is 50.
100. The answer is "unpleasant" because it is another word for "awful" and none of the other answers match it as well.

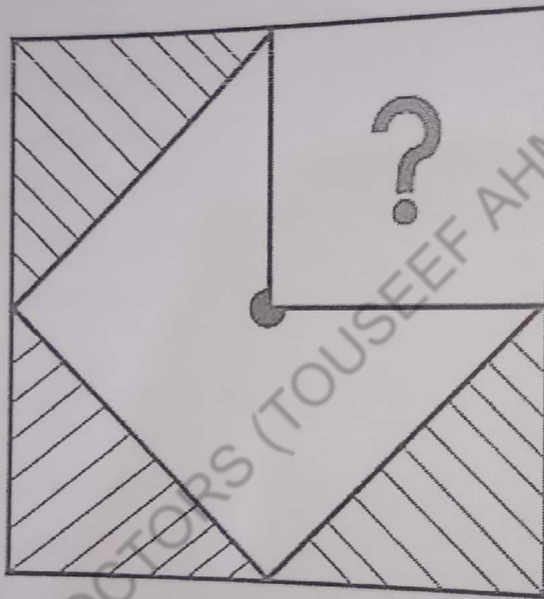
MDCAT BY FUTURE DOCTORS (TOUSEEF AHMAD) 03499815886

# NON-VERBAL INTELLIGENCE TEST

Attempt the following test to practice nonverbal intelligence questions. To practice hundreds of further questions visit [tabir.pk](http://tabir.pk)

Choose the correct option to fill in the missing spot.

1.



A



B



C

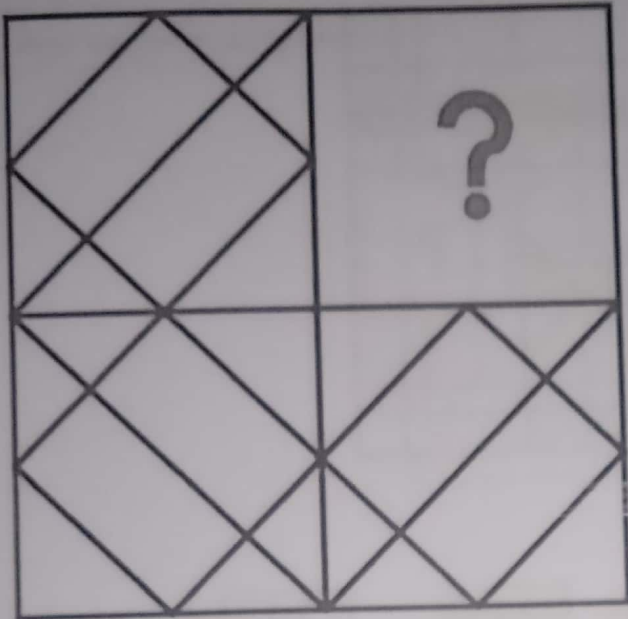


D

D

D is suitable as it has lines inclined from right to left.

2.



A



B



C

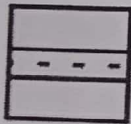
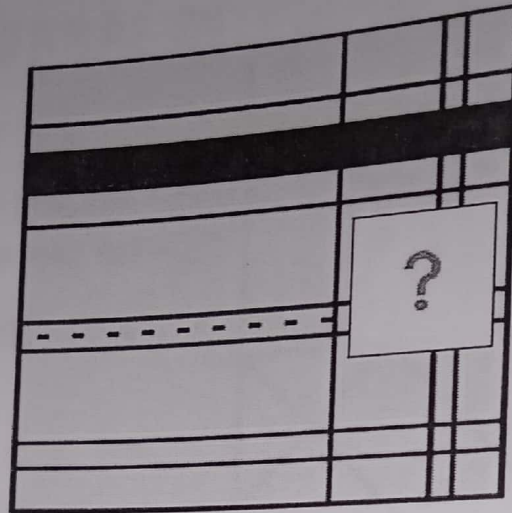


D

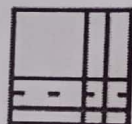
B Missing section is same bottom left portion.

Career Finder

3.



A



B



C



D

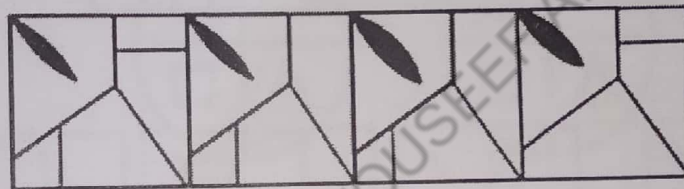
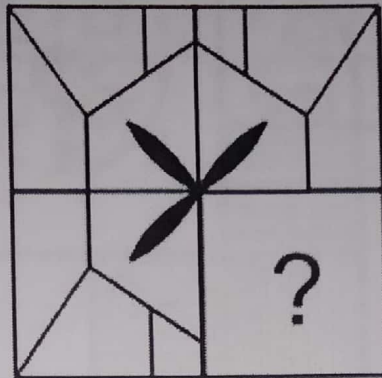
B

Pattern includes two vertical and two horizontal lines intersecting each other.

C

Also consider petal size.

4.



A

B

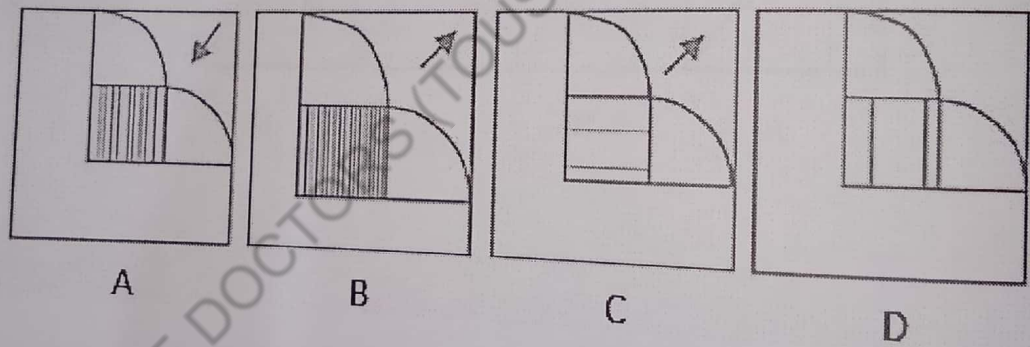
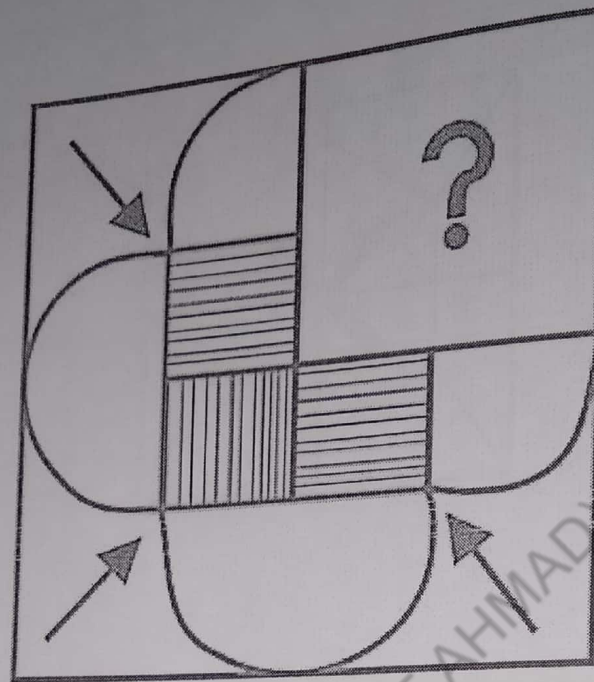
C

D

Career Finder

Care

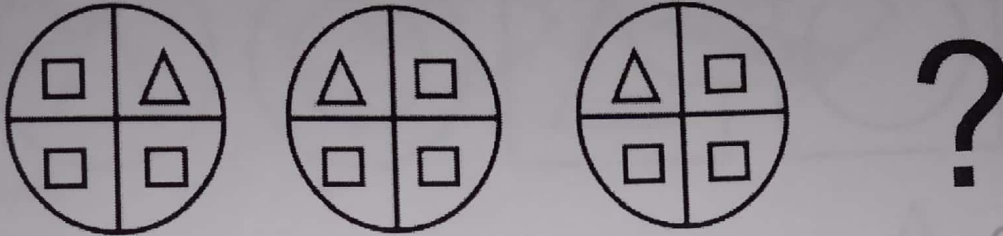
3. 5.



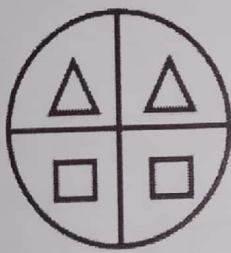
A	Pattern should have vertical lines.
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Choose the correct option to complete the series

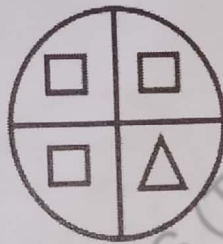
6.



Answer:-



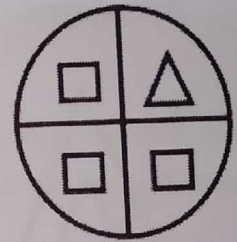
a



b



c

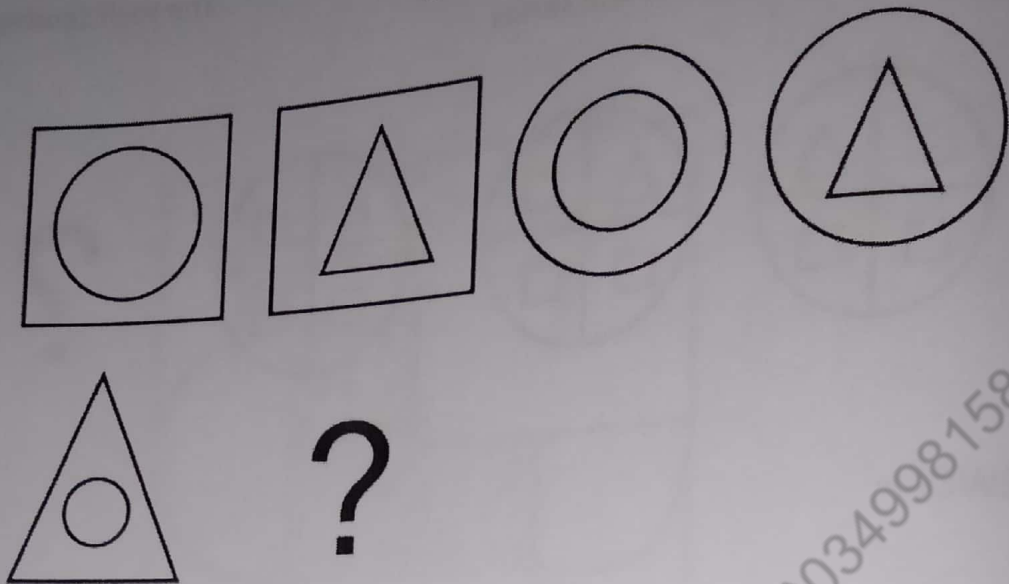


d

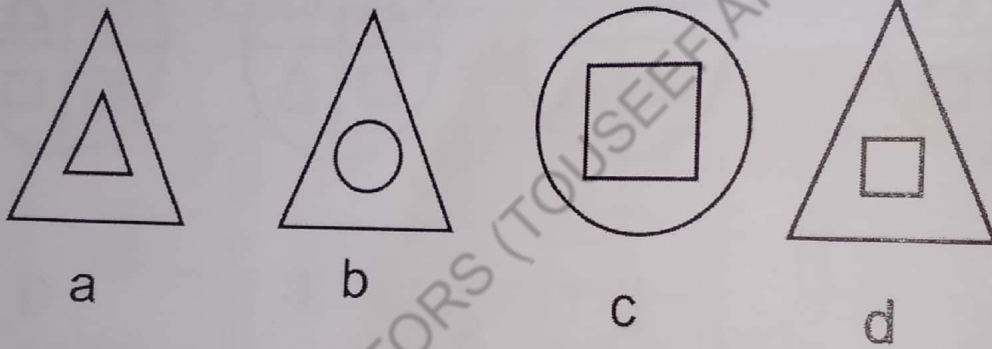
The answer is D. When you look at the sequence of circles you see that there is only one triangle in all of the circle images. Looking at the sequence, you see the triangle go from right in the first image to left in the second image, and finally it remains left in the third image. This means the solution will be paired with the triangle being on the opposite side of the triangle within image three. This points to the triangle being on the right hand side, which is D.

## Career Finder

7.

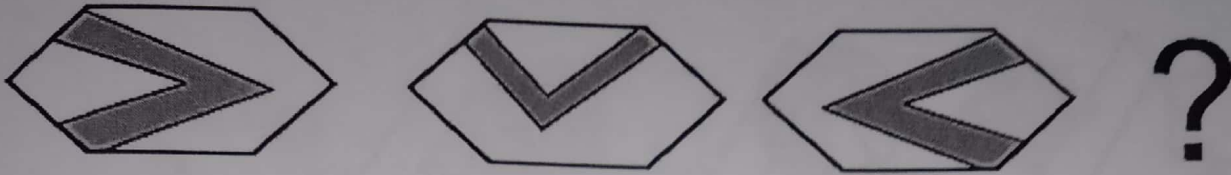


Answer:-



The answer is A. If you look at the sequence of images, you notice that the inner shapes of the images is the most crucial aspect of the sequences being shown. This is because these images alternate between having a circle on the inside and then a triangle, this occurs regardless of what the outer shape of the image is. So therefore when looking at the inner image of the last image in the sequence and we see a circle, this means the solution will have the same outer shape but will have a triangle inside of it. The only possible answer with this is A.

8.

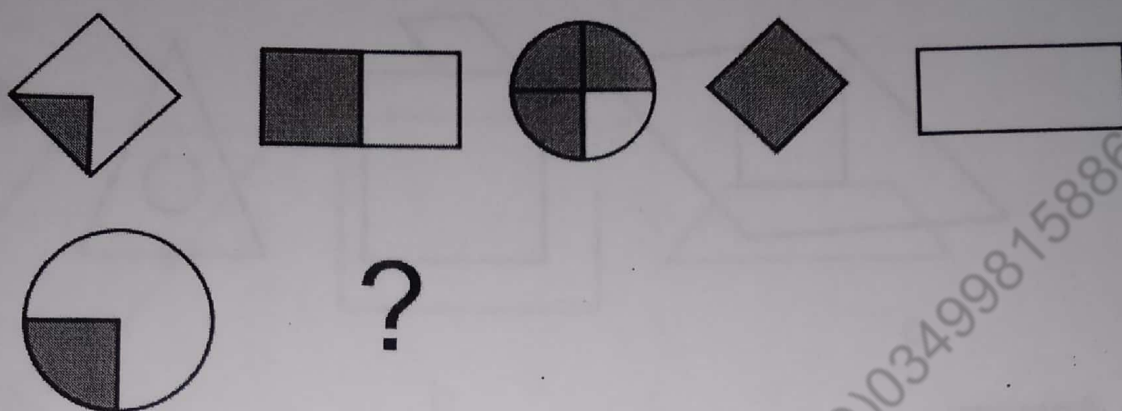


Answer:-

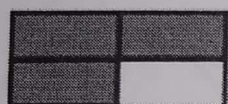


The answer is D. When you look at the sequence of images being presented you see that the first and third images are reflections of one another. This means the solution will be a reflection of the second image, the only possible answer with that orientation is D, therefore this is the solution.

10.



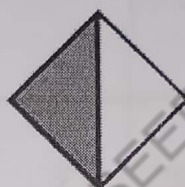
Answer:-



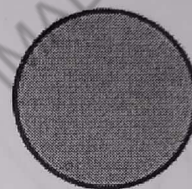
a



b



c

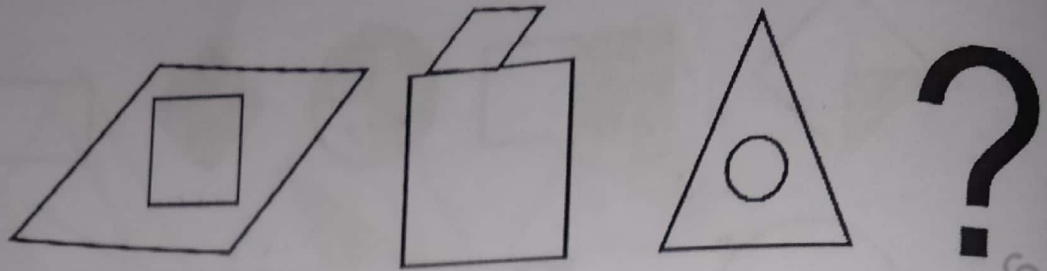


d

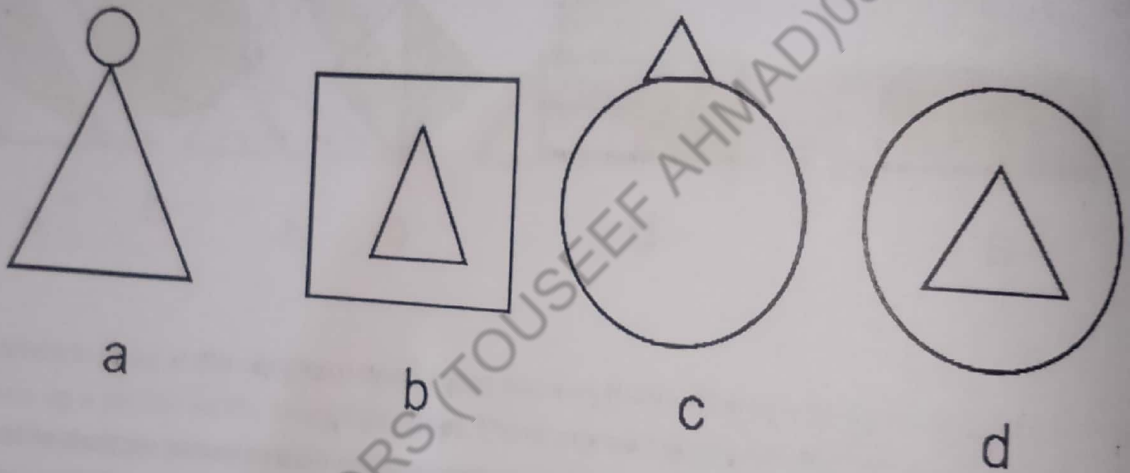
The solution is C. When looking at the sequence of images you see the dark coloured sections of the shapes showcasing the pattern of the first row. The circle shows the same dark colored section of the square above it, therefore the next image will show the same dark section as the rectangle in the second column of the first row. This points to solution C.

Career Finder

11.



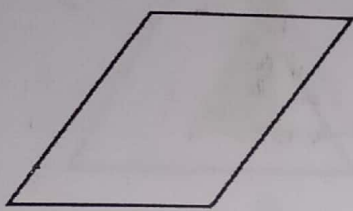
Answer:-



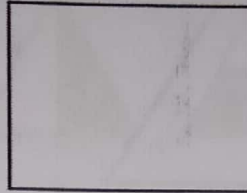
The solution is C. When you look at the sequence, you see that the first two images are inverted. Therefore the solution will be an inversion as the third image, this points to C.

Choose the odd one out

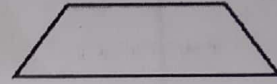
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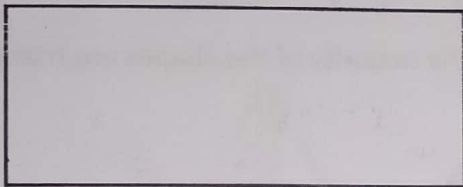
a



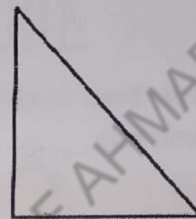
b



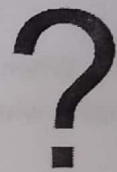
c



d

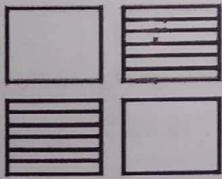


e

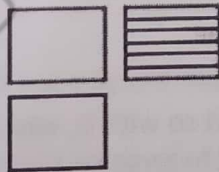


The solution is E. When you look at the other shapes you see that the majority of the shapes have four sides, this is in contrast to E which unlike the other images, E only has three.

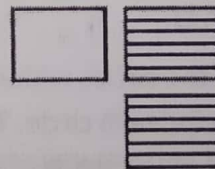
13.



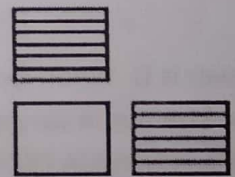
a



b



c



d

The answer is A. When you look at this sequence of images, you see that the majority of them are comprised of three squares for each image. This is in contrast to A, which is comprised of four squares.

## Career Finder

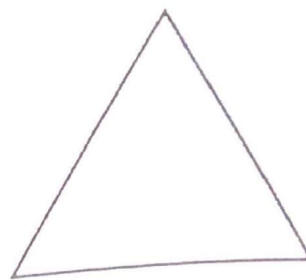
14.



a



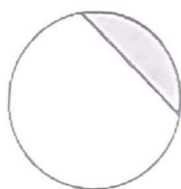
b



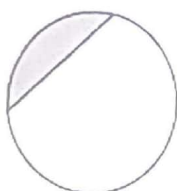
c

The solution is A. When you look at these images you see that the majority of the shapes are triangles, this is in contrast to image A which is a semicircle.

15.



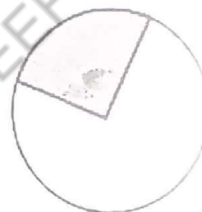
a



b



c



d

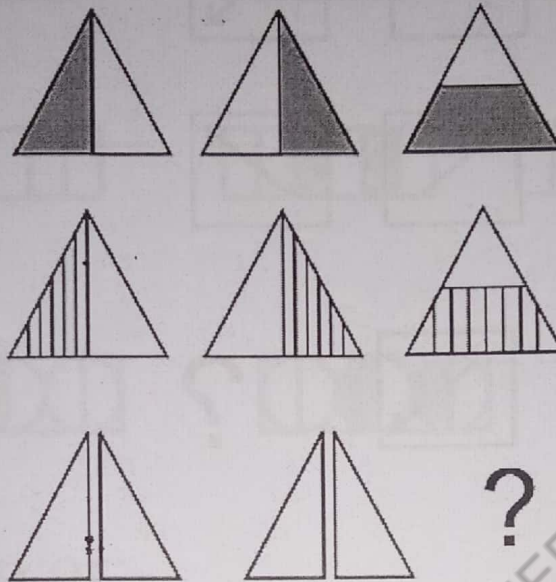


e

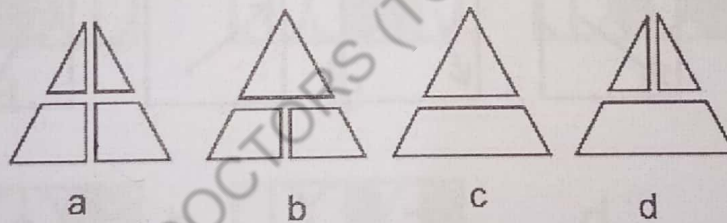
The answer is D. When looking at the circles within the sequence, you see that the dark section of the circles is the same size but in varying areas for each circle. This is not so with D, which has a different size and shape of the dark section than the majority of the shapes.

Choose the correct option to complete the pattern

16.



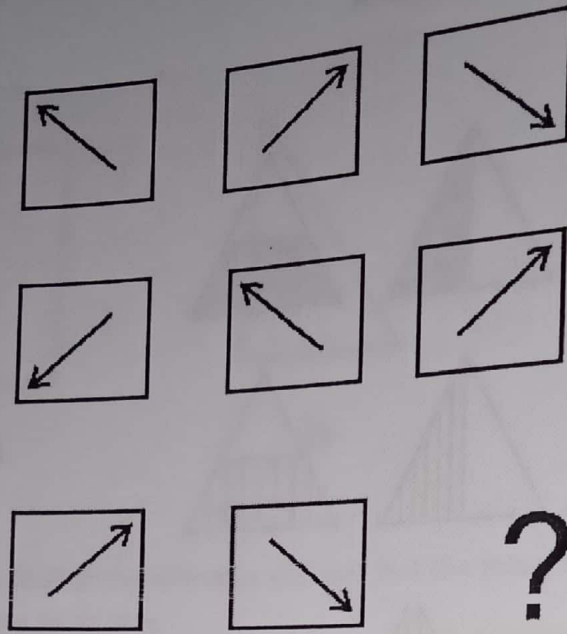
Answer:-



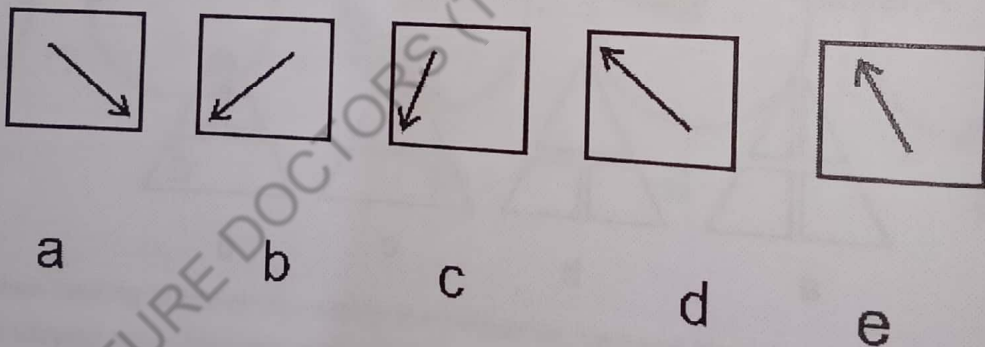
The answer is C. When you look at the first two rows of the images you see that the triangles are split in half vertically for the first two images in the rows. Then the third image is split horizontally, this means the solution will show a horizontal split as shown in the first two rows, this means the answer is C.

## Career Finder

17.

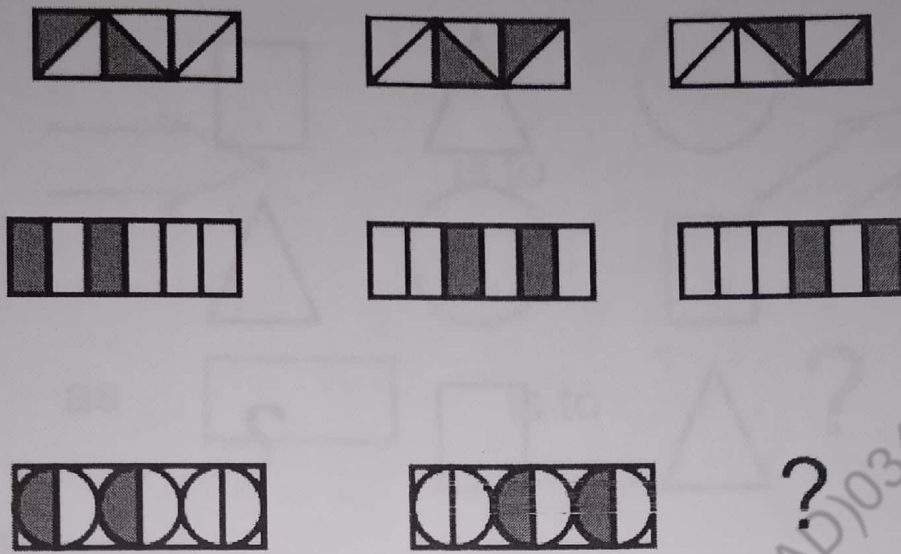


Answer:-

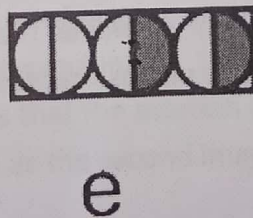
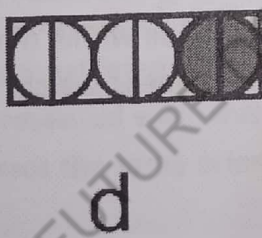
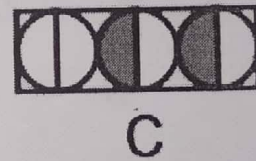
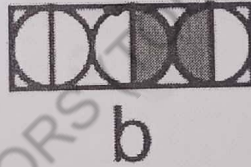
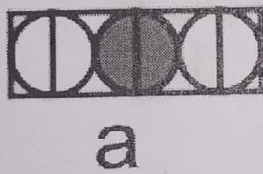


The answer is B. When you look at the image sequences, you see that the arrows are in diagonal angles within the squares presented. This rules out the answers of C, D, and E. Furthermore, when looking at the last row of the images, you see that the arrow is pointing in the bottom right, this means that A is also ruled out as none of the sequences show consecutive repetition of the arrow positions. This means that B can be the only answer.

18.



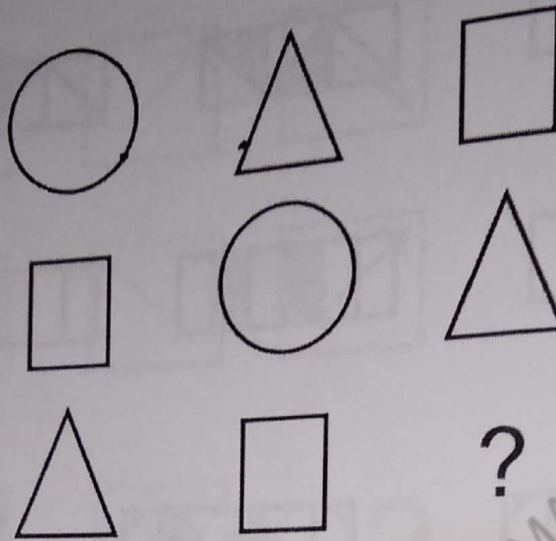
Answer:-



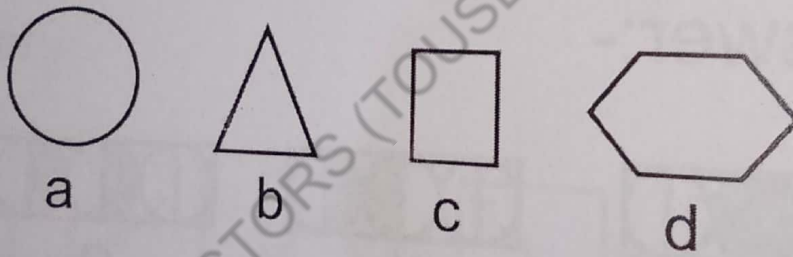
The answer is E. When you look at the sequences of the images, you see that each image only has two alternately spaces dark coloured sections within it. Additionally, these dark sections are moving from left to right with each new column of the image. This pattern continues with the last row meaning that the solution will contain the same patterned sections as the top two rows, point to the solution being E.

## Career Finder

19.



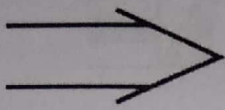
Answer:-



The answer is A. You see the sequences of the images, showing the same three shapes in each row which is the circle, the triangle, and the square. This means the solution will be the missing shape within our third row of images. Seeing as we have a triangle and a square, this means that the missing shape is the circle which is answer A.

Choose the correct option

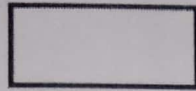
20.



is to



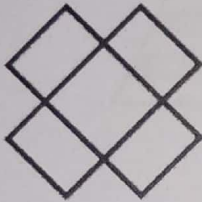
as



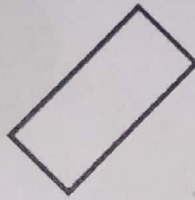
is to

?

Answer:-



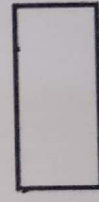
a



b

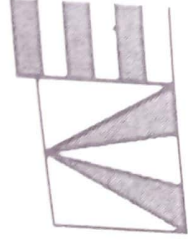


c

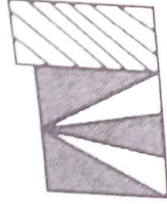


d

The answer is B. When you look at the first row of images, you see the arrow in a horizontal orientation, which is then shifted to a diagonal orientation in the second image. This horizontal orientation is also taken on by the last image we are presented with, this means that the solution will also hold a diagonal orientation. The only image which possesses the same orientation as the second image is B.

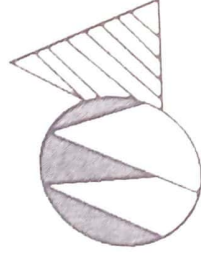


is to

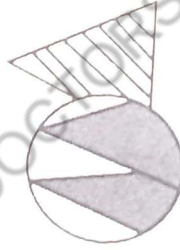


is to ?

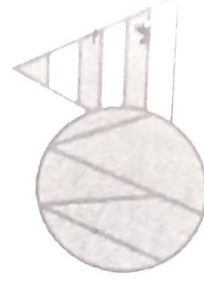
as



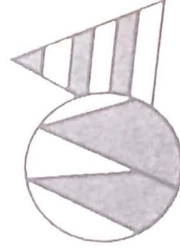
Answer:-



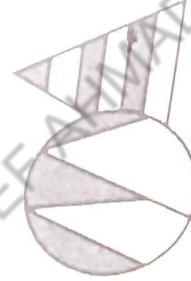
a



b



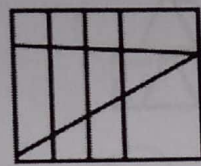
c



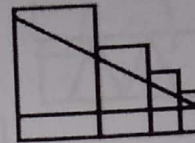
d

The answer is C, When you look at the first row of images, you see that the first two images show that the first shape within their composition has alternating color schemes while the second shape pattern changes from just diagonal lines to alternating horizontal stripes in the second image's shape. The only answer that matches this same pattern is C.

22.



is to



as



is to

?

Answer:-



a



b

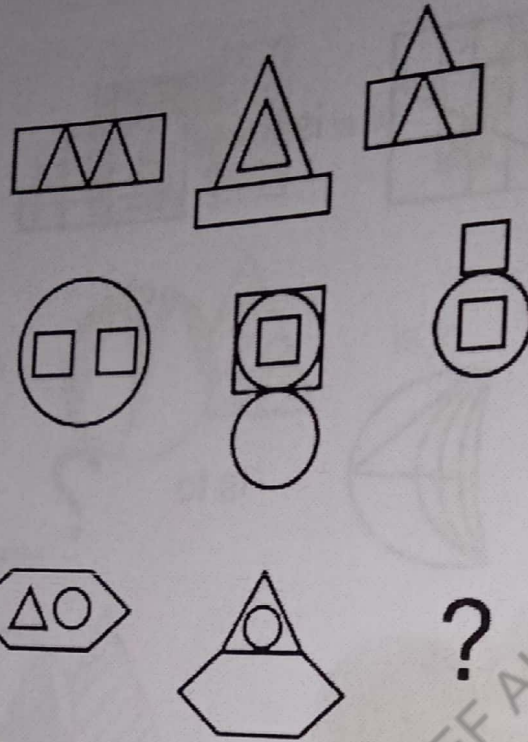


c

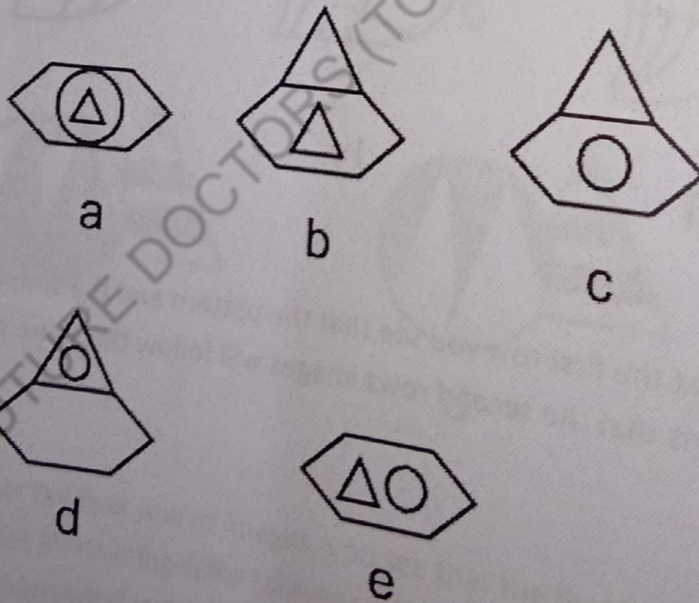
The answer is B. When you look at the first row you see that the pattern and the shapes of the images are mirrored and inverted. This means that the second rows images will follow the same pattern, this points to B being the answer.

## Career Finder

23.

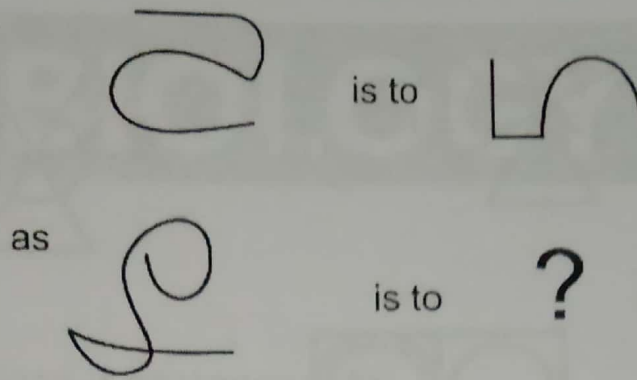


Answer:-

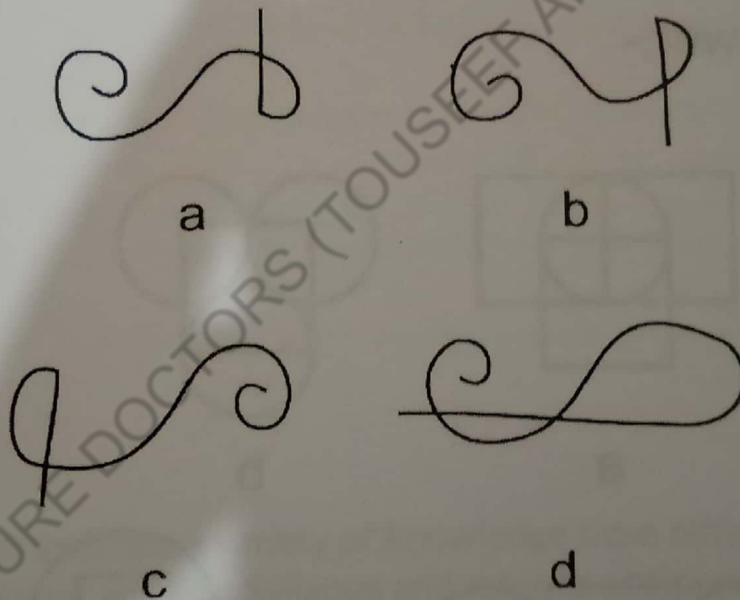


The answer is C. When you see the rows of the images, you notice that the first and third image in each row has the inner shapes within the first image are stacked in the third image with one of those inner shapes remaining outside the outer shape and one of the other inner shapes positioned on top of the outer shape. The only answer with this same pattern is C.

24.



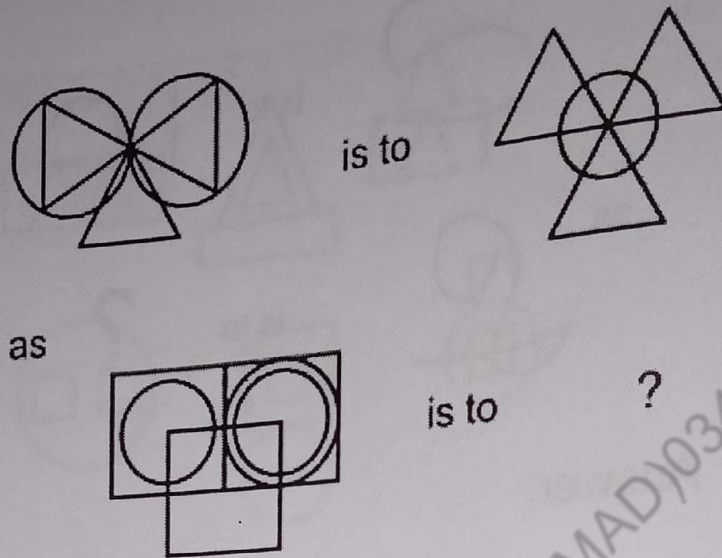
Answer:-



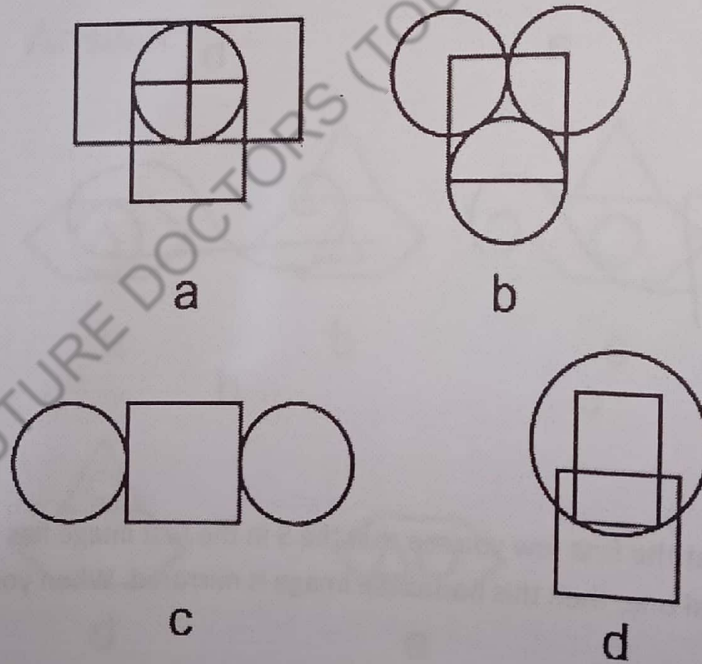
The answer is B. When you look at the first row you see that the 5 in the first image has been turned from a vertical orientation to a horizontal one, then this horizontal image is mirrored. When you do the same action to the third image, the answer is B.

Career Finder

25.



Answer:-



The answer is B. When you look at the first row, you see that the shapes that comprise the first image are inverted within the second image. The circles that were around the triangles are now in the center of them. When applying the same actions to the third image, the squares on the outside of the circles are now put into the center, leading to answer B.

# BIOLOGY

This section is divided into 2 assignments:

Assignment 1	Solved Papers and Explanations
Assignment 2	Levels at Online Learning Module

**Important:** AMC Entry Test includes a variety of knowledge from different sources. You are suggested to cover your Matric and FSc Syllabus and refer to additional sources of information as well for a better preparation.

# Assignment 1

## Solved Papers and Explanations

The **Assignment 1** comprises of Solved Papers and Explanations that have been included on the pattern of the AMC Entry Test Past Papers questions.

These questions test a variety of concepts, and provide the correct answers along with the explanations. This will guide you to work on the areas where you need help. By following the explanations, you can learn new concepts and polish them with practice.

It is recommended for the candidates to refer to additional sources of information to practice their skills and knowledge for an all-rounded preparation.

After you are done with Assignment 1, proceed to Assignment 2.

**Remember:** Practice will help you score brilliantly!

**SOLVED PAPER 1**

Attempt the following questions from biology to practice for your biology section of the test. To attempt hundreds of further practice questions on biology visit [tabir.pk](http://tabir.pk)

1. Birds and mammals evolved from
- A. Reptiles
  - B. Amphibians
  - C. Fish
  - D. **Archaeopteryx**

Birds and mammals evolved from Archaeopteryx, that existed in Palaeozoic era. This means that Archaeopteryx were the ancestors of birds as well as mammals.

2. At present, about 2,500,000 species of organisms are known to science. Of these organisms, percentage of vascular plants is about
- A. 53.1%
  - B. 19.9%
  - C. **17.6%**
  - D. 9.4%

Of all these organisms currently known to science, 53.1% are insects, 19.9% are animals other than insects, 17.6% are vascular plants and 9.4% are fungi, algae, protozoa, and various prokaryotes.

3. Which of the following is the main source of carbohydrates for animals?
- A. **Starch**
  - B. Sucrose
  - C. Cellulose
  - D. Glycogen

Starch is the main source of carbohydrates for animals. It yields glucose on hydrolysis.

4. Between which two carbon atoms is the double bond in Oleic acid is present?
- A. 4 and 5
  - B. 7 and 8
  - C. **9 and 10**
  - D. 13 and 14

The double bond in oleic acid is present between C<sub>9</sub> and C<sub>10</sub>.

5. Change in pH causes changes in
- A. Ionization of amino acids at active site.
  - B. Ionization of substrates.
  - C. Bonds in enzymes.
  - D. **All of the above.**

A slight change in pH can change the ionization of the amino acids present at the active site. Moreover, it may affect the ionization of the substrates. Under these conditions, enzyme activity is either retarded or completely blocked. Extreme changes can cause the bonds in enzymes to break.

**Career Finder**

6. The enzyme catalase works best at pH
- 6.80
  - 7.60**
  - 9.00
  - 9.70

The enzyme catalase has an optimum pH of 7.60. Hence, it works best at this pH.

7. Mitochondria move about freely in cytoplasm because
- They are small in size.
  - They are ionic in nature.
  - Cytoplasmic streaming movements occur.**
  - All of the above.

The free-floating cell organelles e.g. mitochondria move about in cytoplasm due to cytoplasmic streaming movements.

8. Which of the following is not a function of smooth endoplasmic reticulum?
- Storage of vital chemicals**
  - Maintenance of cell shape
  - Transmission of impulses
  - Lipid synthesis

The smooth endoplasmic reticulum helps in the maintenance of cell shape, transmission of impulses and lipid synthesis. However, storage of vital chemicals is a function of cytoplasm.

9. Which of the following diseases is not caused by a virus?
- Influenza
  - Hepatitis
  - Small pox
  - Pneumonia**

All of the above diseases are caused by viruses except pneumonia which is a bacterial disease.

10. Bacteriophages were discovered by
- Twort
  - D'Herelle
  - Pateur
  - Both A and B**

Bacteriophages are viruses that infect bacteria. They were independently discovered by Twort in 1915 and D'Herelle in 1917.

11. If the division of bacteria is in one plane, it will produce
- Diplococci
  - Staphylococci
  - Streptococci
  - Both A and C**

Cocci have distinct arrangements based on the plane of divisions. If the division is in one plane, it gives rise to diplococci and streptococci.

12. Hyphomicrobium is an example of

- A. Cocci
- B. Bacilli
- C. **Spirilla**
- D. Trichome forming

Hyphomicrobium is an example of spiral shaped bacteria.

13. The feeding stage of slime mold is

- A. **Plasmodium**
- B. Sporangia
- C. Swarm cell
- D. Hypha

The feeding stage of a slime mold is plasmodium, a multinucleate mass of cytoplasm.

14. Margulis and Schwartz divided the kingdom Protista into how many phyla?

- A. 21
- B. 23
- C. 25
- D. **27**

Margulis and Schwartz have listed 27 phyla to accommodate the diverse assemblage of organisms.

15. Saccharomyces cerevisiae reproduces by

- A. Spores
- B. Conidia
- C. Fragmentation
- D. **Budding**

Saccharomyces cerevisiae is a yeast and yeasts reproduce asexually by budding.

16. The characteristics of the hyphae of Zygomycota are

- A. Septate and mononucleate
- B. Septate and di nucleate
- C. **Non-septate and multi nucleate**
- D. Non-septate and mononucleate

The hyphae of Zygomycota are non-septate and multi nucleate.

17. Which of the following is false about hepaticopsida?

- A. Their common name is liverworts.
- B. Porella is a liverwort.
- C. The plant body is gametophyte.
- D. **Gametophyte is dependent on sporophyte.**

In the phylum hepaticopsida, the sporophyte generation is dependent on the gametophyte generation.

18. Which of the following plant has become extinct?

- A. **Horneophyton**
- B. Porella
- C. Anthoceros

## Career Finder

D. Polytrichum

Horneophyton is the representative of the group psilopsida and has become extinct.

19. Physalia (Portuguese man of war) has up to \_\_\_\_\_ different types of zooids.

- A. Three
- B. Four
- C. **Five**
- D. Six

Physalia (Portuguese man of war) has up to five different types of zooids, performing different functions for the colony.

20. The common name for Actinia is

- A. Jelly fish
- B. Planaria
- C. Leech
- D. **Sea anemone**

The common name for Actinia is sea anemone. It belongs to the phylum Cnidaria.

21. Which of the following wavelengths is least absorbed by chlorophylls?

- A. Green
- B. Yellow
- C. Indigo
- D. **All of the above**

The wavelengths least absorbed by plants include all green, yellow and indigo. These wavelengths are reflected from the surface of the leaf.

22. The long hydrocarbon tail of chlorophyll is phytol given by

- A.  $C_{10}H_{29}$
- B.  $C_{10}H_{20}$
- C.  **$C_{20}H_{39}$**
- D.  $C_{10}H_{30}$

The hydrocarbon tail of chlorophyll which is attached to one of the pyrrole rings is phytol ( $C_{20}H_{39}$ ).

23. To which of the following category does aphid belongs to?

- A. Detritivores
- B. Filter feeders
- C. **Fluid feeders**
- D. Microphagous feeders

Aphid is a fluid feeder. It sucks the phloem juices out of the green stems by inserting their delicate styles.

24. Nematocysts are stinging cells present in

- A. Amoeba
- B. **Hydra**
- C. Planaria
- D. Cockroach

In the digestive system of hydra, embedded in the tentacles are numerous stinging cells called nematocysts.

25. Epiglottis is a
- A. Bone
  - B. **Cartilage**
  - C. Muscle
  - D. None of the above

Epiglottis is a cartilage that is muscularly controlled. It serves as a lid that automatically covers the larynx during the act of swallowing.

26. The smaller bronchi are termed as bronchioles when they attain the diameter of
- A. **1 mm**
  - B. 2 mm
  - C. 1 cm
  - D. 2 cm

When the smaller bronchi attain a diameter of 1 mm or less, they are called as bronchioles.

27. Closed circulatory system is present in which of the following?
- A. Arthropods
  - B. **Annelids**
  - C. Molluscs
  - D. Protochordates

Annelids have closed circulatory system while arthropods, molluscs, and protochordates have an open circulatory system.

28. In cockroach, the blood passes from haemocoel in head to
- A. Perineural sinus
  - B. Pericardial sinus
  - C. **Perivisceral sinus**
  - D. All of the above

In cockroach, the blood flows from heart to aorta, to haemocoel, to perivisceral sinus, to perineural sinus, to perivisceral sinus, to pericardial sinus, and to heart through ostia.

29. In earthworm, each segment contains \_\_\_\_\_ metanephridia.
- A. 4
  - B. 3
  - C. **2**
  - D. 1

The excretory system in earthworm is tubular. Each segment of the organism contains a pair of metanephridia.

30. \_\_\_\_\_ are the only animals in which there is a structural and functional relationship between nutritive and secretory system.
- A. Birds
  - B. Mammals
  - C. Fish
  - D. **Insects**

## Career Finder

Insects eliminate excretory waste along with feces. In all other organisms, there is no structural and functional relationship between nutritive and secretory system.

31. The most complex exoskeleton is found in

- A. Molluscs
- B. Marine Bivalvia
- C. **Arthropods**
- D. Snakes

The most complex exoskeleton is found in arthropods. Their exoskeleton has made a variety of adaptations according to the environment that allow them to live and grow within their exoskeleton.

32. Which of the following is not a part of axial skeleton?

- A. **Pectoral girdle**
- B. Skull
- C. Sternum
- D. Vertebrae

Both the pectoral and pelvic girdles are the part of appendicular skeleton. However, skull, sternum and vertebrae are parts of axial skeleton.

33. The detection of vibration in monkeys is achieved by

- A. Receptors in cerebellum
- B. Receptors in cochlea in ear
- C. Receptors in skin
- D. **Receptors in joints**

The detection of vibrations of ground by terrestrial vertebrates is achieved by receptors in the joints.

34. \_\_\_\_\_ neurons branch profusely giving cell a tree like appearance.

- A. Motor neurons
- B. Sensory neurons
- C. **Associated neurons**
- D. Neuroglial cells

The dendrites of certain brain cells branch profusely, giving cell a treelike appearance. The neurons present in the brain are associated neurons.

35. Which of the following type of asexual reproduction does not occur in plants?

- A. Budding
- B. Grafting
- C. **Fission**
- D. Layering

Budding, grafting and layering are the types of asexual reproduction in plants. However, binary fission is seen only in unicellular organisms.

36. In which type of plants sporophyte is completely dependent on gametophyte? (remember)

- A. **Bryophytes**
- B. Spermatophytes
- C. Angiosperms

D. Gymnosperms

In bryophytes, the sporophyte is completely dependent on gametophyte. However, in the others, sporophyte is not dependent on gametophyte.

37. Which of the following is not the function of blue rays?

- A. **Causes cell elongation**
- B. Enhances cell division
- C. Retards cell enlargement
- D. All of the above

Light plays an important role in the growth of plants. Red light favors elongation of cells and blue light enhances cell division but retards cell enlargement.

38. Which of the following gives rise to lateral root?

- A. Vascular cambium
- B. Cork cambium
- C. Intercalary meristem
- D. **Pericycle**

Root apical meristem of the young embryo gives rise to pericycle which then forms bud primordia. Bud primordia then gives rise to lateral root.

39. 5' end of an RNA is formed by \_\_\_\_\_

- A. **Phosphate group**
- B. Hydroxyl group
- C. Nitrogenous base
- D. None of these

Phosphate group is present at the 5' end of an RNA molecule while the hydroxyl group is present at the 3' end of the molecule. This structure allows hydrogen to form long chains of nucleotides.

40. Which of the following model suggests that each strand of daughter molecule will be a mixture of old and new DNA?

- A. Conservative model
- B. Semi-conservative model
- C. **Dispersive model**
- D. Both B and C

Dispersive model predicted that parental DNA be completely dispersed and that each strand of all the daughter molecules would be a mixture of old and new DNA.

41. Microtubules are made up of

- A. Tubulin protein
- B. Actin protein
- C. **Tubulin + RNA**
- D. Tubulin + DNA

Micro tubules are made up of tubulin protein and traces of RNA.

42. Spindle fibers are formed from

- A. 1 set of microtubules

## Career Finder

- B. 2 sets of microtubules
- C. 3 sets of microtubules
- D. 4 sets of microtubules

3 sets of microtubules originate from each pair of centrioles, one set of astral microtubules radiate outward and form aster, other two sets of microtubules compose the spindle.

43. If a heterozygous round plant fertilizes with homozygous round, then the ratio of heterozygous round and homozygous round plants in progeny will be

- A. 1:1
- B. 1:2
- C. 2:1
- D. 1:3

If we do the cross, we will see that half of the generation will be heterozygous round and half will be homozygous round.

44. All of the following statements are true about independent assortment except

- A. Alleles assort independently into gametes.
- B. Independent assortment of alleles depends on independent assortment of their chromosomes.
- C. **Genes of homologous chromosomes assort independently.**
- D. Ratio of each joint phenotypic combination can be obtained by product rule.

Genes of homologous chromosomes cannot assort independently because they are present on same chromosome.

45. During DNA fingerprinting, result is obtained in the form bands in \_\_\_\_\_.

- A. **Autoradiograph**
- B. Projectional radiograph
- C. Panoramic radiograph
- D. Tomograph

The results of DNA fingerprinting are obtained using X-rays that appear as black bands in autoradiograph.

46. During gene sequencing

- A. DNA strands are cut into pieces.
- B. Only chain terminated nucleotides are marked with fluorescent dye.
- C. DNA strands of different sizes are synthesized.
- D. **All of the above**

During gene sequencing, DNA strands are cut into pieces, they are marked with fluorescent dye and new strands of different sizes are synthesized.

47. According to membrane invagination hypothesis, what is true about genome?

- A. Genomes of different organelles join to form a single genome in nucleus.
- B. Organelle genome is lysed by enzymes.
- C. **Organelle lose many of their genes not all genome.**
- D. Genome is absorbed in the double membrane.

According to membrane invagination hypothesis, nuclear genome eventually enlarges, while the other organelle genome loses many of their genes, resulting in a eukaryotic cell.

48. Lamarck's theory is not accepted because

- A. Mechanism to explain evolution wasn't enough.
- B. Parts of body that are used extensively become larger and stronger.
- C. Parts of body that are not used deteriorate.
- D. **Inheritance of acquired characters.**

Lamarck's theory is not accepted because acquired characters cannot be inherited. In the modern concept of heredity, the modifications an organism acquires during its lifetime cannot be passed along to its offspring.

49. Permelia is an example of \_\_\_\_\_ stage.

- A. Moss
- B. **Foliage lichen**
- C. Crustose lichen
- D. Herbaceous

Permelia and Dermatocarpon are the common examples of foliage lichen stage.

50. Dandruff in hair is caused by

- A. Bacteria
- B. Lice
- C. Virus
- D. **Fungi**

Fungi causes dandruff in hair. It is an example of parasitism where the fungi behave as parasite and human hair act as host.

51. Phytoplankton does not include

- A. Protista
- B. **Small plants**
- C. Bacteria
- D. Algae

Phytoplankton (Greek "drifting plants") include photosynthetic Protista, bacteria and algae. Small plants are not classified as phytoplankton.

52. Plants are most diverse in littoral zone of lake and animals are most diverse in \_\_\_\_\_ zone.

- A. **Littoral**
- B. Limnetic
- C. Profundal
- D. Soil bed

In littoral zone, plant communities are most diverse including water lilies and entirely submerged vascular plants and algae. The greatest diversity of animals in the lake is also found in this zone. Littoral invertebrates include crustaceans, insect larvae, snails, flatworms, hydra; vertebrates include frogs, aquatic snakes and turtles.

**SOLVED PAPER 2**

Attempt the following questions from biology to practice for your biology section of the test. To attempt hundreds of further practice questions on biology visit [tabir.pk](http://tabir.pk)

1. The division of labour within the cell is due to

A. Number of organelles  
B. **Arrangement of organelles**  
C. Size of the cell  
D. None of the above

The arrangement of organelles in the cell speaks of the division of labour within the cell.

2. Glandular tissue performs which of the following function?

A. Contraction  
B. **Secretion**  
C. Conduction  
D. Translocation

Glandular tissue is present in animals where they secrete of hormones and other secretions.

3. Which of the following is not an organic compound?

A. Proteins  
B. **Water**  
C. Metabolites  
D. Hormones

Water is the only inorganic compound. Proteins, carbohydrates and lipids are the organic compounds.

4. Human bone tissue has \_\_\_\_\_ water

A. **20%**  
B. 65%  
C. 85%  
D. 87%

The percentage of water in human bone cells is about 20%.

5. Some enzymes use metal ions as co-factors including all of the following except

A.  $Mg^{2+}$   
B.  **$Al^{3+}$**   
C.  $Cu^{2+}$   
D.  $Zn^{2+}$

The co-factors used by some enzymes include  $Mg^{2+}$ ,  $Cu^{2+}$ ,  $Zn^{2+}$  and  $Fe^{2+}$ . However,  $Al^{3+}$  does not act as a co-factor.

6. Which of the following statement about enzymes is false?

A. Some enzymes need co-factors for proper functioning.  
B. They accelerate the chemical reactions.  
C. **They are all fibrous proteins.**  
D. They are sensitive to change in pH.

Enzymes are three dimensional globular proteins that have specific chemical composition due to their component amino acids and a specific shape.

7. What is the function of sclerenchymatous cells in plants?

- A. They translocate food.
- B. **They give support to the plant.**
- C. They carry out photosynthesis.
- D. They store surplus food.

Sclerenchymatous cells give support to the plant body. Food is translocated by Phloem cells, chlorenchymatous cells carry out photosynthesis and parenchymatous cells store surplus food.

8. What is the percentage of lipids in plasma membrane?

- A. **20-40%**
- B. 40-60%
- C. 60-80%
- D. 70-90%

Cell membrane is chemically composed of 20-40% of lipids and 60-80% of proteins.

9. Poaceae is the family name of which of the following species?

- A. **Corn**
- B. Rose
- C. Human
- D. Pea

Poaceae is the family name of corn, *Zea mays*.

10. Which of the following is biologically not a fish?

- A. Silver fish
- B. Cray fish
- C. Jelly fish
- D. **All of the above**

All of the above do not fit in the biologists' definition of a fish.

11. The 'germ theory of disease' was formulated by

- A. **Robert Koch**
- B. Louis Pasteur
- C. Antonie Van Leeuwenhoek
- D. None of the above

Robert Koch formulated the germ theory of disease by isolating anthrax bacteria.

12. Which of the following structures is not found in all bacteria?

- A. **Capsule**
- B. Cell wall
- C. Cell membrane
- D. Plasmid

Cell wall, cell membrane and plasmid are found in all bacteria. However, capsule derived from host is not present in all bacteria.

## Career Finder

13. Chlorophyll a, chlorophyll b and carotenoids are all present in

A. Plants  
B. Green algae  
C. Euglenoids  
D. **All of the above**

Chlorophyll a, chlorophyll b and carotenoids are present in all of the above: plants, green algae and euglenoids.

14. Which of the following causes African sleeping sickness?

A. Entamoeba histolytica  
B. **Trypanosoma**  
C. Paramecium  
D. Euglena

Trypanosoma is a human parasite that belongs to zooflagellates causes African sleeping sickness. It is transmitted by the bite of tsetse fly.

15. The hyphae which are not divided into individual cells by septum are

A. Non-septate hyphae  
B. Coenocytic hyphae  
C. Multinucleated hyphae  
D. **All of the above**

The hyphae that are not divided into cells by septum are non-septate and consist of a large multinucleated body. They are also called as coenocytic hyphae because cytoplasm moves effectively distributing the materials.

16. Fungi are the principal decomposers of

A. Cellulose  
B. Lignin  
C. Polypeptides  
D. **Both A and B**

Fungi are the principal decomposers of cellulose and lignin, the main components of plant cell wall (most bacteria cannot break them).

17. Common name for Anthoceropsida is

A. Liverworts  
B. Mosses  
C. **Hornworts**  
D. Whisk ferns

The common name of Anthoceropsida is hornworts, Hepaticopsida is liverworts, Musci is mosses and Psilopsida is whisk ferns.

18. Why are bryophytes termed as the amphibians of plants?

A. They cannot live away from water.  
B. They need water for reproduction.  
C. Their body is mainly composed of water.  
D. **Both A and B.**

The bryophytes are said to be the amphibians of plant world because they cannot live away from water and they need water for reproduction.

19. Which of the following is incorrect about deuterostomes?
- A. Cleavage is radial.
  - B. **Division is determinate.**
  - C. Blastopore forms anus during development.
  - D. Mesoderm is derived from archenteron.

The cleavage or division of the zygote is radial and indeterminate.

20. Triploblastic animals are
- A. Acoelomate
  - B. Pseudocoelomate
  - C. Coelomate
  - D. **All of the above**

Triploblastic animals may be acoelomate, pseudocoelomate or coelomate.

21. The rate of photosynthesis may equal to respiration rate at what time?
- A. Dawn
  - B. Dusk
  - C. Noon
  - D. **Both A and B**

The rate of photosynthesis may, for a short time, equal to respiration rate at dawn and dusk when the light intensity is low. At such time there is no net exchange of gases with the environment, this is termed as compensation point.

22. The oxygen released during photosynthesis comes from
- A. **Water**
  - B. Carbon dioxide
  - C. Glucose
  - D. None of the above

The oxygen released during photosynthesis comes from water. This was experimentally proved by Van Neil's experiments.

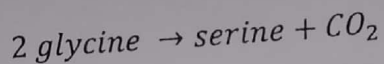
23. Which of the following is false?
- A. Nitrogen is present in proteins
  - B. Magnesium is present in chlorophyll
  - C. Phosphorus is present in ATP
  - D. **Calcium is present in cytochromes**
- Cytochromes do not contain calcium, rather they contain iron.

24. The deficiency of which of the following causes chlorosis?
- A. Magnesium
  - B. Nitrogen
  - C. Potassium
  - D. **Both A and B**

**Career Finder**

The deficiency of both nitrogen and magnesium cause chlorosis, however the deficiency of nitrogen causes strong chlorosis.

25. The following reaction occurs in



- A. Mitochondria
- B. Cytoplasm
- C. Thylakoid membrane
- D. Stroma

Glycine soon after its formation diffuses into the mitochondria where two glycine molecules are converted into serine and carbon dioxide molecule is formed.

26. Photorespiration reduces the amount of carbon fixed into carbohydrates by

- A. 15%
- B. 25%
- C. 35%
- D. 45%

In most plants, photorespiration reduces the amount of carbon fixed into carbohydrates by 25%.

27. Prosopis tree has root depth of

- A. 30 meters
- B. 40 meters
- C. 50 meters
- D. 60 meters

Prosopis tree of leguminosae family have maximum depth of their roots, which is 50 meters.

28. Which of the following pathway is of prime importance for both water and solutes?

- A. Apoplast pathway
- B. Symplast pathway
- C. Vacuolar pathway
- D. All of the above

Apoplast pathway is of greatest importance for both water and solute transport. The symplast pathway is less important and movement through vacuolar pathway is negligible.

29. \_\_\_\_\_ is the salt excreting organ in marine fish.

- A. Gills
- B. Rectal glands
- C. Contractile vacuole
- D. Skin

Marine fish excrete their salts from their body to the surroundings with the help of rectal glands. Gills are not salt excreting organs, it is kidney that removes salts with the help of gills.

30. Some plants like ebony store their waste material in

- A. Old xylem
- B. Phloem

- C. Leaves
- D. Cork

Old xylem is no longer used for water transport, so some waste chemicals are deposited in it, this gives this xylem a black color.

31. Supporting tissue in adult plant is

- A. Collenchyma
- B. **Sclerenchyma**
- C. Parenchyma
- D. Vascular cambium

Sclerenchyma is supporting cell in an adult plant while collenchyma is supporting tissue in young herbaceous parts of plants. Parenchyma and vascular cambium are not involved in supporting the plant at any stage.

32. \_\_\_\_\_ type of cells is present in nuts.

- A. Tracheids
- B. **Sclereids**
- C. Vessels
- D. Heart wood

Sclereids are a type of sclerenchyma cells. They are shorter than fibers and are present in seed coats and nut shells and provide protection to seeds.

33. Which of the following helps in identifying the behavior of plants?

- A. Variation in growth rate
- B. Change in turgidity
- C. Primary growth
- D. **Both A and B**

Growth rate and turgidity caused by various hormones are the reason behind plant movement. Primary growth is not related to plant movement, hence do not determine the behavior of plants.

34. Locomotion is seen in

- A. **Animals**
- B. Plants
- C. Fungi
- D. Both A and B

Locomotion means movement of whole organism from one place to the other, which is seen only in animals.

Plants show movement but not locomotion.

35. Reproduction is important for the survival of

- A. Individual
- B. Species
- C. Population
- D. **Both B and C**

Reproduction is important for the survival of species and population. It has nothing to do with the survival of an individual organism because a single individual is not capable of reproducing.

## Career Finder

36. Which of the following is not a type of asexual reproduction?

- A. Sporulation
- B. Parthenogenesis
- C. Apomixis
- D. **None of these**

Sporulation, parthenogenesis and apomixis, all are types of asexual reproduction.

37. Which of the following is not associated with growth?

- A. Permanent
- B. Irreversible
- C. Increase in size
- D. **None of the above**

Growth is permanent and irreversible increase in size that occurs as an organism matures.

38. The cell division at root and shoot apices occurs in cells that lack

- A. Mitochondria
- B. **Vacuoles**
- C. Chloroplasts
- D. Leucoplasts

The cell division at the roots and shoots occurs in small cells having spherical nuclei present in the center of cytoplasm, which is non-vacuolated.

39. The shape of acrocentric chromosomes during anaphase is

- A. k
- B. **i**
- C. j
- D. v

Location of centromere is near the tip of chromosome which forms i shape during anaphase.

40. \_\_\_\_\_ acts as magnetic forms that promotes and guides the coiling of DNA.

- A. RNA
- B. Phosphate group
- C. **Histone cores**
- D. None of these

Histone cores are positively charged and are strongly attracted to negatively charged phosphate groups of the DNA. The histone cores thus act as magnetic forms that promote and guide the coiling of DNA.

41. Which of the following cells does not enter  $G_0$  phase?

- A. Nerve cells
- B. **Cells of cornea**
- C. Cells of lens
- D. None of the above

Cells of cornea of the eye do not enter  $G_0$  phase. Whereas, nerve cells and cells of lens remain in  $G_0$  phase for the life span of organisms.

2. Spindle fibers are synthesized in which phase?

- A.  $G_0$
- B.  $G_1$
- C.  $G_2$
- D. S

In  $G_2$  phase, energy storage for chromosome movements, synthesis of mitosis specific proteins, RNA and spindle fibers takes place.

3. DNA stores biological information in \_\_\_\_\_ order.

- A. **Linear**
- B. Helical
- C. Globular
- D. None of the above

DNA stores all sorts of biological information coded in the sequence of its bases in a linear order, and genes are actually parts of DNA comprising its base sequences.

44. Mendel used the word \_\_\_\_\_ for the particulate hereditary factors.

- A. Traits
- B. **Elementen**
- C. Mendeline factors
- D. Genetic factors

Mendel proposed that each contrasting trait was determined by particulate hereditary factors which he called as elementen.

45. Which of the following should be used if large amount of gene is required?

- A. ELISA
- B. PCR
- C. **Genetic engineering**
- D. Tissue culture

If large quantity of gene is required, the recombinant DNA technology is used popularly known as genetic engineering.

46. What is the function of restriction endonucleases in bacteria?

- A. Cut down normal DNA
- B. **Restrict growth of viruses**
- C. Produce sticky ends in bacterial DNA
- D. All of these

Restriction enzyme cuts viral DNA but does not harm bacterial chromosomes, hence it restricts the growth of viruses but has no effect on the bacterial DNA.

47. Theory of evolution was published by

- A. Linnaeus
- B. **Lamarck**
- C. Darwin
- D. Mendel

Lamarck (1744-1829) published his theory of evolution.

## Career Finder

48. \_\_\_\_\_ are the species that support vent hypothesis.

- A. Photosynthetic organisms
- B. Spirochetes
- C. **Archaeo bacteria**
- D. Anaerobic bacteria

A group of bacteria, archaeobacteria that tolerate temperature up to 120 degrees Celsius and seem to have undergone less evolutionary changes than any other living species supports this vent hypothesis.

49. The major unit of ecology is

- A. Community
- B. Biosphere
- C. **Ecosystem**
- D. Food web

The major unit of ecology is ecosystem. Organisms interact with their environment within the confines of the ecosystem.

50. \_\_\_\_\_ is defined as species occupation.

- A. Biome
- B. **Niche**
- C. Habitat
- D. Relay

According to the definition by Charles Elton, niche is termed as specie's occupation. He considered the niche as the basic role of an organism in the community and its relationship to its food and enemies.

# Assignment 2

## Online Learning Module – [tabir.pk](http://tabir.pk)

The High Scoring Guide for AMC Online Learning Module provides intensive learning for candidates appearing for the AMC Entry Test. It is mandatory for you to attempt questions and clear all levels on the Online Learning Module to work on your weak areas and prepare accordingly.

**Assignment 2** is designed for intensive learning, which can be accessed by logging on to *The High Scoring Guide for AMC Online Module* on [tabir.pk](http://tabir.pk). It familiarizes you with the nature of questions and how to attempt them, improving your preparation. This Module is mandatory to attempt for an all-rounded preparation. While preparing on the Module:

- If you attempt a question correctly, you can proceed further.
- If a question has been attempted wrong, the Learning Box will teach you the concept.

Simultaneously, you can monitor your progress on the Progress Indicator on the right side of the screen.

A Voucher Code is given with this book to log on to the Online Learning Module. This will start the intensive preparation for the Entry Test. The Module tests the concepts included in the AMC Entry Test through a variety of questions, and helps you prepare accordingly.

Good luck with the preparation!

# Solved Papers and Explanations

The **Assignment 1** comprises of Solved Papers and Explanations that have been included on the pattern of the AMC Entry Test Past Papers questions.

These questions test a variety of concepts, and provide the correct answers along with the explanations. This will guide you to work on the areas where you need help. By following the explanations, you can learn new concepts and polish them with practice.

It is recommended for the candidates to refer to additional sources of information to practice their skills and knowledge for an all-rounded preparation.

After you are done with Assignment 1, proceed to Assignment 2.

**Remember:** Practice will help you score brilliantly!

MDCAT BY FUTURE DOCTORS (TOUSEEF AHMAD 03493815886)

## SOLVED PAPER 1

Attempt the following questions from chemistry to practice for your chemistry section of the test. To attempt hundreds of further practice questions on chemistry visit [tabir.pk](http://tabir.pk)

1. Determine the % mass composition of oxygen and nitrogen in dry air?

- 79.05% N<sub>2</sub>, 20.95% O<sub>2</sub>
- 76.7% N<sub>2</sub>, 23.3% O<sub>2</sub>
- 75.89% N<sub>2</sub>, 24.11% O<sub>2</sub>
- 79% N<sub>2</sub>, 21% O<sub>2</sub>

Ans: b

**Explanation:** Strategy: This question is tricky but easy. To calculate the % mass composition of air, we should set a mole basis to convert moles into mass:

Basis: 100 mols of air

Number of mols of Oxygen in

air: 100 mols (0.21) = 21 mols of O<sub>2</sub>

Number of mols of Nitrogen in

air: 100 mols (0.79) = 79 mols of N<sub>2</sub>

$$\text{mass of oxygen: } 21 \text{ mols of O}_2 \left( \frac{32 \text{ g of O}_2}{1 \text{ mol of O}_2} \right) = 672 \text{ g of O}_2$$

$$\text{mass of nitrogen: } 79 \text{ mols of N}_2 \left( \frac{28 \text{ g of N}_2}{1 \text{ mol of N}_2} \right) = 2212 \text{ g of N}_2$$

$$\text{Total mass of gases} = 672 + 2212 = 2884 \text{ g of air}$$

$$\% \text{ O}_2 \text{ by mass} = \frac{672 \text{ g}}{2884 \text{ g}} \times 100 = 23.3\%$$

$$\% \text{ N}_2 \text{ by mass} = \frac{2212 \text{ g}}{2884 \text{ g}} \times 100 = 76.7\%$$

2. Convert one million of sulfur dioxide molecules to mass in grams.

- $1.06 \times 10^{-16} \text{ g}$
- $1.06 \times 10^{-13} \text{ g}$
- $1.06 \times 10^{-12} \text{ g}$
- $1.06 \times 10^{-6} \text{ g}$

Ans: a

**Explanation:** Molecular weight of SO<sub>2</sub>:  $1(32) + 2(16) = 64 \text{ g/mol}$

$$1 \times 10^6 \text{ molecules of SO}_2$$

$$\left( \frac{1 \text{ mol of } SO_2}{6.022 \times 10^{23} \text{ molecules of } SO_2} \right) \left( \frac{64 \text{ g of } SO_2}{1 \text{ mol of } SO_2} \right) = 1.06 \times 10^{-16} \text{ g of } SO_2$$

3. What of the following statement of Avogadro's hypothesis is true?
- The volume of the gas is directly proportional to the density of a gas.
  - The varying pressure is directly proportional to the density of a gas.
  - The atomic or molar mass is directly proportional to the density of a gas.
  - The varying temperature is inversely proportional to the density of a gas.

Ans: c

**Explanation:** Avogadro's law: "equal volumes of all gases, at the same temperature and pressure, have the same number of molecules". The density equation of the gas is derived from the ideal gas equation. Avogadro speaks that the number of moles is directly proportional to volume. Hence, the molar mass should also be directly proportional to the density of gas. The higher the molar mass, the denser it is.

4. Which of the following is the limiting reactant for the neutralization of 0.4 mole sulfuric acid in 0.8 litres of water and 0.8 mole of sodium hydroxide in 1.2 litres of water?
- Sulfuric acid
  - Calcium hydroxide
  - There is no limiting reactant
  - Cannot be calculated from this data

Ans: c

**Explanation:** 2 moles of sodium hydroxide react with 1 mole of sulfuric acid so 0.4 moles of acid will completely neutralize 0.8 moles of the base. Do not get confused in calculating the concentrations and comparing them.

5. Which of the following has different empirical and molecular formulas?
- water
  - ethanol
  - glucose
  - ammonia

Ans: c

**Explanation:** Glucose has the molecular formula,  $C_6H_{12}O_6$  which can be written as  $CH_2O$  for the empirical formula. Water, ethanol, and ammonia have the same molecular and empirical formulas, i.e.  $H_2O$ ,  $C_2H_6O$  and  $NH_3$  respectively.

6. A gas behaves most ideally at:
- high pressure high temperature
  - low pressure high temperature
  - low pressure low temperature
  - high pressure high temperature

Ans: b

**Explanation:** The correct answer is (b) because at low pressure and high temperature, the gas particles have sufficiently high energy to keep away from each other so no intermolecular forces operate.

## Career Finder

7. NaF and MgO are best described by which of the following term?

- a. Polymorphs
- b. Isomorphs
- c. Simple molecular structure
- d. Hexagonal shape

Ans: b

**Explanation:** NaF and MgO are both giant ionic structures so (c) is wrong. They are isomorphs i.e. they exist in the same crystalline form - rhombohedral. Therefore, (a) and (d) are also wrong.

8. Name the orbital  $n=5$ ;  $l=2$ ;  $m=0$ .

- a. 5s
- b. 5p
- c. 5d
- d. 5f

Ans: c

**Explanation:** Quantum numbers are the basis of the sequence, arrangement, shape, and orientation of the elements in the periodic table.

$n = 5$  indicates the 5th energy level (5<sup>th</sup> period of the periodic table or the 5<sup>th</sup> principal quantum number)

$l = 2$  indicates the shape of the orbital (2 corresponds d-orbital-shaped quantum number)

$m = 0$  indicates the orientation of the orbital (z-axis magnetic quantum number)

9. Which of the following can be explained using de Broglie's equation?

- a. An electron in an atom is completely described by its 4 quantum numbers
- b. The exact position and velocity of an electron cannot be measured simultaneously
- c. Macroscopic bodies emit waves that cannot be measured by any conceivable method
- d. The energy of an electron is inversely proportional to  $n^2$

Ans: c

**Explanation:** De Broglie's wave equation can be rearranged to state that  $\lambda = h/mv$ . Therefore, for macroscopic bodies, the mass is extremely large and the corresponding wavelength is very minute and cannot be measured by any conceivable method. For instance, for a 1g mass travelling at  $10 \text{ ms}^{-1}$ , the wavelength is  $6.626 \times 10^{-30} \text{ m}$  which is too minute to measure.

10. What bonds are present in a benzene ring?

- a. 6 sigma and 6 pi bonds
- b. 12 sigma and 6 pi bonds
- c. 6 sigma and 3 pi bonds
- d. 12 sigma and 3 pi bonds

Ans: d

**Explanation:** In a benzene ring, there are 6 Carbon-Carbon bonds out of which 3 are double bonds, and 6 Carbon-Hydrogen bonds. Each single bond has 1 sigma bond. Each double bond has 1 sigma and 1 pi bond.

11. Which of the following compound is polar?

- a.  $\text{NH}_3$

- b.  $\text{CCl}_4$   
 c.  $\text{BF}_3$   
 d. None of the above

Ans: a

**Explanation:** The C-Cl and B-F bonds are polar. However,  $\text{CCl}_4$  and  $\text{BF}_3$  have equal bond angles each, due to which they experience the same electron pull from all direction, hence, their net dipole cancels out so these are nonpolar.  $\text{NH}_3$  is polar because it has trigonal pyramidal structure with a lone pair on top. There is net dipole moment present making it a polar molecule.

12. 2 moles of substance X was burned. It gave off 8.36J of energy. What is the energy released in  $\text{cal.mol}^{-1}$ ?  
 a.  $1 \text{ cal.mol}^{-1}$   
 b.  $2 \text{ cal.mol}^{-1}$   
 c.  $4.18 \text{ cal.mol}^{-1}$   
 d.  $8.36 \text{ cal.mol}^{-1}$

Ans: a

**Explanation:** 1 calorie = 4.184 Joules of energy. 2 moles of X gave 2 calories so energy released =  $1 \text{ cal.mol}^{-1}$

13. The enthalpy change of the reaction  $\text{H}_{2(g)} + \frac{1}{2}\text{O}_{2(g)} \rightarrow \text{H}_2\text{O}_{(l)}$  under standard conditions is:  
 a. Enthalpy change of formation of water  
 b. Enthalpy change of neutralization  
 c. Enthalpy change of combustion of Hydrogen and enthalpy change of formation of water both  
 d. Enthalpy change of combustion of Hydrogen

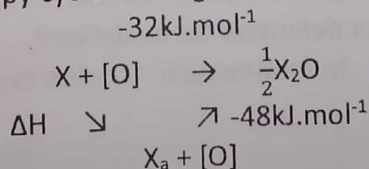
Ans: c

**Explanation:** Since 1 mole of  $\text{H}_2$  is being combusted, it can be called enthalpy change of combustion of  $\text{H}_2$ . Also, 1 mole of water is being formed from its constituent elements under standard stated so it can also be called standard enthalpy change of formation of water.

14. Substance X is in Group 1 of the Periodic Table. The standard enthalpy change of combustion of X and its allotrope  $\text{X}_a$  are  $-32 \text{ kJ.mol}^{-1}$  and  $-48 \text{ kJ.mol}^{-1}$  respectively. What is the enthalpy change of conversion of X to  $\text{X}_a$ ?  
 a.  $-16 \text{ kJ.mol}^{-1}$   
 b.  $+16 \text{ kJ.mol}^{-1}$   
 c.  $+32 \text{ kJ.mol}^{-1}$   
 d.  $-32 \text{ kJ.mol}^{-1}$

Ans: b

**Explanation:** First of all, draw an enthalpy cycle relating to X,  $\text{X}_a$  and their combustion.



Use Hess's Law to determine the enthalpy change from X to  $\text{X}_a$

$$\begin{aligned}
 \Delta H &= -32 - (-48) \\
 &= +16 \text{ kJ.mol}^{-1}
 \end{aligned}$$

15. Which of the following is not a colligative property of dilute solutions?  
 a. Lowering of vapor pressure

## Career Finder

- b. Elevation in boiling point
- c. Osmotic pressure
- d. Saturation of the solution

Ans: d

**Explanation:** The colligative properties are those which depend upon the no of molecules or ions of solute and solvent. For dilute solutions, saturation does not demonstrate a colligative property.

## 16. Molarity is

- a. The ratio of solute in moles to the volume of solution
- b. The ratio of the product of the percent solute by mass and density to the formula weight of solute.
- c. The ratio of the product of molality and the mass solvent to the volume of solution
- d. All of the above

Ans: d

**Explanation:** Molarity can be expressed all in the choices.

$$M = \frac{n, \text{ solute}}{L, \text{ solution}}$$

$$M = \frac{(\% \text{ solute by mass})(\text{density of solution})}{\text{formula weight of solute}}$$

$$M = \frac{(\text{molality})(\text{mass of solvent, kg})}{\text{volume of solution}}$$

17. In the electrolysis of  $\text{CuSO}_4$  (aq) what happens to the cathode and anode?

Cathode      Anode

- a. Increases    decreases
- b. Increases    increases
- c. Decreases    increases
- d. Decreases    decreases

Ans: a

**Explanation:** At the cathode,  $\text{Cu}^{+2}_{(\text{aq})}$  ions are reduced and  $\text{Cu}_{(\text{s})}$  is deposited which increases its mass. At the anode, the  $\text{Cu}_{(\text{s})}$  electrode oxidizes to give  $\text{Cu}^{+2}_{(\text{aq})}$  ions therefore, its mass decreases.

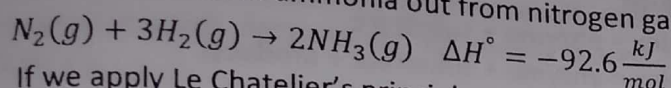
## 18. Which of the following is not a correct definition for oxidation?

- a. Removal of electrons
- b. Gain of oxygen
- c. Change in oxidation number
- d. Removal of Hydrogen

Ans: c

**Explanation:** Change in oxidation no does not specify whether there is an increase or a decrease in the oxidation no. Therefore, it is incorrect. All other options are correct descriptions of oxidation.

19. Ammonia is widely used to manufacture fertilizers and explosives. Haber-Bosch process is used to produce tremendous amount of ammonia out from nitrogen gas and hydrogen gas under high pressure.

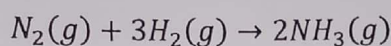


If we apply Le Chatelier's principle on this reaction, which of the following statement(s) is/are true?

- Adding more  $\text{N}_2(\text{g})$  and  $\text{H}_2(\text{g})$  will shift the reaction to right
  - Extracting more ammonia out will shift the reaction to the left
  - Increasing the temperature will shift the reaction to the right
  - Increasing the pressure of the vessel by adding Argon gas will have no change in the direction of reaction.
  - Introducing  $\text{Al}_2\text{O}_3$  as catalyst will shift the reaction to the left
- ii
  - i and ii
  - i and iv
  - ii, iii, and v

Ans: c

**Explanation:**



$$\Delta H^\circ = -92.6 \frac{\text{kJ}}{\text{mol}}$$

Adding more  $\text{N}_2(\text{g})$  and  $\text{H}_2(\text{g})$  will have no effect on the equilibrium constant. The reaction will still go to the right. **If we are going to extract more ammonia out, the reactants will continue to react to form more products to relieve the change. Therefore, the reaction will still go to the right. If we increase the temperature, energy will be added to the system and there's a tendency for the heat of reaction to increase approaching to a positive value. Consequently, the reaction will shift to the left.** Inerting a vessel with an inert gas like argon to increase the pressure will have no effect in the equilibrium constant. Therefore, the direction of the reaction is still the same. **Adding a catalyst to the reaction will have no effect to the direction of the reaction because it's not reacting to the reactant by definition. In fact, it will make the reaction fast.**

20. The solubility of  $\text{KClO}_3$  decreases by the addition of  $\text{KCl}$ . This observation is an example of:

- Solubility product
- Hydration energy
- Lattice energy
- Common ion effect

Ans: d

**Explanation:** The presence of a common ion decreases the solubility of a partially soluble ionic compound.

21. For zero order reactions, the rate of the reaction is independent of:

- Concentration of reactants
- Temperature of the reaction mixture
- Pressure of the reaction mixture
- Catalyst presence

Ans: a

**Explanation:** For zero order reactions, the rate of reaction does not depend on the concentration of the reactants.

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22. Which of the process is correct about enzyme catalysis.
- substrate + enzyme = enzyme-substrate complex = enzyme + substrate
  - substrate + enzyme = enzyme-substrate complex = enzyme + substrate + products
  - substrate + enzyme = enzyme-substrate complex = substrate + products
  - substrate + enzyme = enzyme-substrate complex = enzyme + products

Ans: d

**Explanation:** An enzyme is a protein that contains many active sites where interactions with substrates take place. When the two interact each other, they form an enzyme-substrate complex to increase the biological reaction. After the reaction, the substrate is completely broken down to products and enzyme remains unaffected. **Therefore, the answer is substrate + enzyme = enzyme-substrate complex = enzyme + products**

23. Which of the following has the longest in bond length?

- C-H
- N-H
- O-H
- F-H

Ans: a

**Explanation:** The electronegativity trend across a period is increasing from left to right. Fluorine is the most electronegative element and when it bonds to H will have shorter bond compared to others. Carbon, on the other hand, is the least electronegative element among the choices and when it bonds to H will have the longest bond. Therefore, the answer is C-H.

24. Metal which can produce dihydrogen gas on reacting dil.  $\text{H}_2\text{SO}_4$  is:

- Fe
- Au
- Ag
- Cl

Ans: a

**Explanation:** Fe can displace H from HCl, other metals cant reduce  $\text{H}^+$  ions as it is high in the reactivity series

25. Compounds contain  $\text{CN}^-$  are toxic, 70 mg of  $\text{CN}^-$  being fatal to human. Which of these do not contain free  $\text{CN}^-$  ions?

- $\text{CH}_3\text{CN}$
- $\text{NH}_4\text{CN}$
- $[\text{Fe}(\text{CN})]^{-4}$
- Both a and c
- Both a and d

Ans: d

**Explanation:**  $\text{NH}_4^+\text{CN}^-$  is ionic and it contains free  $\text{CN}^-$ . In  $\text{CH}_3\text{CN}$  the CN group is covalently bonded to  $\text{CH}_3$ . Hence, there is no free CN. In  $[\text{Fe}(\text{CN})]^{-4}$ , the  $\text{CN}^-$  acts as ligands and are covalently bonded to  $\text{Fe}^{2+}$  through dative bonding. Hence no free CN

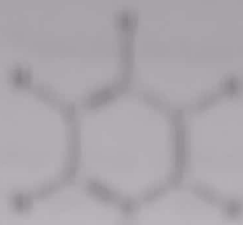
26. Which of these gaseous hydrides decompose more quickly in its contact with hot glass rod

- Ammonia
- Hydrogen chloride
- Hydrogen iodide

8. Hydrogen dioxide

$\sigma$  bond is the weakest and decomposes easily due to the presence of polar covalent bond, polar covalent bond is the in which electrons are not equally shared. Hydrogen sulfate also has very low electronegativity and  $H_2O = 1$ .

Pyridine is the example of



- Alcyclic compounds
- Aromatic compounds
- Cyclic compounds
- Non Aromatic

Ans: c

**Explanation:** A cyclic compound (ring compound) is a term for a compound in the field of chemistry in which one or more series of atoms in the compound is connected to form a ring.

Structure of pyridine is

9. Name this skeletal structure



- 2-Ethanoic acid
- 2-Ethanoate
- Diethyl ether
- 2-Diethanol

Ans: c

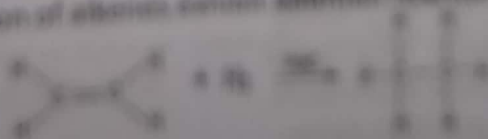
**Explanation:** The name of the compound is **diethyl ether** because it has an oxygen atom connected with two ethyl groups.

10. Catalytic hydrogenation of alkenes exhibits

- Condensation reaction
- Substitution reaction
- Elimination reaction
- Addition reaction

Ans: d

**Explanation:** Catalytic hydrogenation of alkenes exhibit **addition reaction**.



11. Alkanes are insoluble in

- Ether
- Benzene

- c. Water
- d. Carbon tetrachloride

Ans: c

**Explanation:** Alkanes are insoluble in polar solvents like water. Alkanes (both alkanes and cycloalkanes) are virtually insoluble in water, but dissolve in organic solvents. However, liquid alkanes are good solvents for many other non-ionic organic compounds.

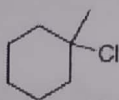
1. Polymerizing chloroethene will result to what kind of polymer?

- a. PTFE
- b. PP
- c. PVC
- d. HDPE

Ans: c

**Explanation:** The polymerization of chloroethene will result to **poly(vinyl chloride) or PVC**.

2. Classify this alkyl halide:



- a. 1° alkyl halide
- b. 2° alkyl halide
- c. 3° alkyl halide
- d. 4° alkyl halide

Ans: c

**Explanation:** This is a **3° alkyl halide** because the halogen atom is surrounded with 3 alkyl groups.

Which has the fastest  $S_N1$  mechanism?

- a.  $\text{CH}_3\text{--Br}$
- b.  $\text{RCH}_2\text{--Br}$
- c.  $\text{R}_2\text{CH--Br}$
- d.  $\text{R}_3\text{C--Br}$

Ans: d

**Explanation:** **Tertiary alkyl halides** reacts rapidly in  $S_N1$  mechanism because nucleophile cannot attack directly the electron deficient atom due to many neighboring atoms.

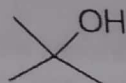
Pick a correct pair about the difference between  $E_1$  and  $E_2$  mechanism of methyl bromide forming an alkene.

- A.  $E_1$  Mechanism – Strong Base and Alkyl Halide  
 $E_2$  Mechanism – Weak Base and Alkyl Halide
- B.  $E_1$  Mechanism – Weak Base and Alkyl Halide  
 $E_2$  Mechanism – Strong Base and Alkyl Halide
- C.  $E_1$  Mechanism – Strong Base and Alkyl Halide  
 $E_2$  Mechanism – Strong Base and Alkyl Halide
- D.  $E_1$  Mechanism – Weak Base and Alkyl Halide  
 $E_2$  Mechanism – Weak Base and Alkyl Halide

Ans: B

**Explanation:** The strength of the base determines the mechanism of elimination. **Strong bases favor  $E_2$  reactions. Weak bases favor  $E_1$  reactions.**

35. Name this compound:



- a. 2-methyl-2-butanol
- b. 1-methyl-2-ethanol
- c. 2-methyl-2-ethanol
- d. 2-methyl-2-propanol

Ans: d

**Explanation:** The methyl group and hydroxyl group is attached at 2<sup>nd</sup> position of propane base. Therefore, the name of the compound is **2-methyl-2-propanol** or also known as **tert-butanol**.

36. Which of the following will readily react the most with sodium metal at room temperature?

- a. 1° alcohol
- b. 2° alcohol
- c. 3° alcohol
- d. Phenol

Ans: a

**Explanation:** In many experiments, sodium metal reacts readily with **methanol** than any other longer chain alcohols. As the chain increases, the sodium metal is less reactive and requires more heat for it to react with longer chain alcohol or phenol.

37. What functional group is added to alcohol to undergo esterification process?

- a. Water
- b. Aldehyde
- c. Carboxylic acid
- d. Ketone

Ans: c

**Explanation:** Alcohol and **carboxylic acid** will generate a fruity smell called esters and condensation of water occurs.

38. Carboxylic acid is often derived with the use of Jones reagent from the oxidation of which organic compound?

- a. Alcohols
- b. Aldehydes
- c. Ketones
- d. Ethers

Ans: a

**Explanation:** Carboxylic acid can be prepared from primary alcohols via Jones reagent. **Take note that Jones reagent only reacts with alcohols creating a rapid oxidation.** The chromic acid from Jones reagent solution is attacked by OH<sup>-</sup> in primary alcohol to form an aldehyde. Under a quick reaction, the H<sup>+</sup> in water will then protonate the gem-diol to form carboxylic acid.

39. Which of the following is not a factor of differentiating the reactivity of ketone and aldehyde?

- a. Steric factor
- b. Electronic factor
- c. The number of alkyl groups

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d. The molecular weight

Ans: d

**Explanation:** The reactivity of aldehyde and ketones will depend on how likely an oxygen atom can become electron rich. Steric factors, electronic factors, and the number of alkyl groups affect the reactivity of aldehyde and ketone **except the molecular weight**.

Oxidation of aldehydes will have a

- a. Decrease in the number of C-H bonds
- b. Increase in the number of C-H bonds
- c. Increase in the number of bonds in C=O bonds
- d. Decrease in the number of bonds in C=O bonds

Ans: a

**Explanation:** The oxidation of aldehydes will definitely lose a hydrogen atom and forms a hydroxyl group to form carboxylic acid.

Therefore, oxidation decreases the number of C-H bond.

1. Which of the following is false about lipid?

- a. It is a biological molecule that are amphilipatic in nature.
- b. It is the fundamental unit of fats
- c. It is made of esters and alcohols
- d. It is a storage of energy

Ans: c

**Explanation:** Lipids are biomolecules that act as fatty acids. They are fundamental unit of fats where they store their energy. Fatty acids are amphilipatic mostly made of polar carboxylic group and a long chain non-polar region. Their solubility depends on which part is dominant.

2. An alpha amino acid is composed of the following group except

- a. Amino group
- b. Side chain
- c. Carboxylic acid
- d. Amide group

Ans: d

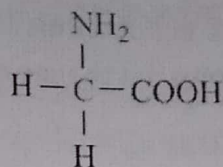
**Explanation:** Stereogenic center of alpha amino acid is called alpha carbon that is surrounded with carboxyl group, amino group, and a side chain.

43. From the following only one amino acid have two identical groups attached to its central atom. Which one?

- a. Valine
- b. Alanine
- c. Glycine
- d. Cysteine

Glycine, the smallest of the amino acids, is the only amino acid that is non-chiral: it has two hydrogen atoms attached (rather than one H and one other R group, as per the other amino acids).

Glycine's structure



44. Which of the following is not a primary pollutant of the troposphere?

- a. Carbon dioxide
- b. Carbon monoxide
- c. Sulfur dioxide
- d. Ammonia

Ans: a

**Explanation:** Carbon monoxide, sulfur dioxide, and ammonia are primary pollutants except carbon dioxide. Carbon dioxide is naturally occurring gas. It is not a primary pollutant because it is essential for plants to make food and produce oxygen.

45. Gases from landfills do not contain

- a.  $\text{CH}_4$
- b.  $\text{H}_2\text{S}$
- c.  $\text{NH}_3$
- d.  $\text{O}_2$

Ans: d

**Explanation:** The disposal of waste material by burying it, especially as a method of filling in and reclaiming excavated pits is called a landfill and Oxygen does not rise from them.

46. Which is the most abundant greenhouse gas?

- a. Water vapor
- b. Carbon dioxide
- c. Methane
- d. Ozone

Ans: a

**Explanation:** Water vapor has the most direct contribution of greenhouse effect among all greenhouse gases.

47. What is true of the electron affinity of  $\text{O}^{-1}$ ?

- a. It is always endothermic
- b. It is always exothermic
- c. It can be endothermic or exothermic
- d. It does not result in any energy change

Ans: a

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**Explanation:** The second electron affinity is endothermic i.e. positive enthalpy change. The positive sign shows that you have to put in energy to perform this change because the electron is being forced into a small, very electron-dense space

While another electron B moves in  $n = 3$ . What are the ratios

- Ans: b

Which has the biggest radius?

- Ans: d

50. In graphite, the hybridization is:

- Explanation:** In graphite, each Carbon atom makes 3 covalent bonds so the hybridization is  $sp^2$

## SOLVED PAPER 2

Attempt the following questions from chemistry to practice for your chemistry section of the test. To attempt hundreds of further practice questions on chemistry visit [tabir.pk](http://tabir.pk)

2. Which of the following is not a property of a molecule?
- A molecule has empty space between its atoms
  - Molecules cannot exist as ions**
  - Molecules of the same element are similar in ALL respects
  - The collision of molecules accounts for the chemical reactions

**Explanation:** Molecules do exist as ions too e.g.  $\text{SO}_4^{2-}$ ,  $\text{NO}_3^{-1}$ . All the other statements are true.

3. A hiker went at the top of Mt X (2,954 m) and Mt. Y (2,463 m) to compare the difference of the partial pressure of oxygen. What did he find out?
- Mt. X has higher partial pressure of oxygen than Mt. Y
  - Mt. Y has higher partial pressure of oxygen than Mt. X
  - Both have the same value since height doesn't matter.
  - None of the above

Ans: b

**Explanation:** At high altitudes, the barometric pressure is low. Therefore, the partial pressure of oxygen becomes low as they are directly proportional to each other. This is because the number of oxygen at high altitudes became less. Since Mt. X is higher than Mt. Y, the partial pressure of oxygen at the top of Mt. X is lower compared to Mt. Y.

4. Which of the following is not a postulate of the Kinetic Particle Theory?
- the pressure exerted on the walls of the container is due to the collisions of gas particles with the wall
  - the gas particles have negligible mass and volume as compared to the container
  - the velocity of all gas particles is not the same
  - the collisions of the particles suffer no energy loss

Ans: b

**Explanation:** The particles are assumed to have negligible volume as compared to the container but their masses are not negligible so (b) is correct choice.

(c) is incorrect because the velocity of all the particles is not equal, therefore, we calculate the mean velocity.

(d) is incorrect because the collisions of all the particles are perfectly elastic.

5. The orbitals which contain electrons at the same energy level are called:
- Degenerate orbitals
  - d - orbitals
  - Hybridised orbitals
  - p - orbitals

Ans: a

**Explanation:** By definition, degenerate orbitals are the ones with the same energy level.

6. The magnetic quantum number 'm' for a p-orbital is:
- 0

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- b. +1, 0  
c. +1, 0, +1  
d. None of the above

Ans: d

**Explanation:** The magnetic quantum number for p-orbital is +1, 0, -1 so none of the option is correct.

7. What is true of the electron affinity of  $O^{-1}$ ?  
e. It is always endothermic  
f. It is always exothermic  
g. It can be endothermic or exothermic  
h. It does not result in any energy change

Ans: a

**Explanation:** The second electron affinity is endothermic i.e. positive enthalpy change. The positive sign shows that you have to put in energy to perform this change because the electron is being forced into a small, very electron-dense space.

8. Predict the molecular shape of  $XeF_2$   
a. Tetrahedral (2BP, 2LP)  
b. Trigonal bipyramidal (2BP, 3LP)  
c. Trigonal planar (2BP, 1LP)  
a. Linear (2BP, 0LP)

Ans: b

**Explanation:**

Total number of valence electrons:

$$\frac{8e^-}{1 \text{ Xe atom}} \times 1 \text{ Xe atom} + \frac{7e^-}{1 \text{ F atom}} \times 2$$

$$\text{F atom} = 22e^-$$

Total number of bonding pairs: 2 F atoms are branched on central atom Xe. Therefore, it must have 2BP

Total number of electrons bonded to the central

$$\text{atom: } 2 \text{ single bonds} \left( \frac{2e^-}{1 \text{ bond}} \right) = 4e^-$$

Total number of unshared electrons of the molecule:  $22e^- - 4e^- = 18e^-$

Total number of unshared electrons of the branch

$$\text{atom: } \frac{6e^-}{1 \text{ F atom}} \times 2 \text{ F atom} = 12e^-$$

The total of unshared electrons in the

$$\text{central atom: } 18e^- - 12e^- = 6e^-$$

$$\text{Lone Pairs of Central Atom: } 6e^- \left( \frac{1 \text{ lone pair}}{2e^-} \right) = 3LP$$

Therefore,  $\text{XeF}_2$  has 2BP and 3LP

and it falls under Trigonal Bipyramidal

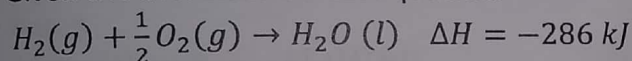
9. Which of the following has the strongest bond?

- $\text{CH}_3 - \text{I}$
- $\text{CH}_3 - \text{F}$
- $\text{CH}_3 - \text{O}$
- $\text{CH}_3 - \text{Br}$

Ans: b

**Explanation:** Electronegativity is responsible for the strength of the bond. The more electronegative an element is, the more it becomes closer to its reacted atom. It makes a very large attraction force making the molecule smaller in radius and making the bond shorter requiring higher energy to break. Since, fluorine is the most electronegative among all, the answer is  $\text{CH}_3\text{-F}$ .

10. Given the thermochemical equation:



If 2002 kJ was liberated on this reaction, how many moles of hydrogen gas was used?

- 2 moles
- 5 moles
- 7 moles
- 12 moles

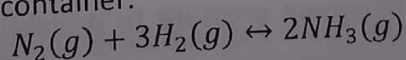
Ans: c

**Explanation:** Strategy: For every 1 mole of hydrogen gas, there is 286 kJ that is liberated. Therefore, we can use ratio and proportion to get the number of moles required to liberate 2002 kJ.

$$\frac{1 \text{ mole H}_2}{-286 \text{ kJ}} = \frac{x}{-2002 \text{ kJ}}$$

$$x = \frac{-2002 \text{ kJ}(1 \text{ mole H}_2)}{-286 \text{ kJ}} = 7 \text{ moles of H}_2$$

11. A certain reaction occurred in a 2-L container:



Initially, there are 2mols of  $\text{N}_2(g)$ , 3 mols of  $\text{H}_2(g)$  and 2 mols of  $\text{NH}_3(g)$  present 250K.

If the value of  $K_c$  is 0.075, predict where the reaction will proceed.

- Forward
- Backward
- Equilibrium
- Cannot be determined

Ans: a

**Explanation:**  $\text{N}_2(g) + 3\text{H}_2(g) \leftrightarrow 2\text{NH}_3(g)$

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$$Q = \frac{[NH_3]^2}{[H_2]^3[N_2]} = \frac{(2)^2}{(3)^3(2)} = 0.074$$

$k_c > Q$  therefore the reaction proceeds to the right (Forward)

12. Which of the following buffer systems are correctly paired:

- i. HF/KF
- ii. HCl/KCl
- iii. HBr/KBr
- iv. HI/KI

- a. i
- b. i and ii
- c. i, ii, iii, and iv
- d. None of the above

Ans: a

**Explanation:** A buffer must have a weak acid or weak base and its salt. HF is weak acid compared to other choices which are strong acids and KF can be its salt. Therefore, the correctly paired buffer is only HF/KF.

13. Which of the following is false about colloids?

- a. It ranges from  $1 \times 10^3$  pm to  $1 \times 10^6$  pm
- b. It exhibits homogeneity.
- c. It contains a dispersed phase and dispersing medium
- d. It can be distinguished by Tyndall effect

Ans: b

**Explanation:** Colloids are heterogeneous and do not exhibit homogeneity. The rests on the choices are the properties of colloids.

14. In osmotic pressure, where does flow happen?

- a. In the solution
- b. At the semipermeable membrane
- c. In the surroundings
- d. In the pressurized body

Ans: b

**Explanation:** Osmotic pressure is the minimum pressure to prohibit the inward flow of solvent across a semipermeable membrane.

15. Arrange the following in the increasing strength as reducing agent:

- i.  $Br_2(l) + 2e^- \rightarrow 2Br^-$   $E^\circ = +1.07V$
- ii.  $2H^+(aq) + 2e^- \rightarrow H_2$   $E^\circ = 0V$
- iii.  $Hg^{2+} + 2e^- \rightarrow Hg(l)$   $E^\circ = +0.86V$
- iv.  $I_2(s) + 2e^- \rightarrow 2I^-$   $E^\circ = +0.53V$

- a. i<iii<iv<ii
- b. iii<iv<i<ii
- c. ii<iii<iv<i
- d. ii<iv<iii<i

Ans: a

**Explanation:** H has the least reduction potential. Therefore, it must have the greatest strength as reducing agent. Increasing strength as reducing agent is  $\text{iii} < \text{iv} < \text{ii}$ .

16. Elements X and Y have reduction potentials +1.32 and +1.20 respectively. When connected together, what is the Voltage of the cell produced?

- +0.12
- +2.52
- 0.12
- They are both reducing agents so they will not produce any Voltage.

Ans: a

**Explanation:**  $E_{\text{cell}} = E_{\text{reduction}} - E_{\text{oxidation}}$

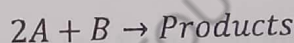
In this case, the element with the more positive value will act as the reducing agent while the other one will be oxidized. Therefore the cell potential will be  $1.32 - 1.20 = +0.12\text{V}$

17. What is the rate of formation of A in terms of  $R_B$  if  $R = -k[A]^2[B]^1$ ?

- $\frac{1}{2} R_B$
- $R_B$
- $2R_B$
- Cannot be determined

Ans: c

**Explanation:**  $R = -k[A]^2[B]^1$



$$R_{\text{rxn}} = -\frac{1}{2} R_A = -R_B$$

A in terms of B

$$-\frac{1}{2} R_A = -R_B$$

$$-R_A = -2R_B$$

$$R_A = 2R_B$$

18. 75% of a first order reaction is completed in 36 minutes. What is the half life of the reaction?

- 27 min
- 24 min
- 18 min
- 42 min

Ans: c

**Explanation:** 75% completion of reaction means that 2 half lives have passed. Therefore, the half life of the reaction is 18 minutes

19. Which of the following is correct according to increasing atomic radius?

- $\text{Na} > \text{Be} < \text{Mg} < \text{Li}$
- $\text{Be} < \text{Mg} > \text{Li} < \text{Na}$

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C.  $\text{Li} > \text{Na} < \text{Mg} > \text{Be}$ **Answer:**  $\text{Be} < \text{Mg} > \text{Li} < \text{Na}$ 

**Explanation:** Atomic radius increases down the group so as ionic radius. Atomic radius increases across the period from left to right. Therefore, the increasing trend is  $\text{Be} < \text{Mg} > \text{Li} < \text{Na}$  or it can be rearranged to  $\text{Be} < \text{Mg} < \text{Li} < \text{Na}$ .

D.  $\text{Li} < \text{Mg} > \text{Be} < \text{Na}$ 

20. Which of the following is correct according to increasing ionic radius?

A.  $\text{Li}^+ < \text{Na}^+ < \text{S}^{2-} > \text{O}^{2-}$ B.  $\text{Na}^+ < \text{S}^{2-} > \text{Li}^+ > \text{O}^{2-}$ C.  $\text{O}^{2-} < \text{Na}^+ > \text{S}^{2-} < \text{Li}^+$ D.  $\text{Na}^+ < \text{O}^{2-} > \text{S}^{2-} < \text{Li}^+$ **Answer:**  $\text{Li}^+ < \text{Na}^+ < \text{S}^{2-} > \text{O}^{2-}$ 

**Explanation:** Atomic radius increases down the group so as ionic radius. Atomic radius increases across the period from left to right. However, the ionic radius will have different trend. Take caution that group 1 and 2 will have lesser ionic radius than some ions in groups 3 to 7. That is because of electron-electron repulsion, electron-nucleus attraction, and electron shielding. It does not follow the trend of atomic radius.  $\text{Li}^+$  has lower ionic radius than  $\text{Na}^+$ .  $\text{O}^{2-}$  has lower ionic radius than  $\text{S}^{2-}$ . That is because atomic radius increases down the group so as ionic radius. Alkali metals will have lesser ionic radius than Chalcogen family (G VI). Therefore, the answer is  $\text{Li}^+ < \text{Na}^+ < \text{S}^{2-} > \text{O}^{2-}$ . This can be rearranged to  $\text{Li}^+ < \text{Na}^+ < \text{O}^{2-} < \text{S}^{2-}$ .

21. Which of the following has highest melting point.

A. Mg

B. Be

C. Li

D. Na

**Answer:** B

**Explanation:** Be has the highest melting point because it has the smallest atomic radius among the choices. But that shouldn't be the basis since there are no corresponding trend for melting point in alkali metals or other groups of the periodic table. The trend on melting point depends on how atoms pack when metallic crystal forms. In this case, the melting point decreases down the group except magnesium and calcium.

22. Transition metals have

A. Magnetic properties

B. Incompletely filled d-orbital system

C. distinctive coloring

D. all of the above

**Answer:** D

**Explanation:** Transition metals have magnetic properties, distinctive coloring, and incompletely filled d-orbital shell. Therefore, the answer is **all of the above**.

23. How many electrons are there in the 4<sup>th</sup> subshell of Ni?

A. 2

B. 18

C. 24

D. 32

**Answer:** A

**Explanation:** The number of electrons in the 4<sup>th</sup> shell is **2 electrons** for nickel. That is because nickel is in group 10B and 4<sup>th</sup> period. 4s is filled first before the d-orbital.

24. Which of the following transition metals has the highest variable oxidation state?

A. W

B. Hg

C. Pt

D. Mn

**Answer:** D

**Explanation:** The highest variable oxidation state among all transition metals is manganese with +7.

25. Choose the correct reason why noble gas Ar is larger than Cl and larger than noble gas Ne?
- The energy level is high.
  - The electronic repulsion is high.
  - Both a and b
  - None of the above

Ans: c

**Explanation:** The shells of noble gases are completely filled with electrons creating stability. Consequently, the electronic repulsions become high resulting to an increase in atomic size. Also, as the period number is increasing, so thus the energy level (shell) creating larger atomic radius. That's the reason why Ar has larger atomic radius than Cl and Ne.

26. Arrange the following increasing toxicity, reactivity, oxidizing ability of halogens.
- $\text{Cl} < \text{F} < \text{Br} < \text{I}$
  - $\text{I} < \text{Br} < \text{F} < \text{Cl}$
  - $\text{F} < \text{Cl} < \text{Br} < \text{I}$
  - $\text{I} < \text{Br} < \text{Cl} < \text{F}$

Ans: d

**Explanation:** Halogen is arranged in terms of high toxicity, reactivity, and oxidizing ability from fluorine to iodine in decreasing order. Therefore, the answer is  $\text{I} < \text{Br} < \text{Cl} < \text{F}$ .

27. What does bromine exhibit if it reacts with alkene?
- Nucleophile
  - Electrophile
  - Free radical
  - Stereoselectivity

Ans: b

**Explanation:** Alkenes have completely filled pi orbitals that are ready to donate pair of electrons to the empty orbitals of bromine to form a new bond or product. Bromine is definitely an electrophile.

28. Solid enantiomers (optical isomers) possess the same
- Infra red spectrum
  - Melting point
  - Chemical properties
  - All of the above
  - None of the above

Ans: d

**Explanation:** In chemistry, an enantiomer, also known as an optical isomer, is one of two stereoisomers that are mirror images of each other that are non-superposable, much as one's left and right hands are the same except for being reversed along one axis. Enantiomers share all the same properties (physical and chemical) except they rotate plane polarized light in equal but opposite direction.

29. As the number of carbon atoms in homologous series of alkane molecules increases, for what property of the alkanes does the value decrease
- Density
  - Enthalpy change of vaporization

## Career Finder

- c. Vapor pressure
- d. Number of isomers

**Explanation:** As the number of carbon atoms increases the molecules become bigger. Van Der Waal forces between the molecules become stronger and the molecules become more difficult to escape into the vapor phase. At equilibrium there will be less amount of gaseous molecule. Hence vapor pressure becomes lower.

30. Which of these will be the molecular formula of the compound, which is liquid at room temperature, decolorizes aqueous bromine.
- a.  $C_7H_{16}$
  - b.  $C_2H_2$
  - c.  $C_2H_4$
  - d.  $C_{10}H_{20}$

Ans: d

**Explanation:** Since the hydrocarbon decolorizes aqueous bromine it is likely to be unsaturated i.e an alkene ( $C_nH_{2n}$ ) being a liquid the Van Der Waal forces must be relatively strong and hence the hydrocarbon should have high relative molecular mass

31. Benzene will undergo
- a. Addition reaction
  - b. Elimination reaction
  - c. Substitution reaction
  - d. Condensation reaction

Ans: c

**Explanation:** Aromatic compounds such as benzene mostly undergoes **electrophilic substitution reaction** especially when it is reacted with alkyl halides.

32. How many hydrogen atoms are there in cycloalkane if  $n=5$ ?
- a. 8
  - b. 10
  - c. 12
  - d. 16

**Explanation:** Cycloalkane has a shorthand formula  $C_nH_{2n}$ . If  $n$  is equal to 5, then, there must be **10 hydrogen atoms**.

33. In Grignard reaction,  $R-MgX$  is commonly used to react with which functional group in order to produce alcohol?
- a. Carboxylic acid
  - b. Ether
  - c. Aldehyde
  - d. Amines

Ans: c

**Explanation:** When the partial negative carbon in  $R-MgX$  is reacted with aldehyde, it forms an electron rich site where it can be protonated with water to form alcohol.

34. C-X bond polarity depends upon
- a. Electronegativity difference
  - b. Number of C atoms
  - c. Number of bonds (single, double or triple)

d. Tetravalency of C

**Explanation:** On the basis of bond polarity the bond having greater polarity will be the most reactive when alkyl halide react with nucleophile (nucleus loving specie). This reactivity depends upon the electronegativity between C and X atom. Greater the electronegativity greater is the bond polarity.

5. Which of the following will readily react the most with sodium metal at room temperature?

- a. 1° alcohol
- b. 2° alcohol
- c. 3° alcohol
- d. Phenol

**Explanation:** In many experiments, sodium metal reacts readily with **methanol** than any other longer chain alcohols. As the chain increases, the sodium metal is less reactive and requires more heat for it to react with longer chain alcohol or phenol.

36. Which inorganic reagent may be used to distinguish between phenol and methanol?

- a. Alkaline aqueous  $I_2$
- b. Aqueous  $NaHCO_3$
- c.  $K_2Cr_2O_7$  in dilute  $H_2SO_4$
- d. Na

**Explanation:** Option a and b are incorrect since both phenol and methanol do not react with alkaline aqueous iodine and aqueous iodine and aqueous  $NaHCO_3$ . Option C is correct since only methanol is oxidized and it turns orange  $Cr_2O_7^{2-}$  to green  $Cr^{3+}$ . Option D is incorrect since both phenol and methanol react with sodium to give  $H_2$ .

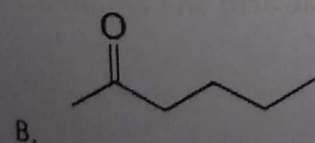
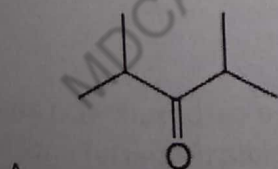
37. Which of the following tests cannot be useful in identifying aldehydes or ketones?

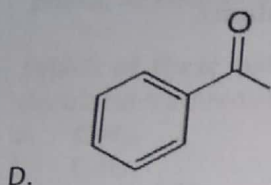
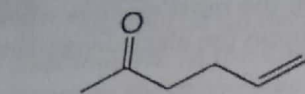
- a. Benedict's test
- b. Tollen's test
- c. Fehling's test
- d. Lucas' test

Ans: d

**Explanation:** Tollen's test, Fehling's test, and Benedict's test are chemical tests to differentiate aldehydes from ketones. On the other hand, **Lucas' test is a chemical test used to distinguish the classification of alcohols.**

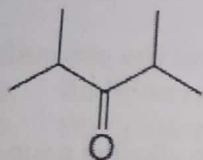
38. Which of the following ketones will give a negative iodoform test?





Ans: a

**Explanation:** Iodoform test is used to distinguish a ketone with methylcarbonyl group. To qualify for this test, the compound must have 3 alpha hydrogen in methyl group and a ketone group. Among the following choices, the compound that will have a negative iodoform test is



It doesn't have a 3 alpha hydrogen atoms

39. Why carboxylic acid is more acidic than phenols and alcohols?

- a. Carboxylic acid has a high degree of unsaturation than phenols and alcohols
- b. Its conjugate base is more effectively stabilized by resonance
- c. It contains single and double bond at the same time.
- d. Carboxylic acid undergoes two-step process and phenols and alcohols do not.

Ans: b

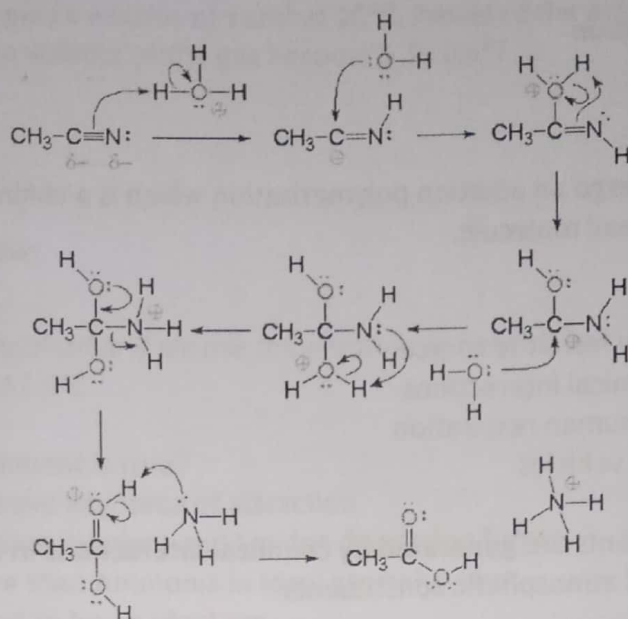
**Explanation:** Carboxylic acid is more acidic than phenols and alcohols because **its conjugate base is more effectively stabilized by resonance**. Anything that stabilizes the conjugate base makes the starting acid more acidic.

40. Carboxylic acid can be prepared by hydrolysis of nitrile in acidic condition. If acetonitrile undergoes hydrolysis, what is the product?

- A. Formic acid
- B. Acetic acid
- C. Propionic acid
- D. Nitric acid

Answer: B

**Explanation:** Carboxylic acid can be prepared from acetonitrile via hydrolysis to form a carboxylic acid and ammonia. Nitrile group contains two pi bonds and is hydrolyzed by hydronium ion (acidic property) until it forms acetoamide bond. **This bond is protonated with water until it forms an acetic acid and ammonia.**



41. What is the product when acetic acid is reacted with sodium hydroxide?

A.  $\text{CHO}^-\text{Na}^+$                       B.  $\text{CHOO}^-\text{Na}^+$   
C.  $\text{CH}_3\text{CO}^-\text{Na}^+$                       D.  $\text{CH}_3\text{COO}^-\text{Na}^+$

Ans: D

**Explanation:** This is simply an acid-base reaction. When acetic acid, a weak acid, is reacted with a strong base such as sodium hydroxide, it forms a carboxylate salt and a small molecule water. The carboxylate salt is sodium acetate ( $\text{CH}_3\text{COO}^-\text{Na}^+$ ).

42. Example for neutral amino acid is

a. Valine  
b. Alanine  
c. Glycine  
d. Aspartic acid

Ans: b

**Explanation:** Neutral amino acids are those acids which have equal amount of  $\text{NH}_2$  group and  $-\text{COOH}$  group. Alanine is the only acid which has equal  $\text{NH}_2$  group and equal  $\text{COOH}$  group with ratio 1:1 respectively.

43. Which of these nucleotide is not found in RNA?

a. Guanine  
b. Cytosine  
c. Adenine  
d. Thymine

Ans: d

**Explanation:** Both DNA and RNA are composed of a mix of four bases. However, only three of the four bases are common to both nucleic acids - adenine, guanine, and cytosine. In DNA, the fourth base is thymine; in RNA, thymine is replaced by uracil.

44. Copolymers undergo what type of polymerization

a. Addition polymerization

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- b. Condensation polymerization
- c. Radical polymerization
- d. Anionic polymerization

Ans: a

**Explanation:** Copolymers undergo an addition polymerization which is a chain reaction of two different monomers without losing a small molecule.

5. What is secondary pollutant?

- A. Are those emitted directly from the source
- B. Are those formed by chemical interactions
- C. Are those released from human respiration
- D. Are those produced from vehicles

**Answer:** B

**Explanation:** Secondary pollutants are **generated by chemical interactions in the atmosphere** with the primary pollutants and normal atmospheric constituents.

Sulfuric acid and nitric acid are two of the major contributors of acid rain that came mostly from fossil fuel combustion. What makes them unique among other contributors?

- A. Both are strong acids
- B. Both ionizes to hydronium ions
- C. Both are anthropogenic
- D. All of the above

**Answer:** D

**Explanation:** Sulfuric acid and nitric acid are **anthropogenic pollutants**. They are **both strong acids and ionized to hydronium ion with water**.

pH for unpolluted rain should be

- A. 5.6
- B. 5
- C. 6
- D. 5.9

**Answer:** A

**Explanation:** The pH of unpolluted rain should be 5.6 pH, the rain having more or less pH than this is considered polluted.

What of the following statement of Avogadro's hypothesis is true?

- A. The volume of the gas is directly proportional to the density of a gas.
- B. The varying pressure is directly proportional to the density of a gas.
- C. The atomic or molar mass is directly proportional to the density of a gas.
- D. The varying temperature is inversely proportional to the density of a gas.

**Answer:** C

**Explanation:** Avogadro's law: "equal volumes of all gases, at the same temperature and pressure, have the same number of molecules". The density equation of the gas is derived from the ideal gas equation.

Avogadro speaks that the number of moles is directly proportional to volume. Hence, the molar mass should also be directly proportional to the density of gas. The higher the molar mass, the denser it is.

49. A constant mass of gas occupies a volume of  $x \text{ cm}^3$  at  $10^\circ\text{C}$ . Provided the pressure of the gas is kept constant, at what temperature will the volume of the gas become  $1.5x \text{ cm}^3$ ?

- a.  $15^\circ\text{C}$
- b.  $151.5^\circ\text{C}$
- c.  $424.5^\circ\text{C}$
- d.  $6.67^\circ\text{C}$

Using Charles's Law, we know:

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

Remember that this law is applicable if we use temperature in Kelvins, so:

$$T_2 = 1.5 \times 283 = 424.5\text{K or } 151.5^\circ\text{C}$$

50. Which of the following statement is true?

- a. An ideal gas does not have any force of attraction
- b. An ideal gas can only have covalent and London dispersion forces
- c. Nitrogen deviates more than Ammonia in ideal gas behaviour
- d. Helium can be assumed to be an ideal gas

**Explanation:** Ideal gas can have intra molecular force of attraction i.e. covalent bond so option (a) is incorrect.  $\text{NH}_3$  deviates more than  $\text{N}_2$  because  $\text{NH}_3$  has Hydrogen Bonding and will experience a very strong force of attraction as compared to  $\text{N}_2$  which is nonpolar and only has van der Waals' forces operating between its molecules. Noble gases like He being non-polar and having very weak van der Waals' forces due to less electrons can be assumed to be ideal because they deviate the least from ideal gas behavior so (d) is correct.

51. What is the electronic configuration of Cr?

- a.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^4$
- b.  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$
- c.  $1s^2 2s^2 2p^6 3s^2 3p^5 4s^1 3d^6$
- d.  $1s^2 2s^2 2p^6 3s^2 3p^4 4s^1 3d^7$

Ans: b

**Explanation:** The Aufbau principle states that you must fill the orbitals with electrons according to increasing energy. For chromium and copper, experimental evidence shows that they do not conform this principle and have achieved greater stability without following the rule. For chromium, the greatest ground state stability results from a configuration  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$  in which its 3d and 4s orbitals are half-filled

## Assignment 2

### Online Learning Module – [tabir.pk](http://tabir.pk)

The **The High Scoring Guide for AMC Online Learning Module** provides intensive learning for candidates appearing for the AMC Entry Test. It is mandatory for you to attempt questions and clear all levels on the Online Learning Module to work on your weak areas and prepare accordingly.

**Assignment 2** is designed for intensive learning, which can be accessed by logging on to **The High Scoring Guide for AMC Online Module** on [tabir.pk](http://tabir.pk). It familiarizes you with the nature of questions and how to attempt them, improving your preparation. This Module is mandatory to attempt for an all-rounded preparation. While preparing on the Module:

- If you attempt a question correctly, you can proceed further.
- If a question has been attempted wrong, the Learning Box will teach you the concept.

Simultaneously, you can monitor your progress on the Progress Indicator on the right side of the screen.

A Voucher Code is given with this book to log on to the Online Learning Module. This will start the intensive preparation for the Entry Test. The Module tests the concepts included in the AMC Entry Test through a variety of questions, and helps you prepare accordingly.

Good luck with the preparation!

# ENGLISH

This section is divided into 2 assignments:

Assignment 1	Solved Papers and Explanations
Assignment 2	Levels at Online Learning Module

**Important:** AMC Entry Test includes a variety of knowledge from different sources. You are suggested to cover your Matric and FSc Syllabus and refer to additional sources of information as well for a better preparation.

# Solved Papers and Explanations

The **Assignment 1** comprises of Solved Papers and Explanations that have been included on the pattern of the AMC Entry Test Past Papers questions.

These questions test a variety of concepts, and provide the correct answers along with the explanations. This will guide you to work on the areas where you need help. By following the explanations, you can learn new concepts and polish them with practice.

It is recommended for the candidates to refer to additional sources of information to practice their skills and knowledge for an all-rounded preparation.

After you are done with Assignment 1, proceed to Assignment 2.

**Remember:** Practice will help you score brilliantly!

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# Solved Paper 1

1. The more he learned \_\_\_\_\_ he served.  
A. better                      B. the better  
C. the best
2. Nadeem is very soon going to be \_\_\_\_\_.  
A. employ                      B. employed  
C. to employ
3. He had scarcely crossed the road \_\_\_\_\_ the bus came.  
A. then                      B. when  
C. before                      D. than
4. They had hardly reached their shelter \_\_\_\_\_ it rained.  
A. then                      B. when  
C. before                      D. than
5. Aslam and Akram are painters; \_\_\_\_\_ is the better.  
A. the latter                      B. the later  
C. the letter
6. He wanted to make him \_\_\_\_\_ easy.  
A. write                      B. wrote  
C. writing                      D. to write
7. \_\_\_\_\_ do you visit this place?  
A. how often                      B. how oftenly  
C. how frequent
8. Drugs addiction \_\_\_\_\_ the mood and behavior of the addicts.
9. \_\_\_\_\_ he write these answers but also speak them.  
A. no only can                      B. not only  
C. only not
10. The line is busy; someone \_\_\_\_\_ using telephone.  
A. must                      B. must be  
C. is                      D. will be
11. The power failure remained, \_\_\_\_\_ it was repaired.  
A. as long as                      B. so long as  
C. unless
12. He didn't go anywhere \_\_\_\_\_ his mother allows him.  
A. as long as                      B. so long as  
C. unless
13. The trees, uprooted by the windstorm are \_\_\_\_\_ in the middle of the road.  
A. lie                      B. lying  
C. lain                      D. laid
14. Heavy rains \_\_\_\_\_ the sea level.  
A. rose                      B. raised  
C. raising                      D. rising
15. Would you please, \_\_\_\_\_ make a noise?  
A. not                      B. do not  
C. don't                      D. no

**Directions:**

Choose the correct answer from the choices given below, closest in meaning given words:

16. Gaspd:  
A. Breathed with open mouth  
B. Breathed with close mouth  
C. Breathed the last  
D. Breathed comfortably
17. Suggestion:  
A. Proposal      B. Advice  
C. Order      D. Request
18. Tribute:  
A. Homage      B. Abasement  
C. Reluctance      D. Fidelity
19. Farewell:  
A. Reception      B. Good bye  
C. Welfare      D. Welcome
20. Feats:  
A. Tricks      B. Plans  
C. Proposals      D. Magics
21. Squeeze:  
A. Wring      B. Rinse  
C. Shrink      D. Expand
22. Brink:  
A. Edge      B. Top  
C. Peak      D. Slope
23. Fake:  
A. Real      B. Unreal  
C. Copied      D. Attained
24. Hind:  
A. Rear      B. Front  
C. Middle      D. Damaged
25. Mammals:  
A. Animals that give birth  
B. Animals that lay eggs  
C. Animals that don't reproduce  
D. Animals those are fierce

**Directions:**

Choose the correct answer from the choices given below closest in meaning to the original sentence/underlined words & phrases.

26. At the advent of Islam inhuman differences were rejected:  
A. At the arrival of Islam  
B. At the height of  
C. At the acceptance of  
D. At the exaltation of
27. In lieu to the loan he borrowed, he gave his marriage ring to the money lender:  
A. In return      B. Returning from  
C. As an alternative
28. He knew why he abhorred the rich:  
A. Why he detested the rich  
B. Why he favoured the rich  
C. Why he objected to the rich  
D. Why he came across the rich
29. Trained soldiers crawled on the ground and reached the enemy:  
A. Crept on the ground  
B. Slept on the ground  
C. Dug up the ground

- D. Left the ground
30. She is not entitled \_\_\_\_\_ the prize.  
A. to B. of C. with D. from
31. During subjugation, the Muslims remained backward.  
A. while slavery B. while freedom C. while exile D. while imprisonment
32. Nationalistic fervor was witnessed during the match between Indian and Pakistan cricket teams:  
A. Excitement B. Boredom C. Discrimination D. Trouble
33. Kashmir has been a bone of contention between India and Pakistan:  
A. Cause of dispute B. Cause of harmony C. Cause of compromise D. Cause of peace
34. The police confiscated illicit arms:  
A. The police found illegal weapons B. The police seized illegal weapons C. The police licensed illegal weapons D. The police produced before the court illicit arms

### Directions:

Choose the correct answer to fill in the blanks below:

35. Who was held responsible \_\_\_\_\_ the loss?  
A. of B. for C. to D. by
36. They are much inclined \_\_\_\_\_ arts.  
A. to B. from C. for D. of
37. Please come \_\_\_\_\_ the room.  
A. in B. to C. into D. onto
38. Those who laugh \_\_\_\_\_ others take insufficient stock of themselves.  
A. at B. on C. to D. over
39. Herbal medication is very popular \_\_\_\_\_ the people of the third world.  
A. with B. to C. for D. of
40. He is not capable \_\_\_\_\_ the job.  
A. for B. of C. to D. with
41. If they failed me \_\_\_\_\_,  
A. I will agree B. I would agree C. I can agree D. I may agree
42. He is crying, he \_\_\_\_\_ broken his leg.  
A. may be B. might have C. will have D. could have
43. He wishes that he \_\_\_\_\_ law when he was in the university.  
A. would study B. would have studied C. could have studied D. studied

44. There is \_\_\_\_\_ reason to worry about him.  
A. not B. don't  
C. no
45. Some of the trees \_\_\_\_\_ dead.  
A. are B. is  
C. was D. has been
46. One of my friends, \_\_\_\_\_ Qasim.  
A. is B. are  
C. am
47. No trees \_\_\_\_\_ overnight.  
A. grow B. grows  
C. growing
48. You can take \_\_\_\_\_ of these two books.  
A. any B. one  
C. either
49. \_\_\_\_\_ of the two towels is mine.  
A. none B. not  
C. neither
50. He has two sons, Ahmed is \_\_\_\_\_.  
A. taller B. the taller  
C. the tallest



## ANSWER KEY

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

## Solved Paper 2

1. He is \_\_\_\_\_ than before.  
A. happier B. more happy  
C. happy D. happiest
2. It is necessary to stop when the red signal \_\_\_\_\_.  
A. glows B. glowed  
C. glow D. glowing
3. His success was earned with \_\_\_\_\_ hard work.  
A. hard B. sheer  
C. heavy D. heavier
4. Irony and satire \_\_\_\_\_ the tone of this drama.  
A. are B. is  
C. am
5. He would have stumbled \_\_\_\_\_.  
A. If he had not taken a step back  
B. If he did not take step back  
C. If he not take step back  
D. If he would not take step back
6. They needn't \_\_\_\_\_ about this problem.  
A. worry B. worried  
C. worrying D. to worry
7. \_\_\_\_\_ his admission to this college he studied elsewhere.  
A. prior to B. early  
C. after D. later
8. There are very many \_\_\_\_\_ in the pointing.  
A. mouses B. mice  
C. mices D. mouse
9. He climbed up and down \_\_\_\_\_ hill before he reached his destination.  
A. many a B. many  
C. much D. very many
10. The result is \_\_\_\_\_ that I can't control myself.  
A. so shocking  
B. very shocking  
C. very much shocking  
D. such shocking
11. It is necessary that all documents, in original, \_\_\_\_\_ submitted.  
A. are B. be  
C. to be D. are to be
12. \_\_\_\_\_ my experience is concerned.  
A. as regards B. as far as  
C. as much
13. He is living \_\_\_\_\_ as you are.  
A. as happily B. as happy  
C. as happier
14. His wallet lay \_\_\_\_\_ him.  
A. besides B. beside  
C. close
15. He sang so \_\_\_\_\_ that everyone admired.  
A. enthusiastic B. enthusiastically  
C. enthusiasm

**Directions:**

*Choose the correct Synonyms:*

16. Burrows:  
 A. Tunnels made in grounds  
 B. Buds  
 C. Beds of plants  
 D. Stems of plants
17. Voyage:  
 A. Travel on sea  
 B. Travel on land  
 C. Travel in space
18. Indeed:  
 A. Of course      B. Essential  
 C. Achievable      D. Deed
19. Curious:  
 A. Eager to know  
 B. Tired of knowing  
 C. Unfit to know  
 D. Incapable of knowing
20. Specimens:  
 A. Samples      B. Designs
- C. Imported things  
 D. Glimpses
21. Merry:  
 A. Married      B. Happy  
 C. Gloomy      D. Frustrated
22. Fertile:  
 A. Good for cultivation  
 B. Bad for cultivation  
 C. Uncultivable  
 D. Unrich
23. Stretch:  
 A. Expand      B. Shrink  
 C. Loosen      D. Thicken
24. Odd:  
 A. Strange      B. Favourable  
 C. Variable      D. Soothing
25. Plough:  
 A. Till soil      B. Water soil  
 C. Manure soil      D. Look after soil

**Directions:**

*Choose the correct answer from the choices given below closest in meaning to the original sentence/underlined words & phrases:*

26. The witch vanished at once:  
 A. The witch disappeared at once  
 B. The witch appeared at once  
 C. The witch giggled at once  
 D. The witch cleaned at once
27. His fright resulted in nightmares:  
 A. His fright caused nightmares  
 B. His fright stopped nightmares
- C. His fright controlled nightmares  
 D. He enjoyed night mare
28. He was held captive by his rivals:  
 A. He was taken as prisoner  
 B. He was captivated by  
 C. He was fascinated by  
 D. He was held responsible by

29. Religious scholars have agreed that the blunder of Adam was predestined:  
A. Preplanned B. Prehistoric  
C. Pretire D. Premature
30. He is studying cosmology:  
A. The study of cosmos  
B. The study of cosmetics  
C. The study of stars and planets  
D. The study of philosophy
31. They ridiculed him, however he spoke with them:  
A. They mocked him  
B. They admired him  
C. They tended him  
D. They compelled him
32. He fell down the roof his leg smashed:  
A. His leg broke into pieces  
B. His leg remained intact  
C. His leg was lightly fractured  
D. His leg was safe
33. Quacks are non qualified doctors:  
A. Herbal doctor  
B. Medical Physicians  
C. Surgeons  
D. Specialists
34. We look forward to rendering you service:  
A. We eagerly wait to serve you  
B. We look at you white service  
C. We come forward to service you  
D. We are already at your service

**Directions:**

Choose the correct answer from the given choices to complete the sentence:

35. This ornament is studded \_\_\_\_\_ jewels.  
A. with B. from  
C. to D. for
36. Please recall \_\_\_\_\_ your mind those answers.  
A. to B. into  
C. of D. from
37. He mustered \_\_\_\_\_ his courage.  
A. up B. down  
C. over D. at
38. Please don't prevent me \_\_\_\_\_ doing good.  
A. from B. to  
C. of D. for
39. He wanted to get rid \_\_\_\_\_ his disease.  
A. from B. with  
C. of D. to
40. May God be pleased \_\_\_\_\_ you.  
A. with B. from  
C. to D. for
41. He likes \_\_\_\_\_.  
A. the music B. music  
C. a music
42. He has ten bars of \_\_\_\_\_.  
A. soap B. soaps  
C. the soaps
43. \_\_\_\_\_ ruins at a vast scale.  
A. a war B. the war  
C. war

44. This is \_\_\_\_\_ University of science.  
A. a B. an  
C. one

45. He bought \_\_\_\_\_ umbrella for fifty rupees.  
A. a B. one  
C. an

**Directions:**

*Choose the correct synonyms:*

46. Assassin:  
A. Murderer B. Murdered  
C. Slain D. Killed
47. Relentless:  
A. Merciful B. Merciless  
C. Kind D. Sympathetic
48. Extravagant:  
A. Wasteful B. Meticulous
- C. Alert D. Generous
49. Elevated:  
A. Uplifted B. Descended  
C. Abated D. Reduced
50. Malice:  
A. Ill will B. Fidelity  
C. Loyalty D. Fair will

**ANSWER KEY**

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

## Assignment 2

### Online Learning Module – **tabir.pk**

The **High Scoring Guide for AMC Online Learning Module** provides intensive learning for candidates appearing for the AMC Entry Test. It is mandatory for you to attempt questions and clear all levels on the Online Learning Module to work on your weak areas and prepare accordingly.

**Assignment 2** is designed for intensive learning, which can be accessed by logging on to **The High Scoring Guide for AMC Online Module** on **tabir.pk**. It familiarizes you with the nature of questions and how to attempt them, improving your preparation. This Module is mandatory to attempt for an all-rounded preparation. While preparing on the Module:

- If you attempt a question correctly, you can proceed further.
- If a question has been attempted wrong, the Learning Box will teach you the concept.

Simultaneously, you can monitor your progress on the Progress Indicator on the right side of the screen.

A Voucher Code is given with this book to log on to the Online Learning Module. This will start the intensive preparation for the Entry Test. The Module tests the concepts included in the AMC Entry Test through a variety of questions, and helps you prepare accordingly.

Good luck with the preparation!

# PHYSICS

This section is divided into 2 assignments:

Assignment 1	Solved Papers and Explanations
Assignment 2	Levels at Online Learning Module

**Important:** AMC Entry Test includes a variety of knowledge from different sources. You are suggested to cover your Matric and FSc Syllabus and refer to additional sources of information well for a better preparation.

# Assignment 1

## Solved Papers and Explanations

The **Assignment 1** comprises of Solved Papers and Explanations that have been included on the pattern of the AMC Entry Test Past Papers questions.

These questions test a variety of concepts, and provide the correct answers along with the explanations. This will guide you to work on the areas where you need help. By following the explanations, you can learn new concepts and polish them with practice.

It is recommended for the candidates to refer to additional sources of information to practice their skills and knowledge for an all-rounded preparation.

After you are done with Assignment 1, proceed to Assignment 2.

**Remember:** Practice will help you score brilliantly!

# SOLVED PAPER 1

1. The angle subtended at the center of a sphere by its surface area is equal to:
  - A.  $\frac{4}{3}\pi$  radian
  - B.  $\frac{4}{3}\pi$  steradian
  - C.  $4\pi$  steradian
  - D.  $2\pi$  steradian
2. 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
3. The magnitude of the resultant of two forces is  $2F$ . If the magnitude of each force is  $F$ , Then the angle between these forces is:
  - A.  $0^\circ$
  - B.  $90^\circ$
  - C.  $120^\circ$
  - D.  $180^\circ$
4.  $\hat{i}(\hat{k} \times \hat{j})$  is equal to
  - A. -1
  - B. Zero
  - C. 1
  - D. 2
5. Three vectors of equal magnitude are acting on the three sides of an equilateral triangle. The magnitude of their resultant is
  - A. Zero
  - B. 3
  - C.  $\sqrt{3}$
  - D. 1.73
6. The physical quantity which produces angular acceleration in the body is:
  - A. Force
  - B. Moment of inertia
  - C. Impulse
  - D. Torque
7. The point at which an applied force produces linear motion but no rotatory motion is:
  - A. Mid-point
  - B. Centre of gravity
  - C. Optical centre
  - D. Pole
8. 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
9. Crystalline solids have the properties such as
  - A. Regular arrangement
  - B. Covalent bonding
  - C. Somewhat defective
  - D. All of them
10. A man throws a ball vertically upward in a compartment of an accelerated train. The ball will fall
  - A. In front of him
  - B. In his hand
  - C. Behind him
  - D. Beside him
11. A bomber drops a bomb, when it is vertically above the target. It misses the target because of:
  - A. Vertical component of the velocity of bomber
  - B. Force of gravity
  - C. Acceleration of the bomber
  - D. Horizontal component of the velocity of bomber
12. The property of the moving object by virtue of which it exerts force on the object that tries to stop it is:
  - A. Inertia of the body
  - B. Quantity of motion of body
  - C. Acceleration of body
  - D. All of these
13. The dot product of force and velocity is equal to:

## Career Finder

- A. Power
- B. Impulse
- C. Couple
- D. Momentum

14. The escape velocity from the earth gravitational field depends upon:

- A. Rotation of earth
- B. Mass of body
- C. Radius of earth
- D. Mass of earth

15. If the velocity of a body becomes half, the kinetic energy of the body will become:

- A. One fourth
- B. Double
- C. Four times
- D. Half

16. A 60 kg man in a lift which is moving upward with an acceleration of  $4.9 \text{ ms}^{-2}$  will have apparent weight of:

- A. 588 N
- B. 294 N
- C. 58.8 N
- D. 882 N

17. The apparent weight of a pilot when diving down in a jet plane with an acceleration of  $9.8 \text{ m/s}^2$  will become:

- A. Double
- B. Half
- C. Negative
- D. Zero

18. The Geostationary satellites are:

- A. Stationary with respect to earth
- B. Rotating with the speed of earth
- C. Rotating very fastly
- D. Rotating very slowly

19.  $[\text{ML}^{-1}\text{T}^{-1}]$  are the dimensions of:

- A. Angular momentum
- B. Power
- C. Impulse
- D. Viscosity

20. A two meter high tank is full of water. A hole is made in the middle of the tank. The speed of efflux is

- A.  $4.9 \text{ ms}^{-1}$
- B.  $9.8 \text{ ms}^{-1}$
- C.  $4.42 \text{ ms}^{-1}$
- D.  $3.75 \text{ ms}$

21. The quantity which specifies the displacement as well as the direction of motion in simple harmonic motion is the:

- A. Phase angle
- B. Angular frequency
- C. Path difference
- D. None of these

22. The number of loops in stationary waves depends upon:

- A. Velocity of waves
- B. Wavelength of waves
- C. Nature of the medium
- D. Frequency of waves

23. When the light enters from air to glass, it suffers a change in the:

- A. Wavelength of light
- B. Speed of light
- C. Frequency of light
- D. Wavelength and speed of light

24. 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

25. We can hear sound around the corner but cannot see because of:

- A. Interference
- B. Diffraction
- C. Polarization
- D. Dispersion

26. The powers of the objective and eye piece of telescope are 0.5 dioptre and 10 dioptre respectively. The magnifying power of telescope is:

- A. 0.5
- B. 10

## Career Finder

C. 20

D. 0.05

27. At constant temperature when the volume of the given mass of gas is doubled its density becomes:
- A. Double                      B. One fourth  
C. Four time                  D. Half
28. The process which is performed quickly is:
- A. Isobaric process  
B. Adiabatic process  
C. Isothermal process  
D. Isochoric process
29. The correct expression for the coulomb's force is:
- A.  $F = \frac{1}{k} \cdot \frac{q_1 q_2}{r^2}$   
B.  $F = k \frac{q^1 q^2}{r^2}$   
C.  $F = 4\pi \epsilon \frac{q_1 q_2}{r^2}$   
D.  $F = k \frac{r^2}{q_1 q_2}$
30. The wave nature of an electron is illustrated by its:
- A. Photoelectric effect  
B. Compton effect  
C. Penetrating effect  
D. Diffraction
31. The Potential gradient between the two charged plates having, separation of 0.5cm and potential difference of 12volts is:
- A.  $240 \text{ NC}^{-1}$                       B.  $24 \text{ NC}^{-1}$   
C.  $2.4 \text{ NC}^{-1}$                       D.  $2400 \text{ NC}^{-1}$
32. 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
33. A wire of uniform cross section A, length 1 and resistance R is cut into two equal pieces. The resistivity of each piece will be:
- A. The same                      B. One fourth  
C. Double                      D. One half
34. Two metallic conductors have the same value of resistivity. These conductors can be differentiated from the values of their:
- A. Temperature coefficient  
B. Resistance  
C. Conductance  
D. Conductivity
35. Two metallic wires are lying parallel. If the current in these wires be flowing in the same direction, the wires will:
- A. Attract each other  
B. Repel each other  
C. Have no force of attraction or repulsion  
D. Remain stationary
36. The SI unit of magnetic flux is weber which is equal to:
- A.  $\text{NmA}^{-1}$                       B.  $\text{Nm}^2\text{A}^{-1}$   
C.  $\text{NA m}^{-1}$                       D.  $\text{NmA}^{-2}$
37. An electron and proton are projected with same velocity normal to magnetic field which one will suffer greater deflection?
- A. Proton  
B. Electron  
C. Both will suffer greater defection  
D. None of these
38. The magnetic field due to current in solenoid can be increased by
- A. Increasing the number of turns per unit length  
B. Using soft iron core  
C. Increasing the current  
D. All of these
39.  $\frac{\text{Volt} \times \text{second}}{\text{ampere}}$  is equal to:
- A. Gauss                      B. Weber

- C. Henry D. Tesla
40. The counter torque produced in the moving coil of generator is called:
- A. Restoring torque
  - B. Deflection torque
  - C. Back motor effect
  - D. All of these
41. The inductive reactance of the coil having inductance of 0.5 henry in which AC of 50Hz flows is:
- A.  $94.2\Omega$
  - B.  $1.57\Omega$
  - C.  $157\Omega$
  - D.  $9.42\Omega$
42. In RLC series circuit when the frequency of AC source is very low, the circuit is a / an:
- A. Resistive circuit
  - B. Capacitive circuit
  - C. Inductive circuit
  - D. Resonant circuit
43. Which of the following makes the motion of a perpetual motion machine a physical impossibility?
- A. First law of thermodynamics
  - B. Second law of thermodynamics
  - C. Third law of thermodynamics
  - D. None of these
44. The process of combining low frequency signal with high frequency carries waves is called:
- A. Rectification
  - B. Amplification
  - C. Modulation
  - D. Magnification
45. The ratio of volumetric strain to volumetric stress is called:
- A. Compressibility
  - B. Young's modulus
  - C. Bulk's modulus
  - D. Shear's modulus
46. The substance which undergoes plastic deformation until it breaks is:
- A. Ductile substance
  - B. Brittle substance
  - C. Plastic substance
  - D. All of these
47. Choose the region of the spectrum which would be used to determine the structure of crystalline solids:
- A. Visible
  - B. Infrared
  - C. X- rays
  - D. Ultraviolet
48. The depletion region contains:
- A. Electrons
  - B. Holes
  - C. Electrons and holes
  - D. No holes and no electrons
49. The process by which the potential barrier of the depletion region can be increased or decreased is called:
- A. Amplification
  - B. Biasing
  - C. Modulation
  - D. Doping
50. The colour of light emitted by light emitting diode depends upon:
- A. Forward voltage
  - B. Reverse current
  - C. Forward current
  - D. Type of semiconductor

## Career Finder

## Answer key: Physics

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

## Explanations:

2. Product of values will contain the least number of significant figures of the given multiples 4.81 contains 3 digits, so that the answer.

8. Free face bodies fall with uniform acceleration,  $g = 9.8/s^2$  near the earth surface.

(a) Not possible

(b) Might be possible if we consider fluid friction but not here

(c) Not sensible

16.  $T = m(g + a) = 60(9.8 + 4.9) = 882N$

24. (a) Depends upon the source of generation

(b) Decreases in denser medium

(c) Decreases in denser medium

32. (a) Definition of potential of a gradient.

(b) It is the product of charge and volts

(c) It is equal to the negative of the gradient of potential

(d) It is dot product of  $\vec{E}$  and vector area  $\vec{A}$

38.  $B = \mu_0 n I$

$\therefore$  Formula shows "B" will increase either by increase "n", I or  $\mu_0$

Where n = No. of turns per unit length, I = current  $\mu_0$  = medium of core

48. Instead it contains ion, electrons and holes are in N-type and P-type side.

# SOLVED PAPER 2

1. Mass defect of an atom refers to
- Inaccurate measurement of mass of nucleons
  - Mass annihilated to produce energy to bind the nucleus
  - Packing fraction
  - Difference in number of neutrons and protons in the nucleus
2. In alternating current the average value of current in cycle is:
- Zero
  - Constant
  - Positive
  - Maximum
3. Radioactivity is purely a nuclear phenomenon, and is not affected by
- Physical or chemical reaction
  - Temperature
  - Pressure
  - All of these
4. A radioactive reaction is  ${}_{92}\text{U}^{238} \rightarrow {}_{82}\text{Pb}^{206}$ . How many  $\alpha$  and  $\beta$  particles are emitted?
- $10\alpha, 6\beta$
  - 4 protons, 8 neutrons
  - 6 electrons, 8 protons
  - $6\beta, 8\alpha$
5. The time taken by the entire electron pulse to reach anode, in Geiger Muller tube is
- 1 ms
  - Less than  $1\mu\text{s}$
  - More than  $1\mu\text{s}$
  - None of these
6. Geiger Muller counter can be used to determine the
- Range of ionizing particle
  - Mass of ionizing particle
  - Charge of ionizing particle
  - None of these
7. In a nuclear reaction, which of the following is conserved?
- Atomic number only
  - Mass number only
  - Atomic number, Mass number and Energy
  - Energy only
8. The half-life (T) and the disintegration constant ( $\lambda$ ) of a radioactive substance are related as
- $\lambda T = 1$
  - $\lambda T = 0.693$
  - $\frac{T}{\lambda} = 0.693$
  - $\frac{\lambda}{T} = 0.693$
9. Which of the following is true?
- Lyman series is a continuous spectrum
  - Ballmer series is a line spectrum in the ultraviolet
  - Panchen series is a line spectrum in the infrared
  - The spectral series formula can be derived from the Rutherford model of the hydrogen atom
10. Typical source of  $\beta$  -particle is
- Radon 222
  - Cobalt 62
  - Strontium 94
  - None of these
11. The effect of the decrease in pressure with the increase in speed of the fluid in horizontal tube gives that:
- Torricelli's effect
  - Bernoulli's effect
  - Venturi effect
  - Doppler effect

**Career Finder**

12. For better resolution and clear visibility through microscope we use:
- Longer wavelength light
  - Shorter wavelength light
  - Wavelength has no effect
  - It depends only on design of microscope not on light
13. Which of the following processes will result into fission reaction?
- ${}_{92}\text{U}^{235}$  is bombarded with fast moving neutrons
  - ${}_{92}\text{U}^{235}$  is bombarded with thermal neutrons
  - $\text{U}^{238}$  is bombarded with slow moving neutrons
  - $\text{U}^{235}$  being unstable breaks into smaller fragments
14. Which one of the following is possible?
- ${}_{7}\text{N}^{14} + {}_0\text{n}^1 \rightarrow {}_{7}\text{N}^{16} + {}_1\text{H}^1$
  - ${}_{16}\text{S}^{32} + {}_1\text{H}^1 \rightarrow {}_{17}\text{Cl}^{35} + {}_2\text{He}^4$
  - ${}_8\text{O}^{16} + {}_0\text{n}^1 \rightarrow {}_{7}\text{N}^{14} + 3 {}_1\text{H}^1 + 2 {}_{-1}\beta^0$
  - ${}_1\text{H}^1 + {}_1\text{H}^1 \rightarrow {}_2\text{He}^4$
15. Which of the following is an example of vector product of two vectors?
- Linear momentum
  - Angular momentum
  - Force
  - Electric flux
16. The radius of second orbit of Hydrogen atom is
- $0.53 \text{ \AA}$
  - $2.12 \text{ \AA}$
  - $3.53 \text{ \AA}$
  - $4.12 \text{ \AA}$
- Elements with atomic number  $Z > 82$  are
- Stable
  - Unstable
  - Small
  - None
- The number of neutrons 'N' is equal to
- $N = A - Z$
  - $N = A + Z$
  - $N = A \times Z$
  - $N = \frac{1}{2} A + Z$
19. When sound waves move from one medium to other medium the quantity which remains unchanged is:
- Wavelength
  - Frequency
  - Speed
  - Intensity
20. Rutherford's experiments on scattering of  $\alpha$ -particles proved that:
- Atom is mostly empty
  - Positive charge is uniformly distributed in the atom
  - Number of positive charges is equal to number of negative charges
  - Atoms contain electrons
21. Which of the following sources give discrete emission spectrum?
- Incandescent electric bulb
  - Sun
  - Mercury vapour lamp
  - Candle
22. When a hydrogen atom is raised from the ground state to an excited state
- P.E. increases and K.E. decreases
  - P.E. decreases and K.E. increases
  - Both kinetic energy (K.E) and potential energy (P.E) increases
  - Both K.E. and P.E. decreases
23. The half-life of a radioactive substance is 10 days. This means that
- The substance completely disintegrates in 20 days
  - The substance completely disintegrates in 40 days
  - $\frac{1}{8}$  part of the mass of the substance is left intact at the end of 40 days

- D.  $\frac{7}{8}$  Part of the mass of the substance disintegrates in 30 days.

24. In step up transformer when the alternating voltage increases then the alternating current:

- A. Will increase  
B. Will decrease  
C. Will not change  
D. None of the above

25. The transition of the electron takes place from  $n = 2$  orbit to  $n = 1$  orbit. Which of the following give the shortest wavelength?

- A. Hydrogen atom  
B. Deuterium atom  
C. Single ionized helium  
D. Doubly ionized helium

26. A one microfarad capacitor of a TV is subjected to 4000 V potential difference. The energy stored in capacitor is

- A. 8 J                      B. 16 J  
C.  $4 \times 10^{-3}$  J          D.  $2 \times 10^{-3}$  J

27. A parallel plate condenser with oil between the plates (dielectric constant of oil  $k = 2$ ) has a capacitance  $C$ . If the oil is removed, then capacitance of the capacitor becomes

- A.  $\sqrt{2}C$                       B.  $2C$   
C.  $\frac{C}{\sqrt{2}}$                       D.  $\frac{C}{2}$

28. A metal plate of thickness half the separation between the capacitor plates of capacitance  $C$  is inserted. The new capacitance is

- A.  $C$                       B.  $C/2$   
C. Zero                      D.  $2C$

29. As the electron in Bohr orbit of hydrogen atom passes from state  $n = 2$  to  $n = 1$ , the kinetic energy  $K$  and potential energy  $U$  change as

- A.  $K$  two-fold,  $U$  also two-fold  
B.  $K$  four-fold,  $U$  also four-fold

- C.  $K$  four-fold,  $U$  two-fold  
D.  $K$  two-fold,  $U$  four-fold

30. In Bohr's model of hydrogen atom, let PE represent potential energy, and TE the total energy. In going to a higher orbit

- A. PE increases, TE decrease  
B. PE decreases, TE increases  
C. PE increases, TE increases  
D. PE decreases, TE decreases

31. A photon of X-rays of 10.2 eV energy is absorbed by hydrogen atom. This will raise an electron from  $n=1$  orbit to which one of the following orbits?

- A.  $n=2$                       B.  $n=3$   
C.  $n=4$                       D.  $n=5$

32. Aging process of the human body is slowed by motion at

- A. Very slow speed  
B. Very high speed  
C. Very high speed along a circular path  
D. None of these

33. The amount of energy needed to remove electrons from the metal surface depends upon

- A. Work                      B. Work Function  
C. Power                      D. Wavelength

34. When scattered X-ray photons are observed at

$\theta = 90^\circ$ , the Compton shift  $\Delta\lambda$  equal to

- A. Compton shift  
B. Compton wavelength  
C. Full wavelength  
D. None of these

35. The transitions of inner-shell electrons in heavy atoms give

- A.  $\alpha$ -rays                      B.  $\beta$ -rays  
C.  $\gamma$ -rays                      D. X-rays

## Career Finder

The temperature scale which is independent of the nature of the working substance is:

- A. Celsius scale
- B. Fahrenheit scale
- C. Centigrade scale
- D. Thermodynamic scale

The period of a pendulum is measured to be 3.0 s in the inertial frame of the pendulum.

Find the period by an observer moving at 0.95 c with respect to pendulum

- A. 5.6 s
- B. 7.9 s
- C. 9.6 s
- D. 9.8 s

A photocell with a constant potential difference of V volt across it illuminated by a point source from a distance of 25 cm. When the source is moved to a distance of 1m, the electrons emitted by the photocell

- A. Carry 1/4th their previous energy
- B. Are 1/16th as numerous as before
- C. Are 1/4th as numerous as before
- D. Carry 1/4th their previous momentum

The heat engine operating in reverse is called:

- A. Electric generator
- B. Refrigerator
- C. Carnot engine
- D. Electric motor

Light of certain wavelength and intensity ejects photoelectrons from a metal plate. Then this beam is replaced by another beam of smaller wavelength and smaller intensity. As a result:

- A. No change occurs
- B. Emission of photoelectrons stops
- C. K.E. of the photoelectrons decreases but the strength of the photoelectric current increases
- D. K.E. of the photoelectrons decreases but the strength of the photoelectric current decreases.

41. In a nuclear reaction, which of the following is conserved?

- A. Atomic number only
- B. Mass number only
- C. Atomic number, Mass number and Energy
- D. Energy only

42. When X-rays pass through strong uniform magnetic field, then they

- A. Do not get deflected at all
- B. Get deflected in the direction of the field
- C. Get deflected in the direction opposite to the field
- D. Get deflected in the direction perpendicular to the field

43. The frequencies of X-rays,  $\gamma$ -rays and ultraviolet rays are respectively a, b and c. Then

- A.  $a > b, b > c$
- B.  $a < b, b > c$
- C.  $a < b, b < c$
- D.  $a > b, b < c$

44. Emitter of the transistor has greater concentration of impurity as compared to

- A. Base only
- B. Collector only
- C. Both base and collector
- D. None of the above options

45. Two inputs of NAND gates are shorted. This gate is equivalent to

- A. OR gate
- B. AND gate
- C. NOT gate
- D. XOR gate

46. In L.C.R series A.C. circuit, the phase angle between current and voltage is

- A. Any angle between 0 and  $\pm \frac{\pi}{2}$
- B.  $\frac{\pi}{2}$
- C.  $\pi$

D. Any angle between 0 and  $\frac{\pi}{2}$

47. The force on electron in electric field of  $10^8 \text{ NC}^{-1}$

- A.  $1.6 \times 10^{-4}$  B.  $1.6 \times 10^{-8}$   
C.  $1.6 \times 10^{-10}$  D.  $1.6 \times 10^{-11}$

48. Cause of heat production in a current carrying conductor is

- A. Collisions of free electrons with one another  
B. High drift speed of free electrons  
C. Collisions of free electrons with atoms or ions of conductor

D. High resistance value

49. A point charge Q is placed at the mid-point of a line joining two charges,  $4q$  and  $q$ . If the net force on charge  $q$  is zero, then Q must be equal to

- A.  $-q$  B.  $+q$   
C.  $-2q$  D.  $+4q$

50. Find the average speed of oxygen molecule in the air at S.T.P.

- A.  $591 \text{ ms}^{-1}$  B.  $461 \text{ ms}^{-1}$   
C.  $396 \text{ ms}^{-1}$  D.  $372 \text{ ms}^{-1}$

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**Answer key: Physics**

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

**Explanations:**

2. As number of values of +ve half cycle are equal to number of values of -ve half cycle. Its r.m.s is not zero.
11. A. It is related to speed of efflux  
B. It is a theorem not effect  
D. It is related to waves
12. (a) More diffracted  
(b) Less diffracted  
(c) It affects the resolution  
(d) It depends on both, design and light
15.  $\vec{L} = \vec{r} \times \vec{P}$
19. Wavelength, speed and intensity decreases when waves move from rare to denser medium.
24. By this the energy will remain conserve.
36. D. An electromagnetic wave of high energy and very short wavelength, which is able to pass through many materials opaque to light is **called X rays**, X-rays are emitted when a highly energetic beam of charged particles such as electrons is rapidly decelerated.  
B. **Beta particles** are a fast-moving electron emitted by radioactive decay of substances (originally regarded as rays).  
C. **Gamma rays** are classically produced by the decay of atomic nuclei as they transition from a high energy state to a lower state known as **gamma decay**
36. The working of the rest of the scales dependent on working substance. It is the absolute measure of temp.
39. Refrigerator takes heat from low temperature and transmit it to high temperature i.e reverse of heat engine.
47. A **reaction** that changes the number of protons or neutrons in the nucleus in the nucleus of an atoms is called nuclear reaction, But total number, mass and energy remain conserved.
47.  $F = q_0 E = 1.6 \times 10^{-19} \times 10^8 = 1.6 \times 10^{-11} \text{ C}$

# Assignment 2

## Online Learning Module – tabir.pk

The **High Scoring Guide for AMC Online Learning Module** provides intensive learning for candidates preparing for the AMC Entry Test. It is mandatory for you to attempt questions and clear all levels on the Online Learning Module to work on your weak areas and prepare accordingly.

**Assignment 2** is designed for intensive learning, which can be accessed by logging on to **The High Scoring Guide for AMC Online Module** on **tabir.pk**. It familiarizes you with the nature of questions and how to attempt them, improving your preparation. This Module is mandatory to attempt for an all-rounded preparation. While preparing on the Module:

- If you attempt a question correctly, you can proceed further.
- If a question has been attempted wrong, the Learning Box will teach you the concept.

Simultaneously, you can monitor your progress on the Progress Indicator on the right side of the screen.

Voucher Code is given with this book to log on to the Online Learning Module. This will start the intensive preparation for the Entry Test. The Module tests the concepts included in the AMC Entry Test through a variety of questions, and helps you prepare accordingly.

Good luck with the preparation!

# VERBAL INTELLIGENCE TEST

This section is divided into 2 assignments:

Assignment 1	Solved Papers and Explanations
Assignment 2	Levels at Online Learning Module

# Assignment 1

## Solved Papers and Explanations

The **Assignment 1** comprises of Solved Papers and Explanations that have been included on the pattern of the AMC Entry Test Past Papers questions.

These questions test a variety of concepts, and provide the correct answers along with the explanations. This will guide you to work on the areas where you need help. By following the explanations, you can learn new concepts and polish them with practice.

It is recommended for the candidates to refer to additional sources of information to practice their skills and knowledge for an all-rounded preparation.

After you are done with Assignment 1, proceed to Assignment 2.

**Remember:** Practice will help you score brilliantly!

# SOLVED PAPER 1

1. Give the most sensible answer. The recent rise in crimes is due to:
  - A. Unemployment
  - B. Opportunities
  - C. Employment
  - D. Pollution
  - E. Beliefs
2. What will come next?  
2, 11, 19, 26, .....?
  - A. 31
  - B. 32
  - C. 33
  - D. 34
  - E. 35
3. What will come next?  
13, 24, 35, 46, 57, .....?
  - A. 65
  - B. 66
  - C. 67
  - D. 68
  - E. 69
4. What will come next?  
13, 23, 32, 41?
  - A. 57
  - B. 51
  - C. 62
  - D. 68
  - E. 65
5. What is the price of 13 kg of apples if 500 grams are being sold for 200 rupees?
  - A. 2000
  - B. 3400
  - C. 4800
  - D. 5200
  - E. 6600
6. What will come next?  
8, 2, 4, 16, 48, 32?
  - A. 64
  - B. 86
  - C. 96
  - D. 54
  - E. 44
7. What will come next?  
21, 23, 27, 30, 32, 36, 39, .....?
  - A. 40
  - B. 41
  - C. 42
  - D. 43
  - E. 44
8. Give the most sensible answer. The reason behind rising terrorism in the world is:
  - A. Religion
  - B. Poverty
  - C. Vested political interests of big powers
  - D. Unemployment
  - E. Colonialism
9. What is the opposite of dainty?
  - A. Delicate
  - B. Sensitive
  - C. Crude
  - D. Vulnerable
  - E. Potent
10. What will come next?  $(-4, *1, +3)$   
8, 4, 4, 7, 3, 3, 6, .....?
  - A. 2
  - B. 3
  - C. 4
  - D. 5
  - E. 6
11. What is the square root of 841?
  - A. 22
  - B. 23
  - C. 27
  - D. 29
  - E. 31
12. What will come next?  
884, 773, 662, 551, .....?
  - A. 441
  - B. 438
  - C. 445
  - D. 440
  - E. 444
13. Which one is different from the rest?
  - A. Indigo
  - B. Orange
  - C. Yellow
  - D. Black
  - E. Pink
14. Which one is different from the rest?
  - A. Bones
  - B. Tissues
  - C. Cells
  - D. Blood
  - E. Appendicitis
15. If Anees is heavier than Iqbal and Leo is lighter than Anees, who is the heaviest among all of them?
  - A. Anees
  - B. Iqbal
  - C. Leo
  - D. None of the above
  - E. All of the above
16. Home is to bricks as behavior is to:
  - A. School
  - B. Group
  - C. Lifestyle
  - D. Grooming
  - E. Friends
17. Which one is different from the rest?
  - A. Flourish
  - B. Prosper
  - C. Subsist
  - D. Thrive
  - E. Burgeon

What will come next?

- 11, 33, 56, 168, 191, .....?  
 A. 571 B. 572  
 C. 573 D. 574  
 E. 575

9. A salesman at the coffee shop charges 20 rupees for a plain cup of coffee. The charges increase by 100% if milk or flavor is added to it. Aslam orders 5 cups of plain coffee and 3 Mocha cappuccinos, what would be his total bill?

- A. 190 B. 200  
 C. 210 D. 220  
 E. 230

20. Truth is to falsehood as subtlety is to:

- A. Crudeness B. Art  
 C. Friendliness D. Kindness  
 E. Hatred

21. What will come next?

- 889, 844, 800, 757, 715, .....?  
 A. 672 B. 674  
 C. 676 D. 678  
 E. 680

22. Rumi was a:

- A. Poet B. Magician  
 C. Demigod D. Celebrity  
 E. Politician

23. Add all the number in the series and multiply it with the largest number and then divide it by the smallest one.

- 12, 4, 8, 24, 13  
 A. 333 B. 344  
 C. 355 D. 366  
 E. 377

24. What is the meaning of humane?

- A. Benevolent B. Rigid  
 C. Rude D. Cantankerous  
 E. Crabby

25. Which one is different from the rest?

- A. Ginger B. Tomato  
 C. Cumin D. Chilies  
 E. Garlic

26. What will come next?

99, 66, 35, 6, .....?

- A. -21 B. -22  
 C. -23 D. -24  
 E. -25

27. Give the most sensible answer. People go to hospitals:

- A. To rest in over-priced rooms  
 B. For change  
 C. To get treatments  
 D. To see their friends  
 E. To die

28. What will come next?

- 1, 11, 13, 18, 25, 44, 58, .....?  
 A. 73 B. 72  
 C. 71 D. 70  
 E. 69

29. Doctors do house job to:

- A. Practice  
 B. Learn to stay at home  
 C. Enjoy free time  
 D. Prepare for exams  
 E. None of the above

30. What will come next?

- 6, 12, 81, 162, .....?  
 A. 18 B. 24  
 C. 22 D. 16  
 E. 1

31. If  $8/2$  is greater than 2 write A, otherwise B.

- A. A B. B

32. Which one is different from the rest?

- A. Pencil B. Pencil Colors  
 C. Sharpener D. Eraser  
 E. Pencil box

33. What will come next?

- 30, 34, 46, 66, .....?  
 A. 94 B. 70  
 C. 56 D. 78  
 E. 80

34. College to student is as hospital to:

- A. Patients B. Doctors  
 C. Staff D. Nurses  
 E. Other hospitals

35. Which one is different from the rest?  
 A. Quilt B. Blanket  
 C. Pillow D. Cover  
 E. Masking
36. If 6 is greater than 6 into 2 then write A, otherwise B.  
 A. A B. B
37. Bilgram goes to a supermarket and buys 2 grams of chocolate. The price of chocolate per kg is 1000 rupees. How much did Bilgram pay?  
 A. 2 rupees B. 20 rupees  
 C. 200 rupees D. 50 rupees  
 E. 15 rupees
38. What will come next?  
 988, 970, 934, 880, .....?  
 A. 760 B. 789  
 C. 808 D. 763  
 E. 777
39. Physician to treatment is as Judge to:  
 A. Law B. Courts  
 C. Advocates D. Judgment  
 E. Legislation
40. How many times can you subtract the number 5 from 25?  
 A. Once B. Thrice  
 C. 5 times D. Twice  
 E. 6 times
41. Which amount is the largest?  
 A. 0.04 B. 0.0009  
 C. 0.03 D. 0.002  
 E. 0.01
42. What is the opposite of calm?  
 A. Beautiful B. Apprehensive  
 C. Anxious D. Dismal  
 E. Depressing
43. CEDH to HDEC is as PNRV to:  
 A. VRNP B. RNVP  
 C. NRVP D. VPNR  
 E. VPRN
44. What is the area of a rectangle that has one side =  $2x$  and other side =  $x$ ?  
 A.  $3x$  B.  $2x^2$
45. What will come next?  
 18, 8, 24, 16, 32, .....?  
 A. 16 B. 24  
 C. 38 D. 46  
 E. 20
46. People swim to:  
 A. Enjoy the water  
 B. Become an expert swimmer  
 C. Become healthier  
 D. Become popular  
 E. Become up to date
47. Kick to foot ball is as throw to:  
 A. Dishes B. Sweep  
 C. Blower D. Ring  
 E. Boil
48. What will come next?  
 21, 63, 189, 567, .....?  
 A. 1690 B. 1780  
 C. 1701 D. 1789  
 E. 1678
49. What will come next?  
 99, 66, 33, .....?  
 A. 22 B. 30  
 C. 00 D. 11  
 E. 35
50. Goose is to geese as cactus is to:  
 A. Appendices B. Cactuses  
 C. A lot of cactus D. Plants  
 E. Trees
51. What will come next?  
 2, 15, 41, 80, .....?  
 A. 112 B. 111  
 C. 123 D. 122  
 E. 132
52. Which one of the following is different from the rest?  
 A. Facebook B. WhatsApp  
 C. Snapchat D. Google  
 E. Instagram
53. If  $8 + 4 - 7 = 31$

$$7 + 2 - 6 = 17$$

$$\text{Then } 6 + 5 - 7 = ?$$

$$\text{Then } 7 \div 6 = ?$$

54. Urdu is to Pakistan as Chinese is to:  
A. UK B. Japan  
C. World D. USA  
E. China
55. What will come next?  
55, 50, 44, 37, 29, .....?  
A. 20 B. 21  
C. 22 D. 23  
E. 24
56. What will come next?  
50, 89, 129, 170, 212, .....?  
A. 255 B. 288  
C. 223 D. 290  
E. 278
57. If X comes later than P mark A, otherwise B.  
A. A B. B
58. What will come next?  
40, 120, 200, 280, .....?  
A. 320 B. 330  
C. 340 D. 360  
E. 380
59. What will come next?  
176, 160, 136, 104, .....?  
A. 90 B. 70  
C. 60 D. 80  
E. 64
60. What will come next?  
P, R, T, V, X, .....?  
A. W B. Y  
C. Q D. S  
E. Z
61. Which one of the following is different from the rest?  
A. Cabbage B. Carrot  
C. Potato  
D. Peas  
E. Tomato
62. If  $4 \div 2 = 20$   
 $6 \div 3 = 45$   
 $2 \div 1 = 5$
63. Peppermint ice cream recipe requires 2 cups of cream for 5 servings. How much cream would be required for 80 servings?  
A. 20 B. 25  
C. 30 D. 28  
E. 32
64. What will come next?  
27, 45, 63, 81, .....?  
A. 80 B. 88  
C. 90 D. 99  
E. 101
65. Which one of the following is different from the rest?  
A. Lion B. Wolf  
C. Fox D. Tiger  
E. Cat
66. What will come next?  
89, 81, 72, 62, 51, .....?  
A. 35 B. 39  
C. 42 D. 43  
E. 38
67. 50 % of the students like white chocolates and 60% like dark chocolates. Are there any students who like both chocolates?  
A. 50% B. 60%  
C. 20% D. 10%  
E. 5%
68. What will come next?  
12, 24, 48, 96, .....?  
A. 188 B. 190  
C. 192 D. 194  
E. 196
69. What will come next?  
1, 3, 6, 10, 15, .....?  
A. 19 B. 21  
C. 22 D. 20  
E. 18
70. Complete the series:  
8, 13, 19, 26, 34, .....?  
A. 38 B. 42  
C. 43 D. 45  
E. 47

## Career Finder

71. Pick the odd one out:
- 862
  - 8
  - 24
  - 39
  - 43
72. What will come next in the series? XVSO?
- K
  - J
  - L
  - M
  - P
73. What will come next?
- 24, 30, 38, 48, .....?
  - 58
  - 60
  - 55
  - 53
74. Some boys in a class are British. All girls are American. If an X student is in the class, he surely is American.
- Yes
  - No
  - Uncertain
  - None of these
  - All of the above
75. What will come next?
- 4, 9, 16, 25, .....?
  - 30
  - 29
  - 64
  - 100
76. White is to black as up is to:
- Below
  - Behind
  - Down
  - Towards
  - Before
77. Where is Eiffel Tower located?
- France
  - Brazil
  - United States of America
  - United Kingdom
  - Peru
78. What will come next?
- 7, 16, 34, 61, 97, .....?
  - 139
  - 110
  - 157
  - 142
79. The most important reason that we plant trees is because:
- We want to provide nests to the birds
  - We like to see the color green
  - It is good for the environment
  - They produce carbon dioxide at night
  - We like plantation
80. There are three tea sets and one dinner set on the table. Each tea set includes 6 cups and one flask. The dinner set has 12 plates, 2 pots and 6 spoons. How many things are present on the table?
- 42
  - 41
  - 36
  - 50
  - 38
81.  $(a+b)^2 = ?$
- $a^2 - 2ab + b^2$
  - $a^2 + b^2 + 2ab$
  - $a^2 + b^2$
  - $(a+b)(a-b)$
  - $a^2 - b^2$
82. If all boys in the team are called Wolves, what would a new boy Ahsan be called?
- Not a wolf
  - Wolf
  - Ox
  - Uncertain
  - None of the above
83. Pick the odd one:
- Strawberry juice
  - Milk
  - Soda
  - Chocolate Brownie
  - Chocolate shake
84. Pick the odd one out:
- Silver
  - Brass
  - Gold
  - Ivory
  - Platinum
85. Pick the odd one out:
- Hut
  - Cottage
  - Mansion
  - House
  - Dining room
86. Pick the odd one out:
- Blow
  - Sew
  - How
  - Row
  - Crow
87. If the basket of mangoes is heavier than the basket of bananas, does that mean there are more mangoes in the mango basket?
- No
  - Yes
  - Uncertain
  - None of the above
  - All of the above

88. LOVE to LIVE is as DOVE to:

- A. DIVE
- B. DAVE
- C. DEVE
- D. DUVE
- E. LIFE

89. What letter comes next in the following series?  
A, H, N, S, W, ....?

- A. X
- B. Y
- C. Z
- D. V
- E. T

90. If Ahsan buys 6 tomatoes for 90 rupees, how much would 5 tomatoes cost?

- A. 80
- B. 75
- C. 70
- D. 65
- E. 60

91. If Ali is brother of Anna's son's Aunt, what is the relationship between Ali and Anna?

- A. Nephew
- B. Cousin
- C. Uncle
- D. Brother
- E. Nobody

92. Complete the given series:

157, 3014, 6028, ....?

- A. 12056
- B. 12035
- C. 9056
- D. 9035
- E. 12040

93. Heart to human body is as CPU to the:

- A. Processor
- B. Computer
- C. RAM
- D. Mother board
- E. Hard Drive

94. Iram is twice as old as Meena. The sum of their ages is 5 times Meena's age lessened by 48. How old are Iram and Meena?

- A. Iram is 24, Meena is 12

- B. Iram is 30, Meena is 15
- C. Iram is 50, Meena is 25
- D. Iram is 48, Meena is 24
- E. Iram is 20, Meena is 10

95. What will come next?

9, 8, 10, 9, 11, 10, 12, 11, ....?

- A. 12
- B. 11
- C. 10
- D. 9
- E. 13

96. Friend is to enemy as love is to:

- A. Friendship
- B. Jealousy
- C. Mistrust
- D. Hatred
- E. Cringe

97. Cell is to torch as petrol is to:

- A. Gas Station
- B. Vehicle
- C. Country
- D. Economy
- E. Government

98. Juror is to judge as doctor is to:

- A. Teach
- B. Impeach
- C. Imply
- D. Cure
- E. Perform

99. In a gathering, everybody hugged each other. There were 66 hugs. How many people were there in a gathering?

- A. 8
- B. 10
- C. 12
- D. 14
- E. 13

100. What will come next?

2, 14, 26, 38, 50, ....?

- A. 62
- B. 63
- C. 64
- D. 65
- E. 66

## Career Finder

## ANSWERS

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

## EXPLANATION:

- The answer is "unemployment" because none of the other answers explain "the recent rise in crimes" better than it.
- The answer is "32" because the pattern shows that starting with the first number, you add 9, then 8, then 7, and finally 6 to get "32."
- The answer is "68" because the pattern shows that you add 11 to each number to get the next one.
- The answer is "51" because the pattern shows that you add 19 to the first and third numbers.
- The answer is "5200" because 0.5 kg of apples sells for 200 rupees, and therefore 13 kg sells for 5200 rupees.
- The answer is "96" because the pattern shows that you multiply the second and fourth numbers by 2.
- The answer is "41" because the pattern shows that you add 7 to the second number, 6 to the fourth number, and finally 5 to the sixth number to find the missing eighth number, which is "41."
- The answer is "vested political interests of big powers" because none of the other answers explains "the reason behind rising terrorism in the world" better.
- The answer is "crude" because none of the other answers describes the opposite of "dainty" better than "crude."
- The answer is "2" because the pattern shows that you subtract 4 from the first number, multiply the second by 1, add 3 to the third number, and then repeat.
- The answer is "29" because  $29 \times 29 = 841$ .
- The answer is "440" because the pattern shows that you subtract 111 from every number.
- The answer is "orange" because it's the only color that's also the name of a fruit.
- The answer is "appendicitis" because it is the only answer that is not a part of the body. It is a medical condition.
- The answer is "Anees" because we know that both "Iqbal" and "Leo" are lighter than "Anees."

16. The answer is "grooming" because a "home" is strong because of "bricks" just like "behavior" is strong because of good "grooming."
17. The answer is "subsist" because the other answers mean to improve or get better while "subsist" means to merely get by.
18. The answer is "573" because the pattern shows that you multiply the first number by 3, then add 23 to the next number, and then repeat.
19. The answer is "220" because  $5 \times 20 = 100$ , and  $3 \times 40 = 120$ . Therefore,  $100 + 120 = "220."$
20. The answer is "crudeness" because "truth" is the opposite of "falsehood" just like "subtlety" is the opposite of "crudeness."
21. The answer is "674" because the pattern shows that you subtract 45 from the first number, 44 from the second all the way until you subtract 41 from "715" to find the missing number of "674."
22. The answer is "poet" because that's the profession of "Rumi."
23. The answer is "366" because  $12 + 4 + 8 + 24 + 13 = 61$ ,  $61 \times 24 = 1464$ , and finally  $1464 / 4 = "366."$
24. The answer is "benevolent" because none of the other answers means "humane."
25. The answer is "tomato" because it is the only answer that is not a spice.
26. The answer is "-21" because the pattern shows that you subtract 33 from the first number, 31 from the second, 29 from the third, and finally 27 from the fourth to find the missing answer of "-21."
27. The answer is "to get treatment" because it explains why "people go to hospitals" more than any of the other answers.
28. The answer is "73" because the pattern shows that the first number is 1 squared +9, the second number is 2 squared +9, and then repeat.
29. The answer is "practice" because "doctors" learn how to become doctors in a "house job."
30. The answer is "24" because the pattern shows that you double the first number to get the second number. Therefore, when you double the final "12" you get "24."
31. The answer is "A" because  $"8/2"$  is equivalent to 4, which is larger than "2."
32. The answer is "pencil box" because it is the only container in the list of answers.
33. The answer is "94" because the pattern shows that you add 4 to the first number, 12 to the second number, 20 to the third number, and finally 28 to the fourth number to find the missing number of "94."
34. The answer is "patients" because "students" pay a "college" like "patients" pay a "hospital."
35. The answer is "pillow" because it's the only answer that you rest your head on to sleep.
36. The answer is "B" because "6" is larger than "6 into 2," which is 0.33.
37. The answer is "2 rupees" because when you divide 1000 kg by 1000 to get the price of 1 gram of chocolate, you learn that each gram is 1 rupee. Since "Bilgram" bought two grams, he paid "2 rupees."
38. The answer is "808" because each number subtracts by a power of 18. Therefore, there is 18 between the first 2 numbers, 36 between numbers 2 and 3, 54 between numbers 3 and 4, and finally 72 between numbers 4 and 5.
39. The answer is "judgment" because a "physician" provides "treatment" like "judge" provides "judgment."
40. The answer is "5 times" because  $5 \times 5$  is 25.
41. The answer is "0.04" because every answer has a 0 after the decimal, but then the 4 is the largest next number.
42. The answer is "anxious" because none of the other answers describe the opposite of "calm."
43. The answer is "VRNP" because it is the reverse of "PNRV."
44. The answer is " $2x^2$ " because the formula to figure out the area of a rectangle is length x width. Therefore,  $2x \cdot x = "2x^2."$
45. The answer is "24" because the pattern shows that the second set of numbers increases by 8. Therefore, the pattern is 8, 16, and finally "24."
46. The answer is "become healthier" because that's the primary reason why "people swim" compared to the other answers.
47. The answer is "ring" because you "kick" a "football" like you "throw" a "ring."

## Career Finder

48. The answer is "1701" because the numbers increase by increasing powers of 42. Therefore, there is one 42 between numbers 1 and 2, three 42s between numbers 2 and 3, nine 42s between numbers 3 and 4, and finally twenty seven 42s between numbers 4 and 5.
49. The answer is "00" because the pattern shows that you subtract 33 from the previous number.
50. The answer is "cactuses" because more than one "goose" are called "geese" like more than one "cactus" are called "cactuses."
51. The answer is "132" because the pattern shows that  $2+13=15$ ,  $13 \times 2=26+15=41$ ,  $13 \times 3=39+41=80$ , and finally  $13 \times 4=52+80=132$
52. The answer is "Google" because the other answers are social media platforms, and Google is a search engine.
53. Square all figures and do plus and minus to get the third figure.
54. The answer is "China" because "Urdu" is the language spoken in "Pakistan" like "Chinese" is the language spoken in "China."
55. The answer is "20" because the pattern shows that you subtract 5 from the first number, 6 from the second, and so on until you subtract 9 from 29 to get the missing number of "20."
56. The answer is "255" because you add 39 to the first number, 40 to the second, 41 to the third, 42 to the fourth, and finally 43 to the fifth to get the answer of "255" since  $212+43=255$ .
57. The answer is "A" because "X" is after "P" in the alphabet.
58. The answer is "360" because the pattern shows that you add 80 to each number. Therefore,  $280+80=360$ .
59. The answer is "40" because the pattern shows that you subtract multiples of 8, since the difference between the first two numbers is 16, then 24, then 32. Therefore, when you subtract 40 from the final number, you get the missing number of "64."
60. The answer is "Z" because the pattern shows that there is only one letter between each letter in the list.
61. The answer is "tomato" because it is the only fruit in the list.
62. Sum of the squares of the first two numbers is the third number in each case.
63. The answer is "32" because  $80/5$  is 16, and then when you multiply that by 2 cups, you get "32."
64. The answer is "99" because the pattern shows that you add 18 to each number. Therefore,  $81+18$  is 99.
65. The answer is "cat" because the other answers are all large animals, but a "cat" is a small house hold pet.
66. The answer is "39" because the pattern shows that you subtract 8, then 9, then 10, then 11, and finally 12 from the final number.
67. The answer is "10%" because at least half of the students like both kinds of chocolates, but 10% more like dark chocolates in addition to white chocolates.
68. The answer is "192" because the pattern shows that you double the previous number. Therefore,  $96 \times 2=192$ .
69. The answer is "21" because you add 2 to the first number, 3 to the second number, 4 to the third number, 5 to the fourth number, and finally 6 to the fifth number. Therefore,  $15+6$  is 21.
70. The answer is "43" because you add 5 to the first number, 6 to the second number, 7 to the third number, 8 to the fourth number, and finally 9 to the fifth number. Therefore,  $34+9$  is 43.
71. The answer is "39" because the other numbers are all even numbers, and "39" is the only odd number.
72. The answer is "J" because there is 1 letter between "X" and "V," 2 letters between "V" and "S," 3 letters between "S" and "O" and finally "4" letters between "O" and "J."
73. The answer is "60" because you add 6 to the first number, 8 to the second number, 10 to the third number and finally 12 to the last number.
74. The answer is "uncertain" because we don't know if the "x student" is a boy or a girl.
75. The answer is "36" because you add 5 to the first number, 7 to the second number, 9 to the third number and finally 11 to the last number.
76. The answer is "down" because "white" and "black" are opposites just like "up" and "down."
77. The answer is "France" because the Eifel Tower is located in Paris, which is in France.
78. The answer is "142" because you add multiples of 9 to each number. Thus,  $7+9$  is 16,  $16+18$  is 34,  $34+27$  is 61,  $61+36$  is 97, and finally  $97+45$  is 142.

79. The answer is "it is good for the environment" because that is the most important reason of all of the answers.
80. The answer is "41" because each of the three tea sets includes seven pieces for a total of 21, and the one dinner set includes 20 pieces. Therefore,  $21+20$  is "41" things on the table.
81. The answer is " $a^2+b^2+2ab$ " because the equation breaks down to  $(a+b) \times (a+b)$  and then  $a(a+b)+b(a+b)$ , which gives you  $a^2+ab+b^2+ab$ . Therefore, when you add it all up, you get " $a^2+b^2+2ab$ ."
82. The answer is "wolf" because "Ahsan" is a boy, and all the boys are called "wolf."
83. The answer is "chocolate brownie" because the other answers are all drinks, and a brownie is something you eat.
84. The answer is "ivory" because the other answers are all metals.
85. The answer is "dining room" because all of the other answers are places you can live, and "dining room" is just one room inside a place to live.
86. The answer is "Sew" because it does not rhyme with the other answers.
87. The answer is "uncertain" because we do not know how much each mango and each banana weighs.
88. The answer is "DIVE" because when you substitute an "I" for the "O" in "LOVE" you get "LIVE." Therefore, when you do the same for "DOVE" you get "DIVE."
89. The answer is "Z" because the difference between each letter reduces by one, starting at six. For example, there are six letters between "A" and "H" five letters between "H" and "N" four letters between "N" and "S" three letters between "S" and "W" and two letters between "W" and "Z."
90. The answer is "75" because each tomato costs 15 rupees.
91. The answer is "Brother" because Anna's son's aunt would be the person sister to Ali. Therefore, Ali and Anna must be brother and sister.
92. The answer is "12056" because with each successive series of numbers, you double each number. Therefore, two times "60" is "120" and two times "28" is "56."
93. The answer is "Computer" because the "human body" requires a "heart" to keep it alive/make it run, and a "computer" requires a "CPU" to make it run. In other words, the "CPU" is the "heart" of the computer.
94. The answer is "Iram is 48, Meena is 24" because when you multiply Meena's age by 5, you get 120, and then when you subtract 48 from 120, you get 72. When you add Iram's age of "48" and Meena's age of "24" you get 72.
95. The answer is "13" because starting with the first "9" you add one number to get the third number, then one more for the fifth, one more for the seventh, and then one more for the hidden number. That's why the pattern is 9, 10, 11, 12, and the correct answer of "13."
96. The answer is "Hatred" because "enemy" is the opposite of "friend" and "hatred" is the opposite of "love."
97. The answer is "Vehicle" because a "cell" fuels a "torch" just like "petrol" fuels a "vehicle."
98. The answer is "cure" because the job of a "juror" is to "judge" like the job of a "doctor" is to "cure."
99. The answer is "12" because person 1 hugs all 11 other people, person 2 hugs the other 10 people, person 3 hugs the other 9 people, person 4 hugs the other 8 people, person 5 hugs the other 7 people, person 6 hugs the other 6 people, person 7 hugs the other 5 people, person 8 hugs the other 4 people, person 9 hugs the other 3 people, person 10 hugs the other 2 people, and person 11 hugs the other person. At this point person 12 has already hugged every one for a total of "66" hugs.
100. The answer is "62" because the pattern shows that you add 12 to each number.

# SOLVED PAPER 2

1. What will come next?  
9, 27, 45, 63, .....?  
A. 56                      B. 47  
C. 58                      D. 81  
E. 99
2. What will come next?  
BDFH, JLNP, ....?  
A. QRST                      B. RTVX  
C. TUVZ                      D. SUVX  
E. TVWX
3. Arya and Sansa are of the same age and live in the same kingdom. Jon and Tyrion are the eldest members of the kingdom. Margaery, Jon's daughter, is in the same class with Arya and Sansa at the school, and all are age fellows. Can it be assumed from the given information that Tyrion is older than Sansa?  
A. Yes  
B. No  
C. Uncertain  
D. None of the above  
E. All of the above
4. What will come next?  
1, 9, 25, 49, ....?  
A. 76                      B. 81  
C. 56                      D. 72  
E. 73
5.  $(x+y)(x-y)=?$   
A.  $2x-2y$   
B.  $2x+2y$   
C.  $x^2-y^2$   
D.  $2x$   
E.  $(x-y)^2$
6. Which one is different from the rest?  
A. Lion : roar  
B. Snake : Slither  
C. Chicken : Hum  
D. Goat : bleat  
E. Dog : Bark
7. What will come next?  
9, 81, 648, ....?
8. The media has the responsibility to:  
A. Entertain different cults  
B. Promote religious extremism  
C. Help strengthen democracy  
D. Promote shows for ratings  
E. None of the above
9. Ali earns 1120 rupees every week. His rent costs 420 rupees per week and car costs 93 rupees per week. He also donates 10% of his weekly salary to charity. How much money is he left with?  
A. 440                      B. 48  
C. 432                      D. 495  
E. 500
10. Which one is different from the rest?  
A. Wheat  
B. Maize  
C. Sun flower  
D. Rose  
E. Sugarcane
11. What will come next?  
585, 500, 425, 360, .....?  
A. 320                      B. 280  
C. 290                      D. 295  
E. 305
12. What will come next?  
95, 190, 570, 2280, .....?  
A. 11,300  
B. 11,200  
C. 11,500  
D. 11,400  
E. 11,600
13. Women learn to drive to:  
A. Kill people  
B. Enjoy their life  
C. Educate masses  
D. Play a constructive role in society  
E. None of the above

14. The cost of a car is 10,000 dollars in the market. However Aslam manages to get a waiver of 20% due to his relationship with the manager of the showroom. Moreover, he buys it on instalments. He pays 20% of the cost every 6 months. How much is he paying every month?
- 1200dollars
  - 1400dollars
  - 1600dollars
  - 1800dollars
  - 2000dollars
15. If  $47 \times 72 = 7742$   
 $32 \times 39 = 2339$   
 $58 \times 92 = 8952$   
 Then  $16 \times 85 = ?$
16. Pick the odd one out:
- Iron
  - Steel
  - Platinum
  - Cotton
  - Gold
17. What is 3% of 9% of 1500?
- 4.05%
  - 3%
  - 2.05
  - 1
  - 2.5
18. Which one is different from the rest?
- River
  - Ocean
  - Glacier
  - Stream
  - Sea
19. The meaning of life is to:
- Discover yourself
  - Earn money
  - Make gold
  - Buy a yacht
  - Become a doctor
20. What will come next?  
 400, 394, 358, 142, ....?
- 1154
  - 1034
  - 1179
  - 1234
  - 1869
21. Fortune favors the:
- Old
  - Bold
  - Rich
  - Intelligent
22. "Bark" is to "dog" as "moo" is to:
- Cat
  - Cow
  - Jackal
  - Rabbit
  - Frog
23. A pizza recipe requires 4 eggs for every 1.5 kgs of flour you use. If you had 12 kgs of flour, how many eggs would you use?
- 23
  - 22
  - 24
  - 25
  - 32
24. Which one is different from the rest?
- Cookies
  - Cake
  - Chocolate
  - Fudge
  - Pizza
25. What is the meaning of abhor?
- Love
  - Abscond
  - Berate
  - Hate
  - Value
26. What will come next?  
 99, 33, 66, 33, 33, 33, ....?
- 00
  - 33
  - 66
  - 33
  - 99
27. Kitten is to cat as puppy is to:
- Dog
  - Cow
  - Rabbit
  - Jackal
  - Wolf
28. If  $5/9$  is greater than  $1/7$  write A, otherwise
- A
  - B
29. Give the most sensible answer. Education is meant to:
- Spread awareness
  - Streamline masses
  - Eliminate inequality
  - Increases jobs
  - All of the above

## Career Finder

30. If  $2 \times 3 = 64$   
 $4 \times 5 = 108$   
 $7 \times 8 = 1614$   
 Then  $5 \times 6 = ?$
31. What will come next?  
 $5, 15, 6, 16, 7, \dots?$   
 A. 13 B. 14  
 C. 15 D. 16  
 E. 17
32. What will come next?  
 $10, 13, 15, 16, 19, 21, 22, \dots?$   
 A. 23 B. 24  
 C. 25 D. 26  
 E. 27
33. Forest is to trees as ocean is to:  
 A. Salt B. Animals  
 C. Fish D. Seals  
 E. Water
34. What will come next?  
 $2, 4, 12, 24, 72, \dots?$   
 A. 89 B. 20  
 C. 128 D. 136  
 E. 144
35. What will come next?  
 $1, 5, 30, 150, 900, ?$   
 A. 1500 B. 3000  
 C. 4500 D. 6000  
 E. 7500
36. If 2 is greater than a multiple of 4 write A,  
 otherwise B.  
 A. A B. B
37. Which one is different from the rest?  
 A. Chihuahua B. Ragdoll  
 C. Persian D. Siamese  
 E. Mainecoon
38. Solid is to liquid as ice is to:  
 A. Water B. Ocean  
 C. River D. Melting  
 E. Canal
39. What will come next?  
 $1/5, 1/2, 4/5, 11/10, \dots?$
- A.  $3/4$  B.  $2/8$   
 C.  $12/4$  D.  $7/5$   
 E.  $6/7$
40. Which one is different from the rest?  
 A. Consume B. Devour  
 C. Ingest D. Inhale  
 E. Chew
41. Give the most sensible answer. People get  
 married to:  
 A. Get government supervision  
 B. Get ID card  
 C. Have children  
 D. Follow the tradition  
 E. Fulfil their emotional needs
42. What is the 20% of 40% of 1250?  
 A. 200 B. 250  
 C. 100 D. 150  
 E. 300
43. Smoke is to pollution as war is to:  
 A. Peace B. Happiness  
 C. Victory D. Defeat  
 E. Destruction
44. What will come next?  
 $101, 112, 104, 115, 107, \dots?$   
 A. 113 B. 114  
 C. 116 D. 118  
 E. 120
45. Which one is the smallest?  
 A.  $9/13$  B.  $12/15$   
 C.  $3/5$  D.  $3/7$   
 E.  $18/19$
46. Give the most sensible answer. Girls should go  
 to school because:  
 A. They are equal humans  
 B. They don't like sitting at home  
 C. They would want to get married  
 otherwise  
 D. They want to play games  
 E. They are cleverer than boys
47. Which one is different from the rest?  
 A. Aroma B. Stink  
 C. Fragrance D. Scent  
 E. Cologne

48. If 9 is less than  $24/3$ , write A, otherwise B.  
A. A B. B

49. Romeo is to Juliet as Farhad is to:  
A. Ranjha B. Heer  
C. Sohni D. Shirin  
E. Queen

50. If the square root of 36 is 6, mark A, otherwise B.  
A. A B. B

51. Shakespeare is to drama as Picasso is to:  
A. Photography B. Art  
C. Writing D. Pictures  
E. Paintbrush

52. If Ali is younger than Zarah, but Zarah is older than Sana, could it be assumed that Zarah is older than both Ali and Sana?  
A. Yes B. No

53. A father always has:  
A. Brothers B. Daughters  
C. Sons D. Children  
E. Friends

54. Complete the series.  
27, 9, 21, 7, 24, 8, 15, 5, 18, .....?  
A. 2 B. 3  
C. 4 D. 5  
E. 6

55. Book is to reading as kitchen is to:  
A. Playing B. Cutting  
C. Painting D. Cooking  
E. Furnishing

56. The opposite of crooked is:  
A. Bad B. Twisted  
C. Curved D. Zigzag  
E. Even

57. If  $12/2$  is less than  $3/5$  mark A, otherwise mark B.  
A. A B. B

58. What is the area of a square that has length of one side as 10?

A. 20 B. 100  
C. 10 D. 40  
E. 55

59. What will come next?  
53, 53, 40, 40, 27, 27, .....?  
A. 14 B. 12  
C. 33 D. 40  
E. 27

60. Son is to a father as art is to:  
A. Artist B. Drama writer  
C. Lover D. Picture  
E. Art lover

61. There are 60 students in White hall foot ball club. During elections, 60% voted for Brooke Edwards. How many students voted for Brooke Edwards?  
A. 20 B. 32  
C. 34 D. 38  
E. 36

62. The opposite of gross is:  
A. Crude B. Vulgar  
C. Glad D. Sophisticated  
E. Cheerful

63. Women wear jewelry to:  
A. Look pretty  
B. Attract men  
C. Show of their possessions  
D. Use money  
E. Get uncomfortable

64. A bird was sitting 3 m away from the base of the pole. It flew 4 m to reach at the top of the tower. What is the height of the tower?  
A. 3 B. 4  
C. 5 D. 6  
E. 7

65. Animal is to air as fish is to:  
A. Sea B. Land  
C. Each Other D. Water  
E. Creatures

66. What will come next?  
54, 9, 54, 12, 54, 15, 54, .....?  
A. 15 B. 17  
C. 18 D. 21  
E. 19

## Career Finder

67. What will come next?  
77, 88, 99, 110, 121, .....?  
A. 128                      B. 131  
C. 138                      D. 132  
E. 133
68. What will come next?  
100, 120, 140, 160, .....?  
A. 180                      B. 170  
C. 190                      D. 200  
E. 220
69. If  $34 \times 52 = 5423$   
 $16 \times 28 = 2681$   
 $9 \times 7 = 79$   
Then  $327 \times 403 = ?$
70. London is the capital of:  
A. UK  
B. USA  
C. France  
D. Italy  
E. Europe
71. Stars are to night as sun is to:  
A. Morning                B. Day  
C. Evening                D. Daylight  
E. Sunlight
72. Which one of the following is different from the rest?  
A. Friends  
B. International relations  
C. Relatives  
D. Parents  
E. Children
73. Mina needs to carry 10 liters of water to a place. She goes to a store to buy buckets. There were two kinds of buckets available in the store: White ones that could contain 3.5 litres of water and black ones that could contain  $\frac{1}{2}$  litres. How many would Mina buy to meet her need?  
A. 2 white and 6 black buckets  
B. 1 white and 11 black buckets  
C. 20 black buckets  
D. 3 white buckets and one black bucket  
E. 2 white buckets and 3 black buckets
74. What will come next?  
5, 9, 10, 18, 15, .....?  
A. 22                      B. 23  
C. 24                      D. 26  
E. 27
75. What will come next?  
96, 88, 80, 72, .....?  
A. 60                      B. 68  
C. 62                      D. 64  
E. 58
76. The meaning of mischievous is:  
A. Harmful                B. Gleeful  
C. Jovial                    D. Juvenile  
E. Cheerful
77. If it takes a plane 5 hours to fly from a country to another covering the distance of 3060 miles what is the speed at which it moves?  
A. 612 miles/hour  
B. 345 miles/hours  
C. 888 miles/hour  
D. 270 miles/hours  
E. 360 miles/hour
78. Which one of the following is different from the rest?  
A. 144                      B. 25  
C. 10                        D. 64  
E. 16
79. What will come next?  
1, 7, 14, 22, 31, .....?  
A. 39                      B. 40  
C. 41                      D. 42  
E. 43
80. Glasses are to eyes as ring is to:  
A. Hand                    B. Jeweler shop  
C. Wife                     D. Finger  
E. Eyes
81. If 17 is smaller than 19 then mark A, otherwise mark B.  
A. A                        B. B
82. Like is to love as dislike is to:  
A. Disgust  
B. Agony  
C. Pain  
D. Hate  
E. Odium

83. What will come next?  
3, 5, 10, 12, 24, .....?  
A. 25                      B. 26  
C. 49                      D. 46  
E. 40
84. What number comes next in the following series?  
21, 28, 35, 42, .....?  
A. 50  
B. 49  
C. 48  
D. 47  
E. 51
85. What number comes next in the following series?  
325, 415, 495, 565, 625, .....?  
A. 695                      B. 685  
C. 675                      D. 665  
E. 655
86. Hannah is smarter than Ben. Ben is as smart as Clay. Hannah is the smartest in the whole class. Assuming the first two statements as true, is the third statement also true?  
A. True  
B. False  
C. Uncertain  
D. All of the above  
E. None of the above
87. Miser is the opposite of:  
A. Stingy  
B. Spendthrift  
C. Wastrel  
D. Tightened  
E. Generous
88. Person A eats more than Person B. Person C eats less than Person B. On the basis of these two statements, can it be assumed that Person C and Person A eat equally?  
A. No  
B. Yes  
C. None of the above  
D. All of the above
89. Complete the series:  
20, 40, 80, 160, .....?
- A. 200                      B. 320  
C. 360                      D. 480  
E. 500
90. What will come next?  
23, 4.5, 6.75, .....?  
A. 10  
B. 9  
C. 10.125  
D. 10.75  
E. 11
91. What will come next?  
10, 15, 8, 13, 6, 11, .....?  
A. 4                          B. 3  
C. 2                          D. 1  
E. 7
92. What will come next?  
62, 42, 21, -1, -24, -48, .....?  
A. -70                      B. -71  
C. -72                      D. -73  
E. -74
93. If a kilo of grapes is sold at the price of 30 rupees, how much would 100 grams of grapes cost?  
A. 10rupees              B. 2rupees  
C. 3rupees                D. 1rupee  
E. 15rupees
94. The opposite of pain is:  
A. Ache                      B. Comfort  
C. Suring                    D. Goodlife  
E. Health
95. If Ahmer is heavier than Ahsan, and Ahsan is lighter in weight than Shams, could it be assumed from these two statements that Shams is heavier than Ahmer?  
A. No  
B. Yes  
C. Uncertain  
D. None of the above  
E. All of the above
96. If Ahsan is taller than Ayaz. Ayaz is taller than Aneel. Aneel is shorter than Roman. Do Roman and Ahsan have equal height?  
A. Yes  
B. No

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- C. May be/May be not
  - D. None of the above
  - E. All of the above
97. Which one is different from the rest?
- A. 7
  - B. 11
  - C. 13
  - D. 15
  - E. 17
98. Criminal is to prison as lunatic is to:
- A. Cave
  - B. Asylum
  - C. Barrack
  - D. Country
  - E. Jail

99. What will come next?  
23, 36, 52, 71, ....?
- A. 87
  - B. 93
  - C. 97
  - D. 83
  - E. 81

100. If Sana is heavier than Anila and Anila is lighter than Sidra. Who is the lightest in these 3?
- A. Anila
  - B. Sana
  - C. Sidra
  - D. Uncertain
  - E. None of the above

MDCAT BY FUTURE DOCTORS (TOUSEEF AHMED) 3499815886

## ANSWERS

1.	D	2.	B	3.	A	4.	B	5.	C
6.	C	7.	A	8.	C	9.	D	10.	D
11.	E	12.	D	13.	D	14.	C	15.	6815
16.	D	17.	A	18.	C	19.	A	20.	A
21.	B	22.	B	23.	E	24.	C	25.	D
26.	A	27.	A	28.	A	29.	E	30.	1210
31.	E	32.	C	33.	E	34.	E	35.	C
36.	B	37.	A	38.	A	39.	D	40.	D
41.	E	42.	C	43.	E	44.	D	45.	D
46.	A	47.	B	48.	B	49.	D	50.	A
51.	B	52.	A	53.	D	54.	E	55.	D
56.	E	57.	B	58.	B	59.	A	60.	A
61.	E	62.	D	63.	A	64.	C	65.	D
66.	C	67.	D	68.	A	69.	470233	70.	A
71.	B	72.	B	73.	A	74.	E	75.	D
76.	A	77.	A	78.	C	79.	C	80.	D
81.	A	82.	D	83.	B	84.	B	85.	C
86.	C	87.	E	88.	A	89.	B	90.	C
91.	A	92.	D	93.	C	94.	B	95.	C
96.	C	97.	D	98.	B	99.	B	100.	A

## EXPLANATION:

- The answer is "81" because the pattern shows that starting with the first number, you use  $9 \times 3$  to get the second number, then  $9 \times 5$  to get the third number, then  $9 \times 7$  to get the fourth number, and finally  $9 \times 9$  to get the missing number of "81".
- The answer is "RTVX" because the pattern shows that you skip one letter between each letter in the series. Therefore, you skip Q and get "R", skip S and get "T", skip U and get "V" and finally skip W and get "X."
- The answer is "yes" because we know that "Jon and Tyrion" are the eldest members of the kingdom, so they must be older than "Sansa."
- The answer is "81" because the pattern shows that  $1 \times 1$  is 1,  $3 \times 3$  is 9,  $5 \times 5$  is 25,  $7 \times 7$  is 49, and finally,  $9 \times 9$  is 81.
- 
- The answer is "chicken: hum" because the other answers correctly list an animal and the noise it makes, but chickens don't hum.
- The answer is "4536" because the pattern shows that you multiply the first number by 9, the second number by 8, and finally the third number by 7. Therefore,  $648 \times 7 = 4536$ .

**Career Finder**

8. The answer is "help strengthen democracy" because that is the most important responsibility of the media more than any of the other answers.
9. The answer is "495" because  $10\%$  of 1120 is 112,  $1120 - 112 = 1008$ ,  $1008 - 420 = 588$ , and finally  $588 - 93 = 495$ .
10. The answer is "rose" because it's the only flower among the answers.
11. The answer is "305" because the pattern shows that you subtract 85 from the first number, 75 from the second number, 65 from the third number, and finally 55 from the fourth number.
12. The answer is "11,400" because the second number is double the first, the third is triple the second, the fourth is four times the third, and finally, the fifth is five times the fourth number. Therefore,  $2280 \times 5 = 11,400$ .
13. The answer is "play a constructive role in society" because none of the other answers explain why "women learn to drive" more.
14. The answer is "1600 dollars" because he originally bought the car for only 8,000 dollars since  $10,000 \times .2 = 2,000$ . Then,  $8,000 \times .2 = 1600$  dollars, since he pays only 20% each six months.
15. The digits are placed: second digit of the first number first digit of the second number, first digit of the first number the second digit of the second number, to form the required number.
16. The answer is "cotton" because the other answers are all hard metals, and cotton is soft.
17. The answer is "4.05%" because  $1500 \times .09 = 135$ , and  $135 \times .03 = 4.05$ .
18. The answer is "glacier" because it's the only frozen and solid answer, since the rest are all owing water.
19. The answer is "discover yourself" because none of the other answers explain "the meaning of life" more than "discover yourself."
20. The answer is "-1154" because you subtract by ascending powers of 6. The difference between the first two numbers is -6, between the second and third numbers is -36, between the third and fourth numbers is -216, and finally between the fourth and missing fifth number is -1296. Therefore,  $1296 - 142 = -1154$ .
21. The answer is "bold" because the famous expression says that "fortune favors the bold."
22. The answer is "cow" because "bark" is the sound a "dog" makes just like "moo" is the sound a "cow" makes.
23. The answer is "24" because  $12/1.5 = 8$ , and  $8 \times 4 = "32."$
24. The answer is "chocolate" because it's an ingredient, unlike the other answers.
25. The answer is "hate" because it most closely means "abhor" than any of the other answers.
26. The answer is "00" because the pattern shows that you subtract 33 from the first number to get the third, 33 from the third to get to the fifth, and finally 33 from the fifth to the missing seventh number.
27. The answer is "dog" because a "kitten" is a young "cat" just as a "puppy" is a young "dog."
28. The answer is "A" because  $5/9 = 0.56$ , and  $1/7 = 0.14$ .
29. The answer is "all of the above" because the purpose of "education" is to accomplish all of the answers.
30. The third figure is constituted by doubling the first two figures and placing them in the reverse order.

31. The answer is "17" because the pattern shows that you add one number to the second and fourth numbers. Therefore, the series is 15, 16, and "17."
32. The answer is "25" because the pattern shows that you add 3 to the first number, 2 to the second number, then 1 to the third number, and then repeat.
33. The answer is "water" because a "forest" is made up of "trees" like an "ocean" is made up of "water."
34. The answer is "144" because the pattern shows that you multiply the first number by 2, the second number by 3, and then repeat.
35. The answer is "4500" because the pattern shows that you multiply the second and fourth numbers by 30.
36. The answer is "B" because 2 is already less than 4, so it can't be greater than any multiple of 4.
37. The answer is "chihuahua" because it is the only dog among the list, since the others are cats.
38. The answer is "water" because "solid" is the opposite of "liquid" just as "ice" is the opposite of "water."
39. The answer is "7/5" because the pattern shows that you add  $3/5$  to the first and third numbers in the series.
40. The answer is "inhale" because it is the only answer that involves breathing and not eating.
41. The answer is "fulfil their emotional needs" because it most appropriately answers the reason that "people get married."
42. The answer is "100" because  $1250 \times 0.4 = 500$  and  $500 \times 0.2 = 100$ .
43. The answer is "destruction" because "smoke" causes "pollution" just like "war" causes "destruction."
44. The answer is "118" because the pattern shows that you add 3 to the second and fourth number.
45. The answer is "3/7" because  $18/19 = .95$ , and  $3/7 = .43$ .
46. The answer is "they are equal humans" because it is the most accurate answer compared to all of the other options.
47. The answer is "stink" because it is the only answer that is specifically bad.
48. The answer is "B" because  $24/3 = 8$ .
49. The answer is "Shereen" because "Romeo" was in love with "Juliet" just as "Farhad" was in love with "Shereen."
50. The answer is "A" since  $6 \times 6$  is 36.
51. The answer is "art" because "Shakespeare" wrote drama plays, and "Picasso" painted art.
52. The answer is "yes" because we know that "Zarah" is the oldest.
53. The answer is "children" because a man must have children to become a father.
54. The answer is "6" because the pattern shows that you divide the larger number by 3. Therefore,  $18/3$  is 6.
55. The answer is "cooking" because you're "reading" a "book" and "cooking" in the "kitchen."
56. The answer is "even" because it means the opposite of "crooked," and most of the other answers are similar to "crooked."

## Career Finder

57. The answer is "B" because  $12/2$  is more than  $3/5$ .
58. The answer is "100" because you multiply two sides to find the area of a square, and since all sides are the same length, it's just  $10 \times 10$ , which is 100.
59. The answer is "14" because the pattern shows that you subtract 13 from each previous number. Therefore, the Pattern is 53, 40, 27, 14.
60. The answer is "artist" because a "father" makes a "son" like an "artist" makes "art."
61. The answer is "36" because  $60 \times 6$  is "36."
62. The answer is "sophisticated" because it is the closest answer to being the opposite of "gross."
63. The answer is "look pretty" since most women choose to wear "jewelry" to improve their look more so than the other answers.
64. The answer is "5" because using the Pythagorean theorem, we know that  $a^2 + b^2 = c^2$ . Therefore,  $9 + 16 = 25$ , and the square root of 25 is "5."
65. The answer is "water" because an animal breathes "air" like a "fish" breathes "water."
66. The answer is "18" because you add 3 to each number starting with the second. Therefore, the pattern is 9, 12, 15, 18.
67. The answer is "132" because the pattern shows that you add 11 to the previous number.
68. The answer is "180" because the pattern shows that you add 20 to the previous number.
69. The answer consists of the digits of the first and second numbers arranged as: first digit of the second number, second digit of the first number, second digit of the second and first digit of the first numbers and so on.
70. The answer is "UK" because that's where "London" is the capital city.
71. The answer is "day" because "stars" come out at "night" like the "sun" comes out during the "day."
72. The answer is "international relations" because the other answers are all family members.
73. The answer is "2 white and 6 black buckets" because 2 white buckets hold 7 litres, and 6 black buckets hold Another 3 litres for 10 litres total.
74. The answer is "27" because you add 9 to the second set of numbers. Therefore, the pattern is 9, 18, and 27.
75. The answer is "64" because the pattern shows that you subtract 8 from the previous number.
76. The answer is "harmful" because it most closely means "mischievous."
77. The answer is "612 miles/hour" because  $3060/5 = 612$ .
78. The answer is "10" because the other answers are squares of numbers. For example,  $12 \times 12 = 144$ ,  $5 \times 5 = 25$ ,  $8 \times 8 = 64$ , and  $4 \times 4 = 16$ .
79. The answer is "41" because the pattern is to add 6, then 7, then 8, then 9, and finally 10 to get "41."
80. The answer is "finger" because "glasses" cover your "eyes" like "rings" cover your "finger."
81. The answer is "A" because "17" comes before "19."

82. The answer is "hate" because "love" is a stronger emotion than "like" just as "hate" is a stronger emotion than "dislike."
83. The answer is "26" because the pattern is to add 7 to the first two numbers,  $3+7$  is 10 and  $5+7$  is 12, and then add 14 to the next two numbers, so  $10+14$  is 24, and  $12+14$  is the Correct Answer of "26."
84. The answer is "49" because the pattern is to add 7 to each previous number.
85. The answer is "675" because the pattern is you add 90 to the first number, 80 to the second number, 70 to the third number and so on until you add 50 to the last number, "625" to get the answer of "675."
86. The answer is "uncertain" because we don't know how smart the other people in the class are. Some may be smarter than "Hannah."
87. The answer is "generous" because the other answers mean the similar thing as "miser." However, "generous" means the opposite, since it means the person gives money away instead of keeping it for himself.
88. The answer is "no" because we already know that "Person A" eats more than "Person B," and since "Person C" eats less than "Person B," we know that "Person A" eats the most.
89. The answer is "320" because you always double the previous number.
90. The answer is "10.125" because the pattern shows that you half the number and then add that to the same number to get the next number. Therefore, half of "6.75" is "3.375," and when you add that to "6.75" you get "10.125."
91. The answer is "4" because you subtract 2 from every other number. Therefore,  $6-2$  is 4.
92. The answer is "-73" because the pattern shows that you subtract 20, then 21, then 22, then 23, and finally 24 from the previous number.
93. The answer is "3 rupees" because you need to divide both the kilo of grapes and the 30 rupees by 1000 to convert them into grams. Therefore,  $30/1000$  is 0.03, and when you multiply that by "100grams" you get 3, meaning it costs "3 rupees."
94. The answer is "comfort" because none of the others mean the opposite of "pain" as closely as "comfort."
95. The answer is "uncertain" because we don't know how heavy "Shams" is compared to "Ahmer."
96. The answer is "may be/may be not" because we were never told who is the same height.
97. The answer is "15" because it is the only answer that is not a prime number.
98. The answer is "asylum" because a "criminal" lives in a "prison" just like a "lunatic" lives in an "asylum."
99. The answer is "93" because the pattern shows that you add 13 to the first number, 16 to the second, 19 to the third, and 22 to the fourth to get the missing number of "93."
100. The answer is "Anila" because we know that both "Sana" and "Sidra" are heavier than "Anila."

# Online Learning Module – **tabir.pk**

The **High Scoring Guide for AMC Online Learning Module** provides intensive learning for candidates appearing for the AMC Entry Test. It is mandatory for you to attempt questions and clear all levels on the Online Learning Module to work on your weak areas and prepare accordingly.

**Assignment 2** is designed for intensive learning, which can be accessed by logging on to *The High Scoring Guide for AMC Online Module* on **tabir.pk**. It familiarizes you with the nature of questions and how to attempt them, improving your preparation. This Module is mandatory to attempt for an all-rounded preparation. While preparing on the Module:

- If you attempt a question correctly, you can proceed further.
- If a question has been attempted wrong, the Learning Box will teach you the concept.

Simultaneously, you can monitor your progress on the Progress Indicator on the right side of the screen.

A Voucher Code is given with this book to log on to the Online Learning Module. This will start the intensive preparation for the Entry Test. The Module tests the concepts included in the AMC Entry Test through a variety of questions, and helps you prepare accordingly.

Good luck with the preparation!

# NON-VERBAL INTELLIGENCE TEST

This section is divided into 2 assignments:

Solved Papers and Explanations	
Assignment 1	Levels at Online Learning Module
Assignment 2	

# Assignment 1

## Solved Papers and Explanations

The **Assignment 1** comprises of Solved Papers and Explanations that have been included on the pattern of the AMC Entry Test Past Papers questions.

These questions test a variety of concepts, and provide the correct answers along with the explanations. This will guide you to work on the areas where you need help. By following the explanations, you can learn new concepts and polish them with practice.

It is recommended for the candidates to refer to additional sources of information to practice their skills and knowledge for an all-rounded preparation.

After you are done with Assignment 1, proceed to Assignment 2.

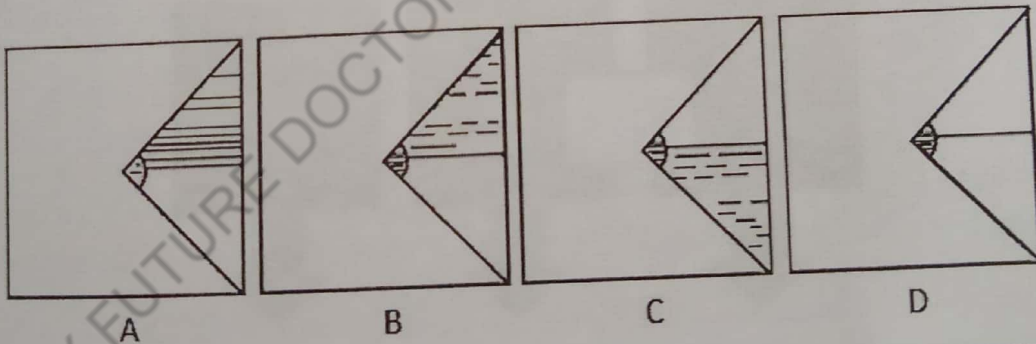
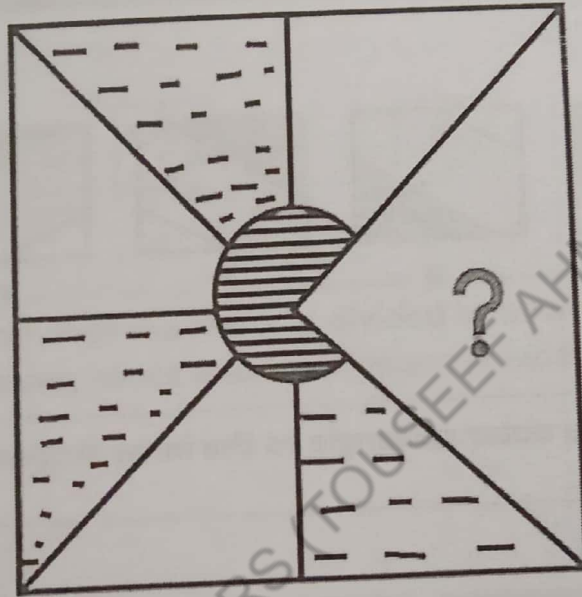
**Remember:** Practice will help you score brilliantly!

# SOLVED PAPER 1

Attempt the following test to practice nonverbal intelligence questions. To practice hundreds of further questions visit [tabir.pk](http://tabir.pk)

Choose the correct option to fill in the missing spot.

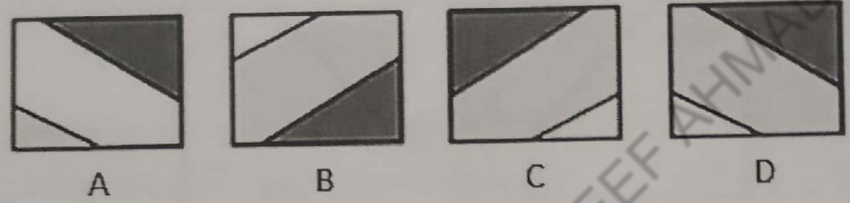
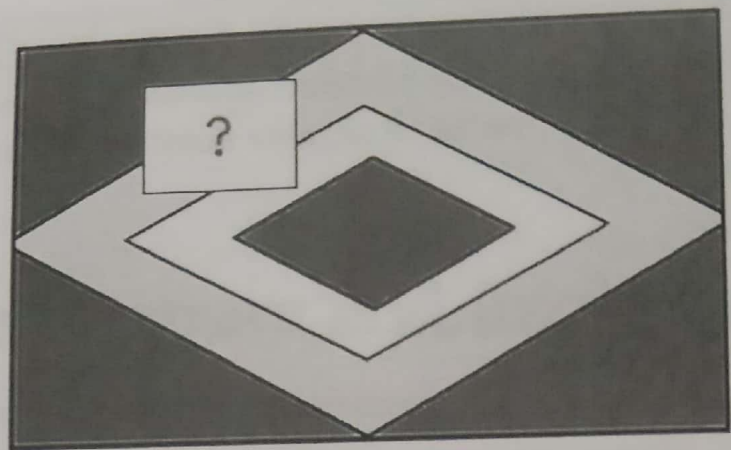
1.



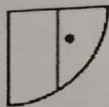
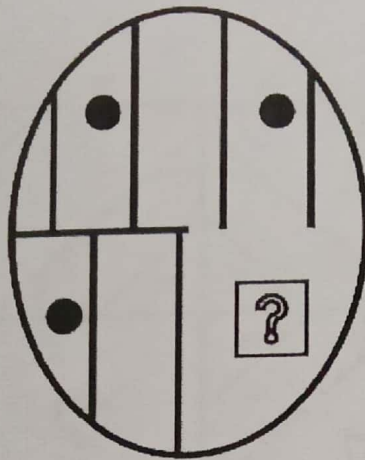
B

B best match the missing section. In one quarter of the square we see an empty triangle and a filled triangle which are placed in an alternating fashion.

2.



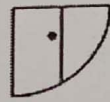
C	Moving from the outer rectangle to the inner shapes, colour changes from black to grey to white.
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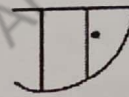
A



B



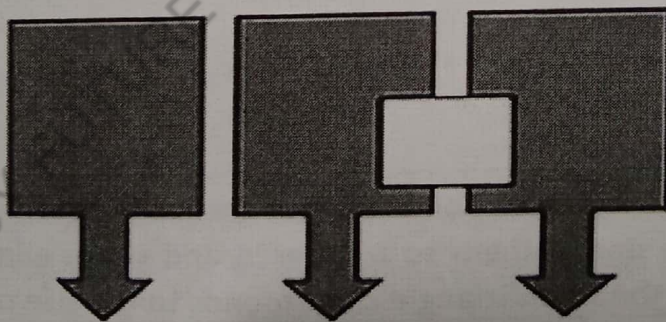
C



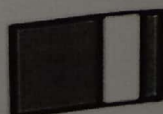
D

A

The bottom left corner of the sector is divided into two segments and has a dot in the outwards segment, hence suitable segment should have two portions with one dot in outer side.



A



B



C

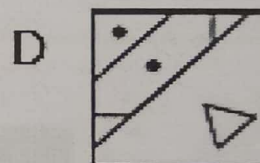
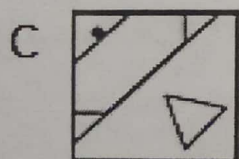
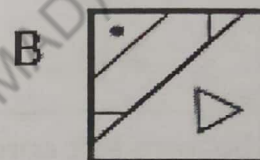
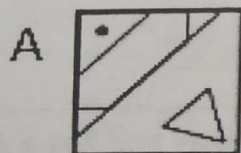
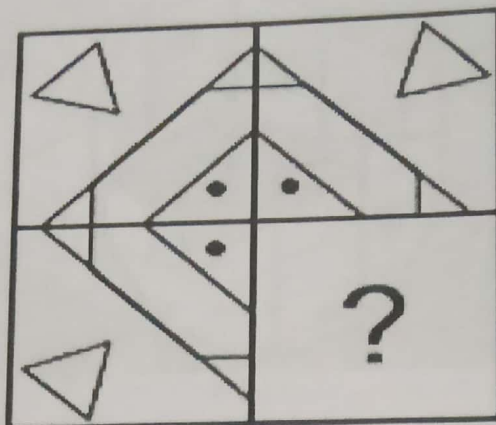


D

D

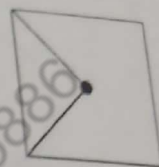
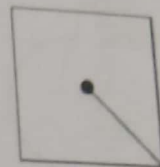
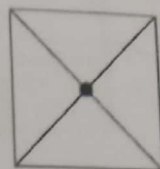
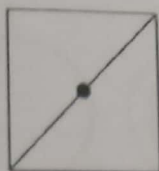
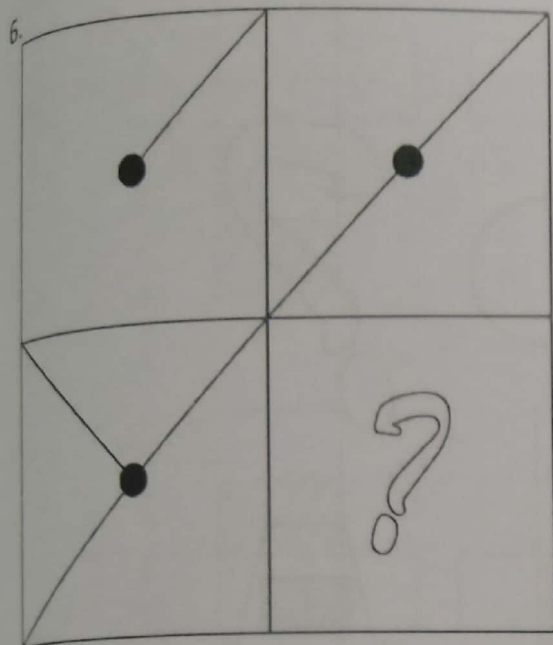
Pattern should have white strip between two black strips.

5.



C

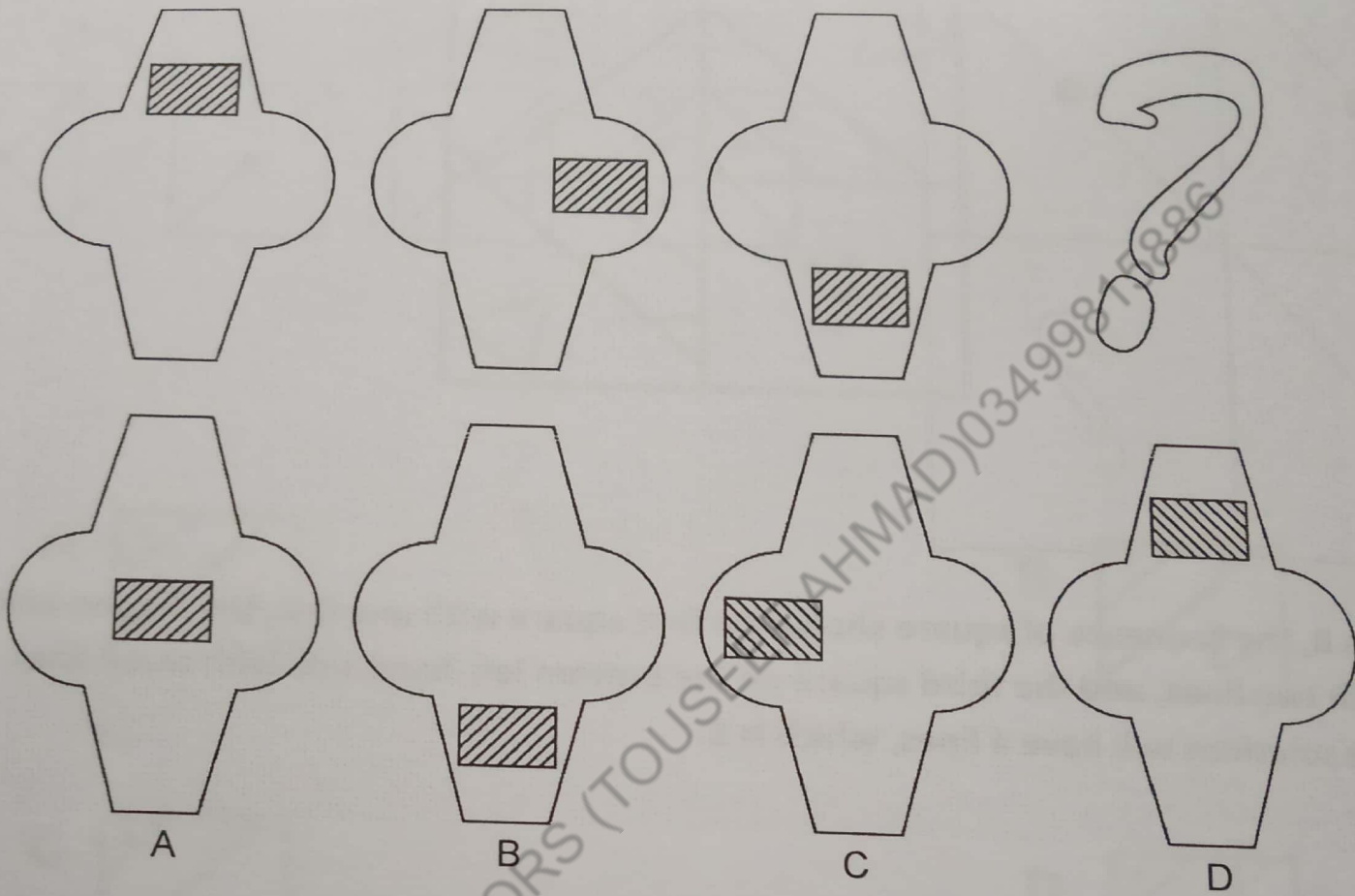
The corners of all the triangles point towards the centre of the square and each smaller square has a single dot in them so options A and D are eliminated. C is best choice because the size of the small triangle corresponds to the size of other triangles.



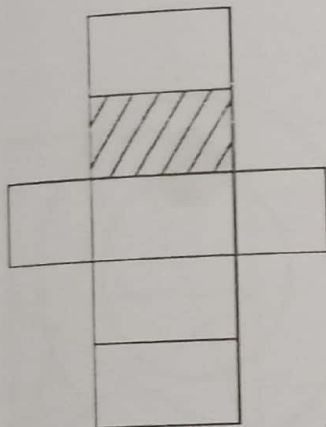
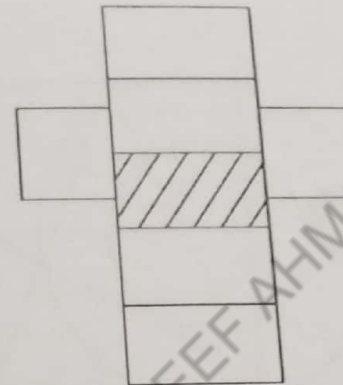
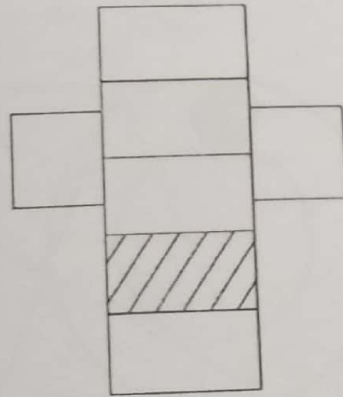
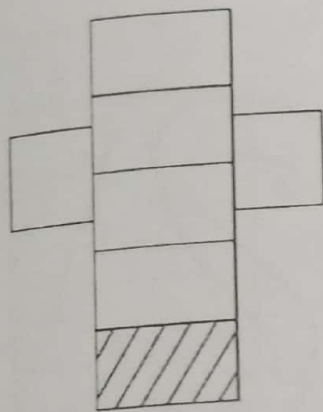
The answer is B, the sequence of square shows the first square with one line, the second on the right hand side with two lines, and the third square on the bottom left-hand side with three lines. Therefore the solutions will have 4 lines, which is B.

Choose the correct option to complete the series

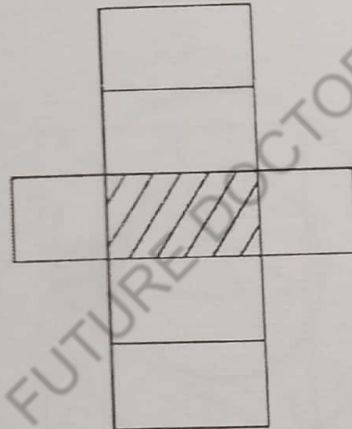
7.



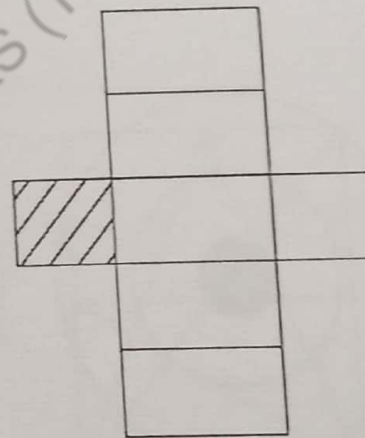
Answer is C, the first and the third images are reflections of each other. The second image is therefore C.



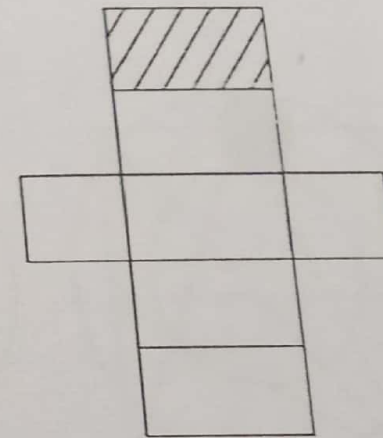
A



B



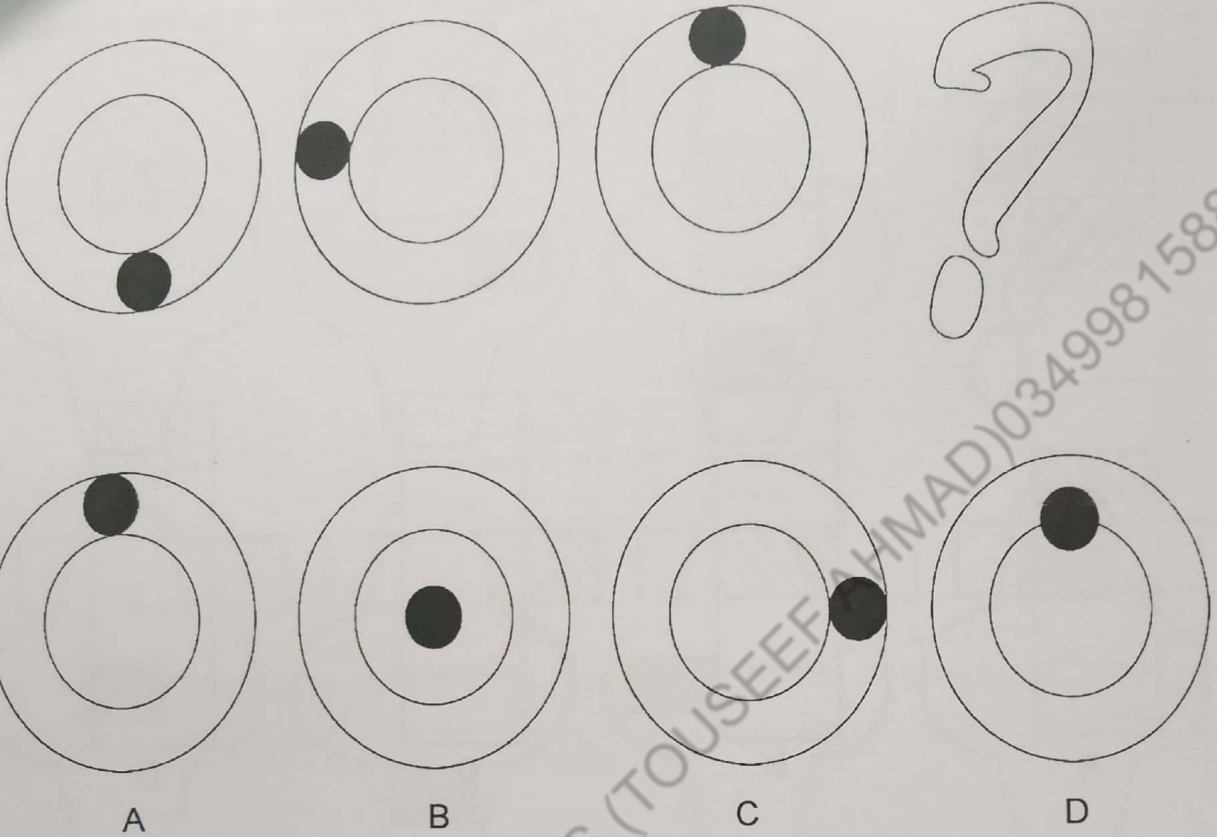
C



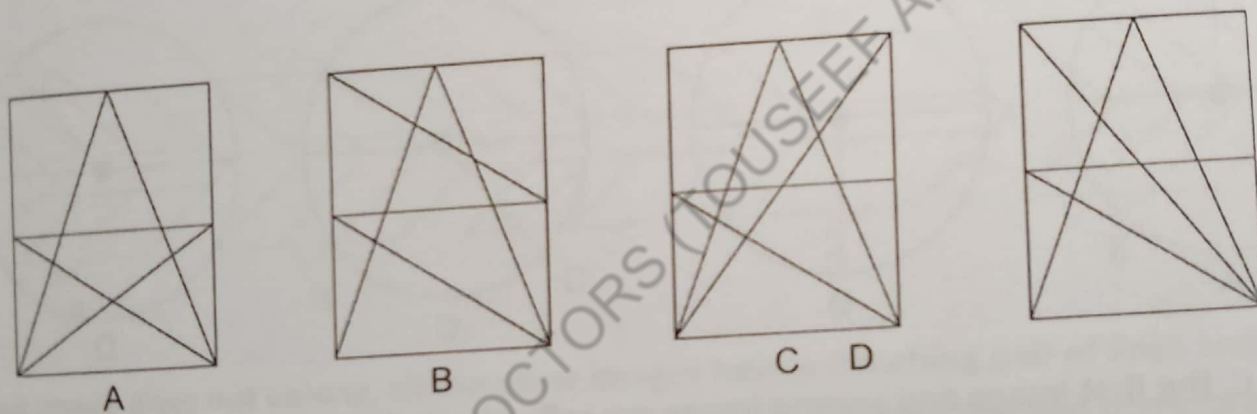
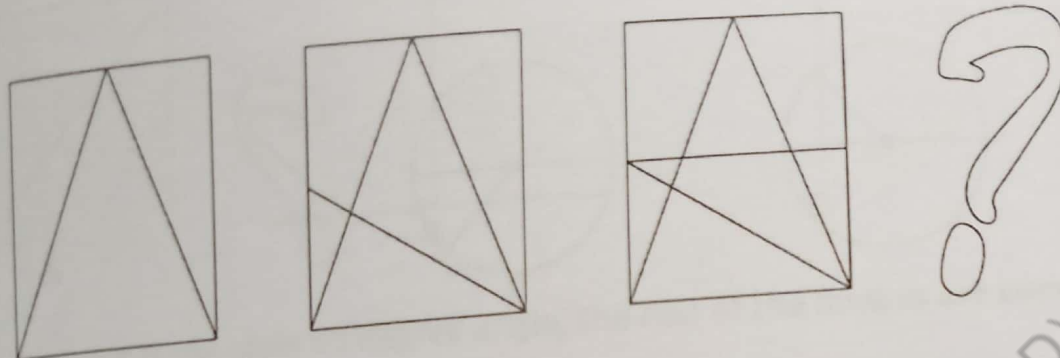
D

The answer is A, the striped box is moving up the grid as you move to the right, the last image is where the striped box is the third up the rectangle, the next answer therefore will be the image with the box in the 4th slot.

9.

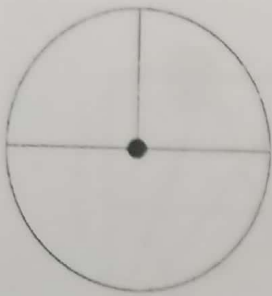
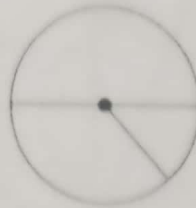
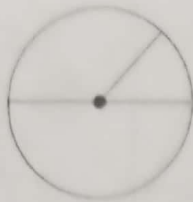


The answer is C, if you pair the alternating images together, you see that the smaller black sphere inside the target is reflected in its position. When looking at the answers, the only shape that has the same type of reflection is C

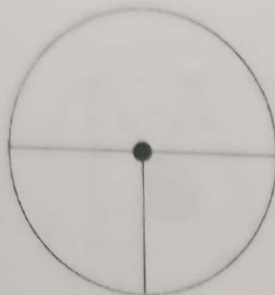


The answer is A, the progression of images within the sequence show the line moving to create a star image, establishing the creation of a symbol in the image sequence.

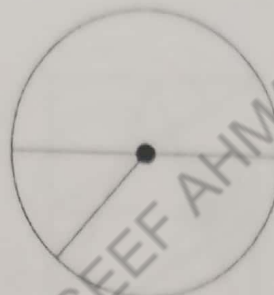
11.



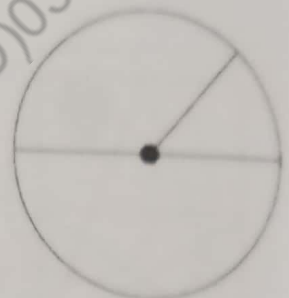
A



B



C

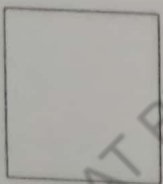


D

The answer is C, the first image and second image are reflections of one another, meaning the answer is a reflection of the third image, which is C.

Choose the odd one out

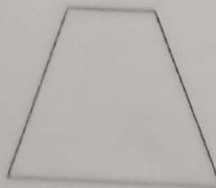
12.



A



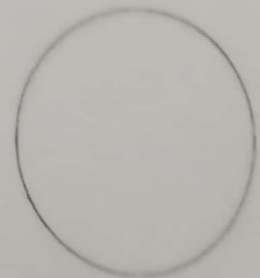
B



C



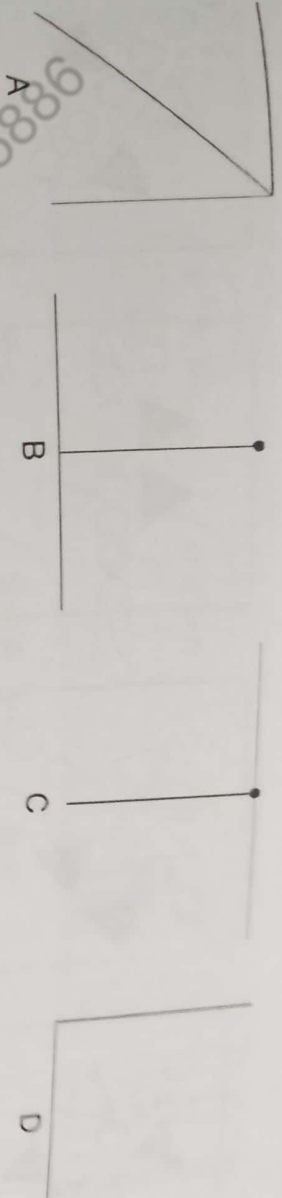
D



E

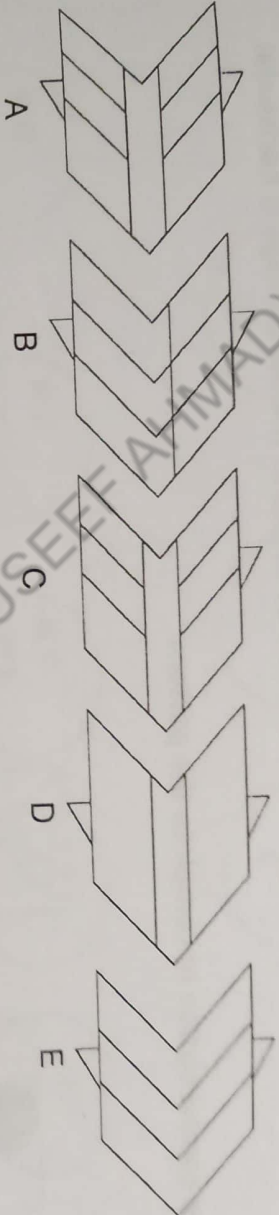
The answer is E. The odd one out is the circle for the first sequence of shapes, as the other four shapes are all four sided figures within the parallelogram and rhombus family.

13.



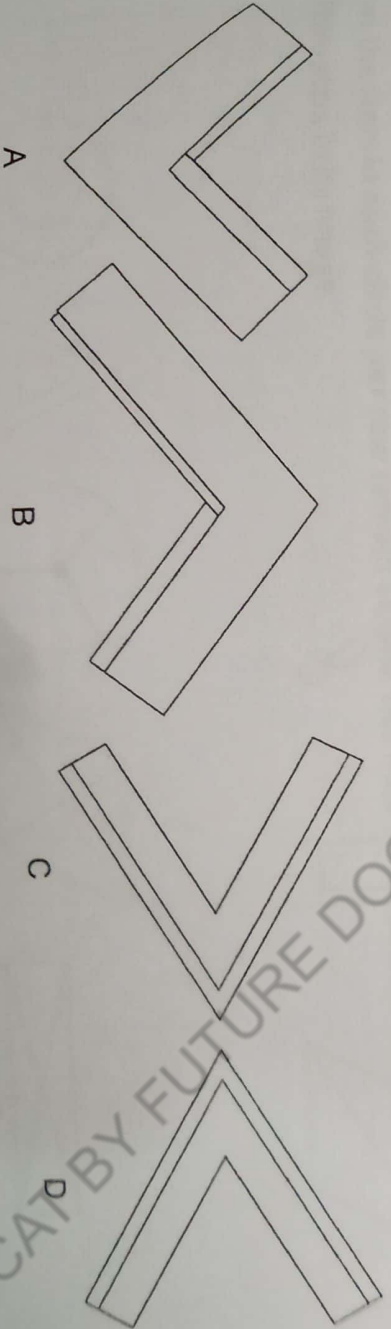
The odd image out is the plain 90 degree angle, the rest of the images are comprised of three lines, but the 90 degree angle only has two lines.

14.



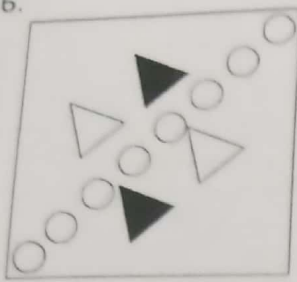
The second image does not belong, all the other images have a matching pair of lines and symmetry on both sides of their shape. The second one does not have a matched line and therefore is asymmetrical, making it the odd one out.

15.

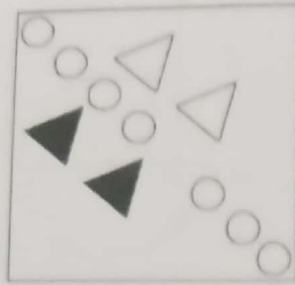


The image that doesn't belong is the second one, this is because the third and fourth images are shown to be reflections of each other and the same size, but the second image is larger than all the other ones and is asymmetrical, meaning it does not belong.

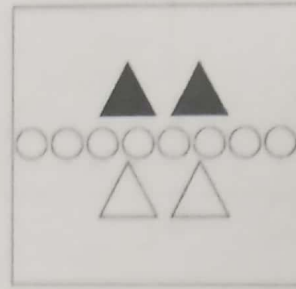
16.



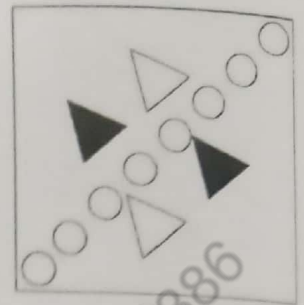
A



B



C

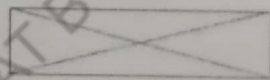
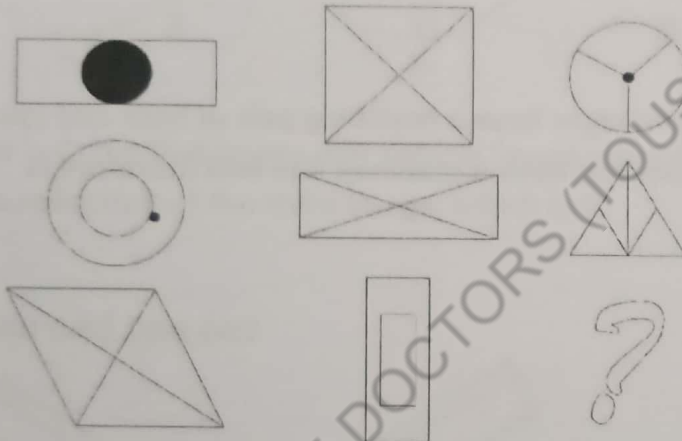


D

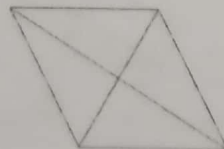
The answer is C. The odd one out in the second sequence of images is the third image, as the line comprised of circles is always diagonal and the line of circles in the third image is horizontal.

Choose the correct option to complete the pattern

17.



A



B



C

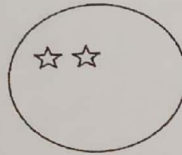
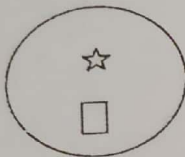
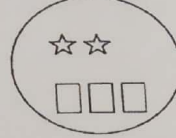
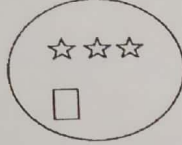
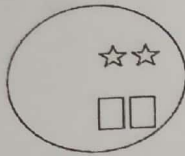
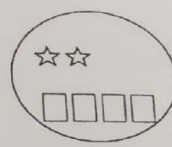


D



E

The answer is D, using the process of elimination, the first three images are excluded due to being in the problem all ready. The other indication of D being the answer is that all the shapes in the problem have pairs, there are two rectangles, two circles, and two squares (a rhombus is a square) leading to the only answer being the only shape that hasn't been paired yet, the triangle.



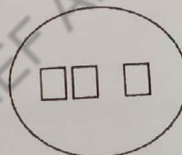
A



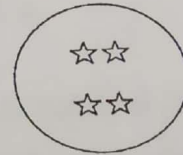
B



C



D



E

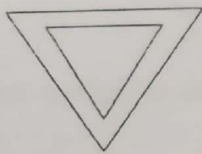
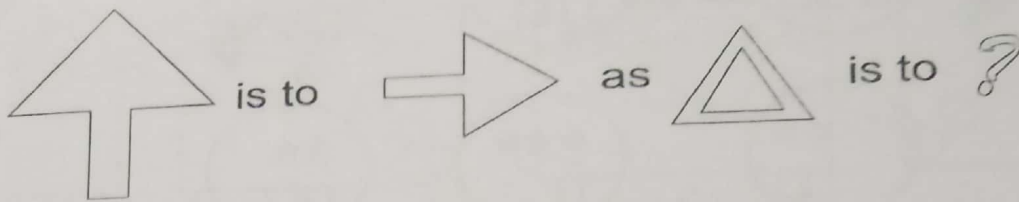
The answer is C, as you travel down the first column of circles, the rectangles in the circles decrease by one from the top row to the bottom row for each column. However, the trend of the third column shows the stars in each circle per row remain at two, this means the answer will have two rectangles and two stars in its image.

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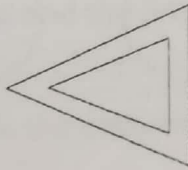
Career Finder

Choose the correct option

19.



A



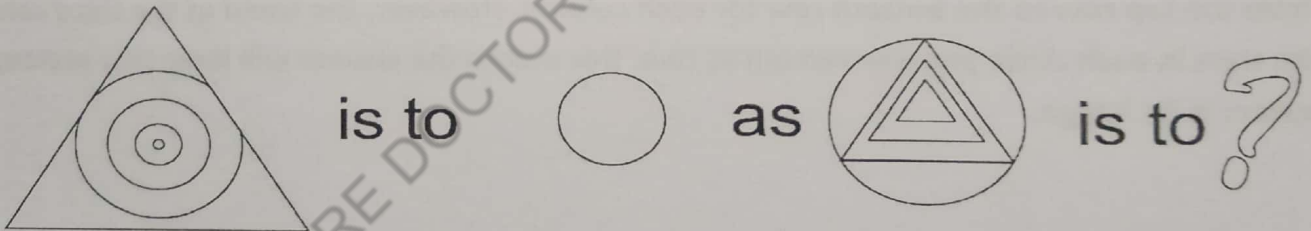
B



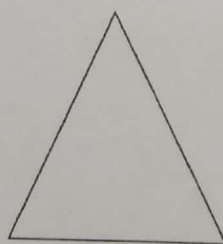
C

The answer is C, looking at the example image you see the same image being shifted into a different orientation. This means the same action will be applied to the third image to give us our answer, which is the same shift in orientation to our image. This is C.

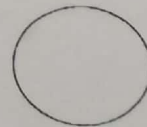
20.



A



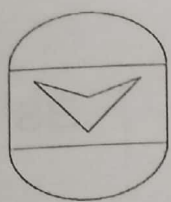
B



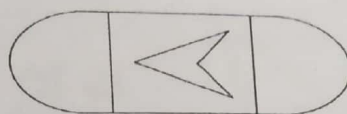
C

The answer is B, looking at image 1 and 2 you see a triangle with many circles inside of it, but the second image is only a circle. This means the relation between the two images is the inside of the external shape. Looking at image 3 there is a circle with many triangles inside of it, following the same logic, the answer must be a singular triangle which is B.

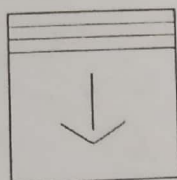
21.



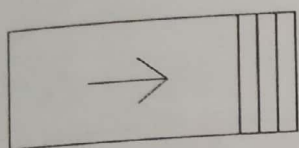
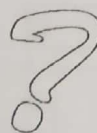
is to



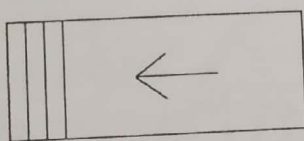
as



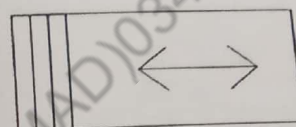
is to



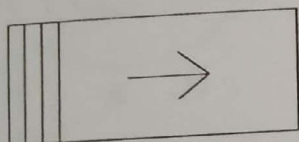
A



B



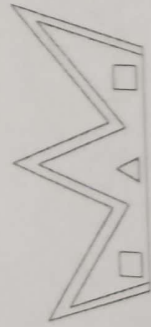
C



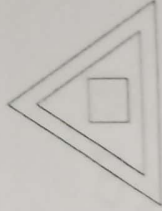
D

The answer is D, looking at the example it shows that the orientation of the shape was turned from vertical to horizontal, but the image itself did not change, this means that the image for the solution must have a horizontal orientation and the image cannot change, this leaves only answer D.

22.

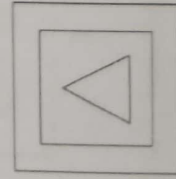
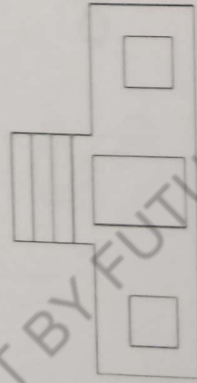


is to

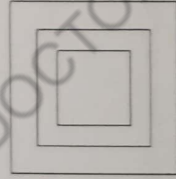


as

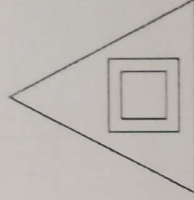
is to ?



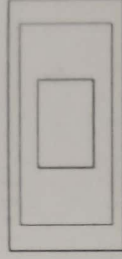
A



B



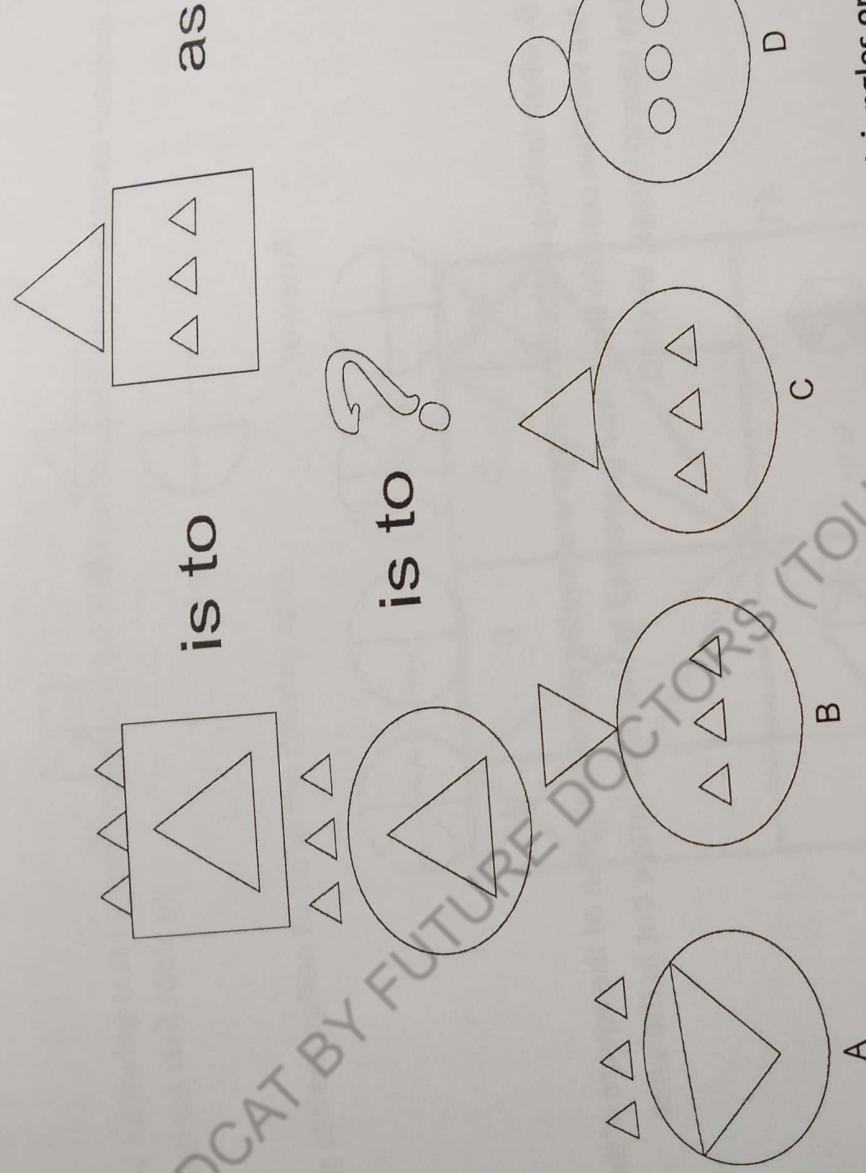
C



D

The answer is D, using the first set of images as examples, the pattern displays the use of the most common image (triangles) with the least common (square). Meaning the triangles which were the most common image, outline the least common shape which is the square. This means the answer for the other image would be the use of the most common shape which is rectangle to outline the least common shape, the square. The only answer with this image is D.

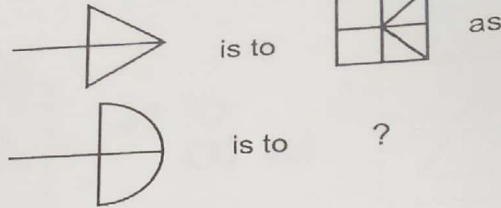
23.



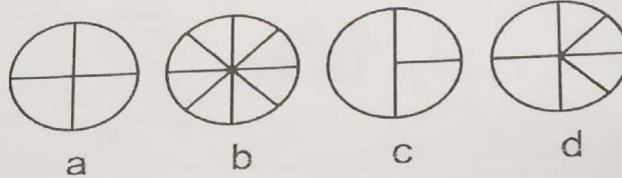
The answer is C, the first image shows a triangle inside a square with three triangles on the top of the square, the second image shows the switching of the large triangle inside the square with the three smaller triangles outside the square. Therefore, the third image which shows a triangle inside a large circle with three smaller triangles on the top outside of the circle, the solution will have the positions of the large triangle inside the circle switched positions with the three smaller triangles on top of the circle, which is C.

24.

40.



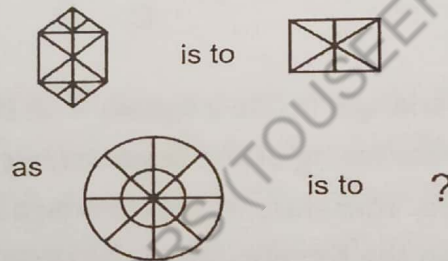
Answer:-



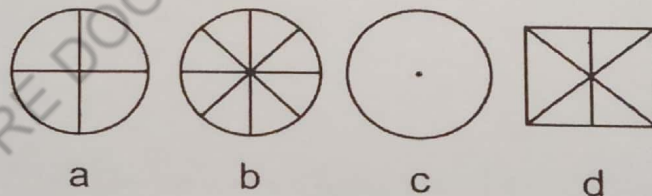
The answer is D, when looking at the first image and seeing the orientation of the square of the second image, the solution contain the shape presented in the third image but in the same orientation of the second image, this is D.

25.

41.



Answer:-

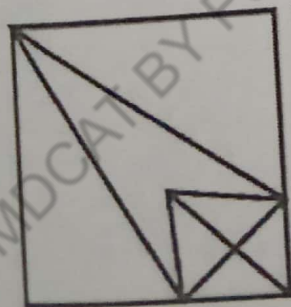
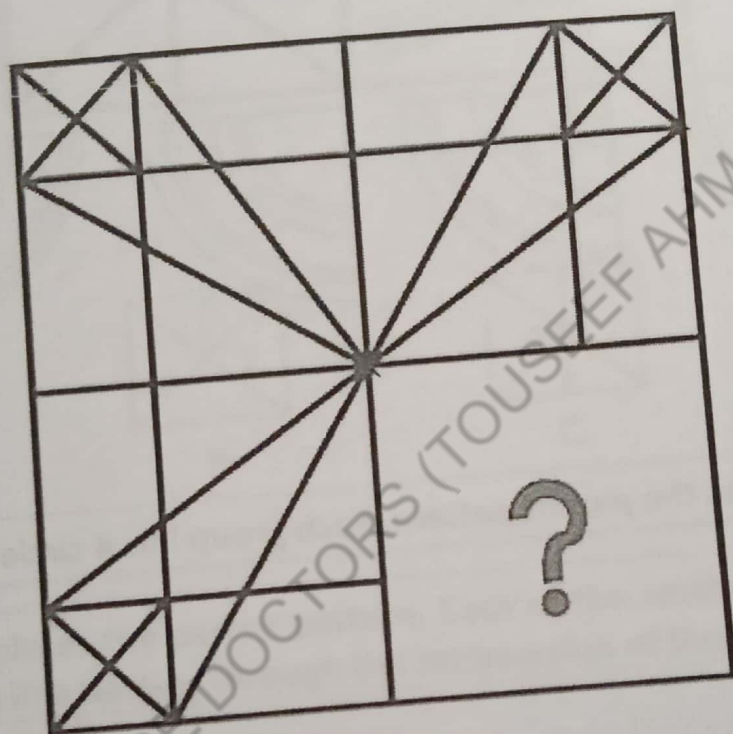


The answer is B, the first image shows a rectangle with intersecting lines that is contained within a hexagram, the second image removes the hexagram and leaves the rectangle inside the shape. The rectangle still maintains all of the lines that were intersecting it for both images. This means the solution is obtained when removing the outside shape that contains another shape. The third image shows a smaller circle surrounded by another larger circle, seeing at the lines inside the smaller shape are maintained when the outer shape is taken outside of the solution, the same number of lines will be present in the answer containing the smaller shape, this would be answer B.

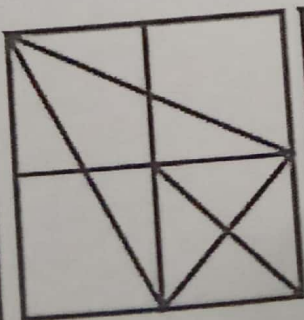
## SOLVED PAPER 2

Attempt the following test to practice nonverbal intelligence questions. To practice hundreds of other questions visit [tabir.pk](http://tabir.pk)

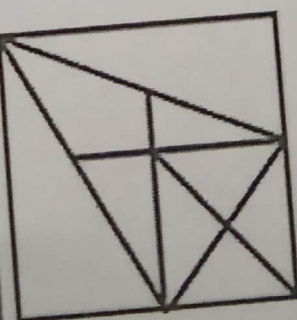
Choose the correct option to fill in the missing spot.



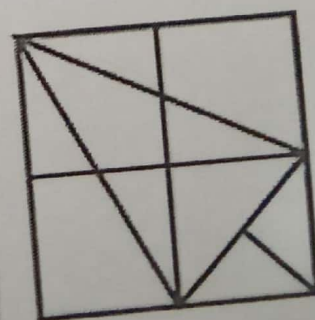
A



B



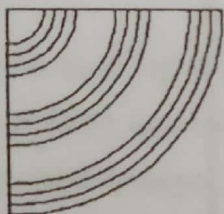
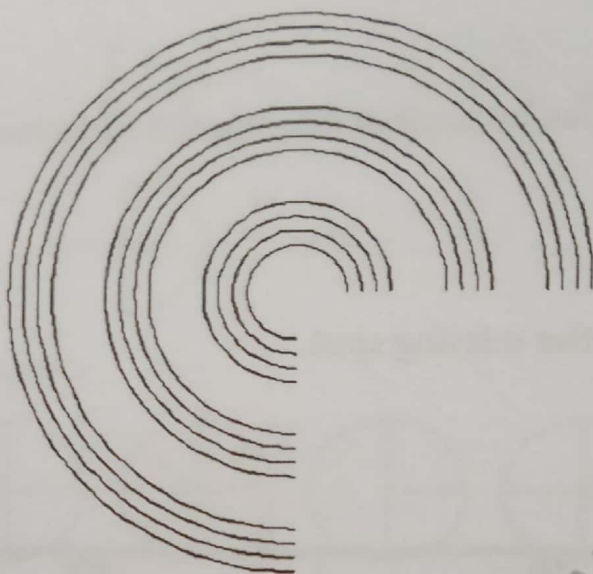
C



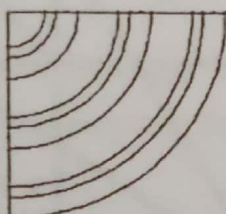
D

B

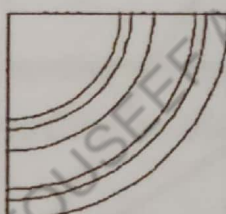
Examine the pattern to meet the requirement.



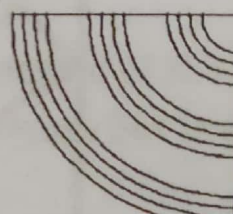
A



B



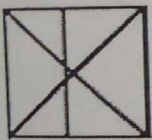
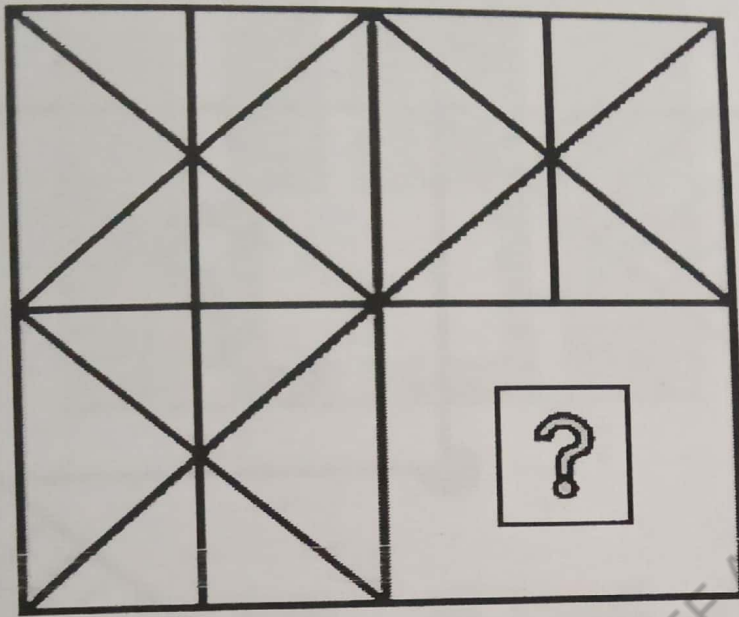
C



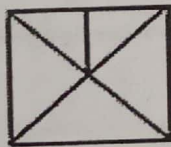
D

A

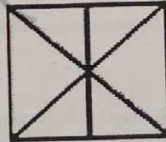
Choice A completes the parent pattern. Each group has 4 circles



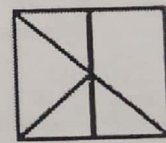
A



B



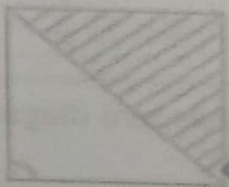
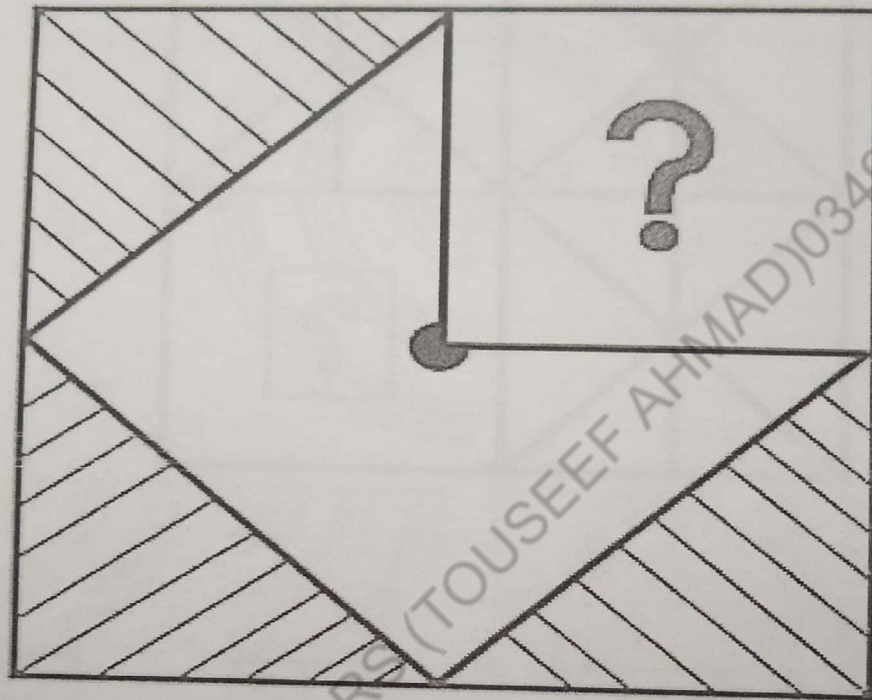
C



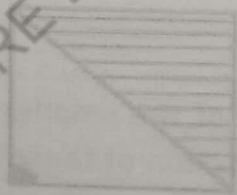
D

Choice C completes the parent pattern. Each of the smaller square has two diagonals with a vertical line passing through the intersection of these diagonals.

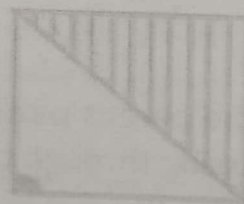
4.



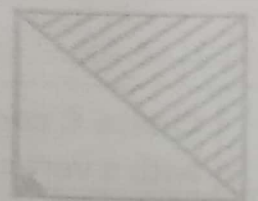
A



B



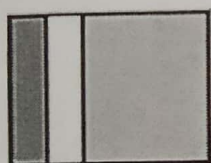
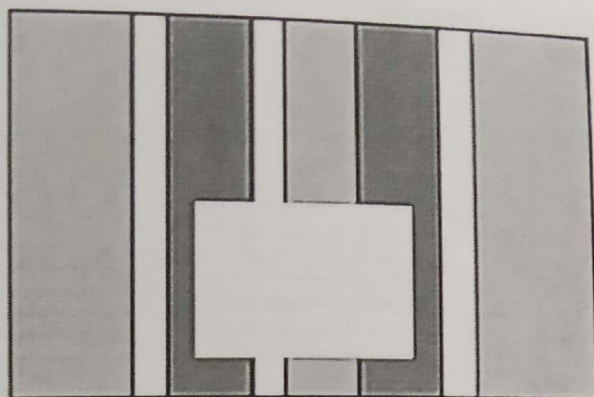
C



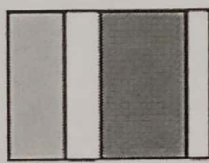
D

D

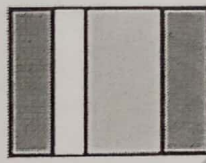
D is suitable as it has lines inclined from right to left. It also contains a filled sector to complete the filled circle.



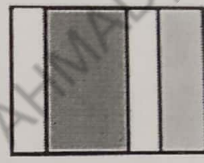
A



B



C



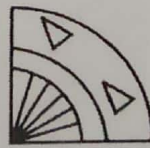
D

C

C is best choice. The colour changes from dark grey to white to light grey and then again to dark grey.



a



b



c

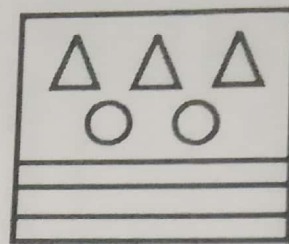
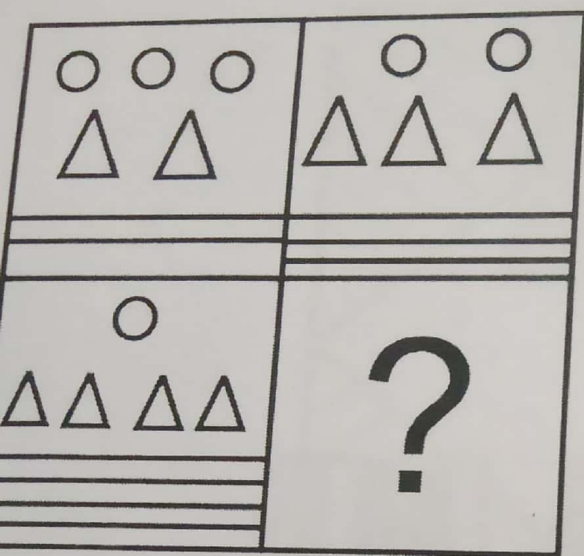


d

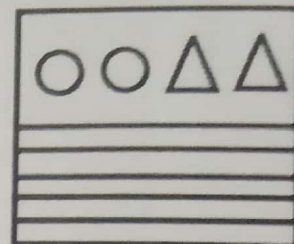
The answer is C. The circle is comprised of the same sections just in different positions, this rules out answers A and B. Looking at the remaining images the one that fits the incomplete circle the best is C.

Choose the correct option to complete the series

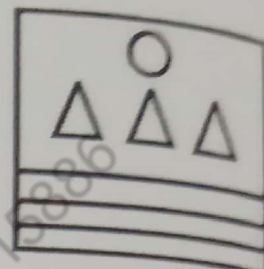
7.



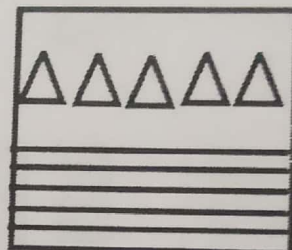
a



b

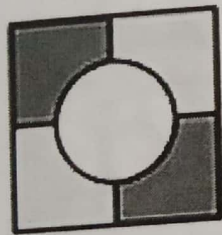
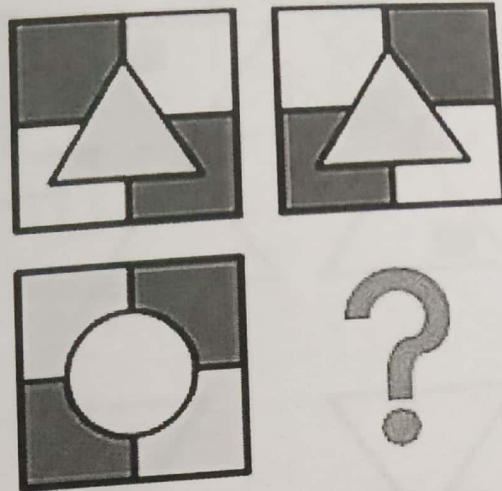


c

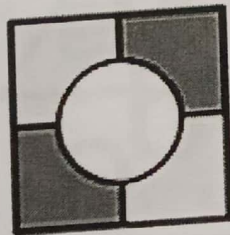


d

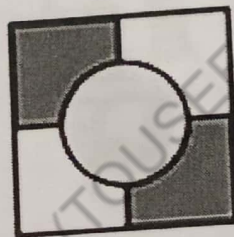
answer is D. When following the sequence of images from left to right, you see that the amount of circles decreases by one with each new section, while the bottom level of rectangles and the amount of triangles increases. This means that the only solution can be D.



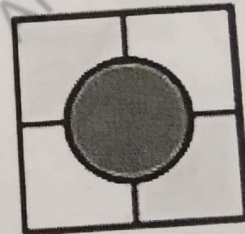
A



B



C

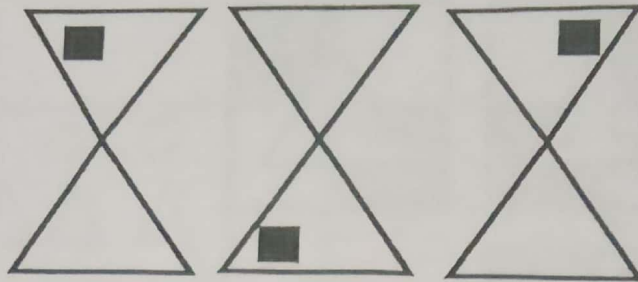


D

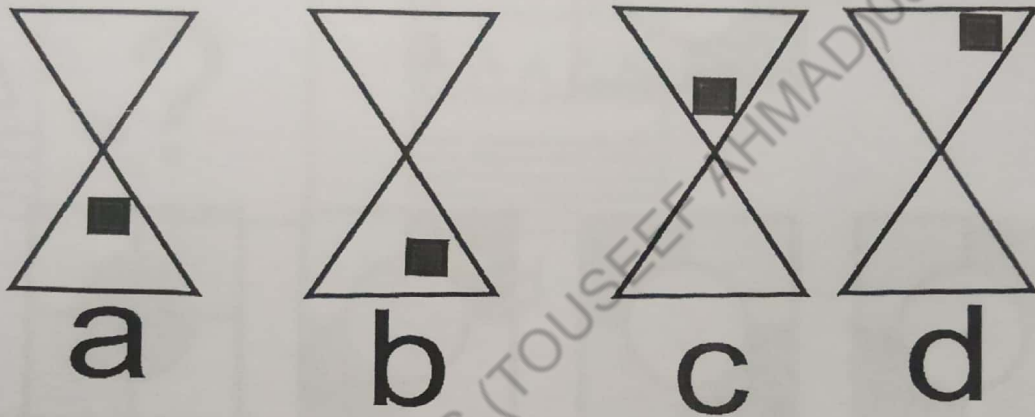
A

A best fits the parent figure. In the first diagram pair only the white squares change their places. Similarly in the second diagram pair the light grey colour changes its place

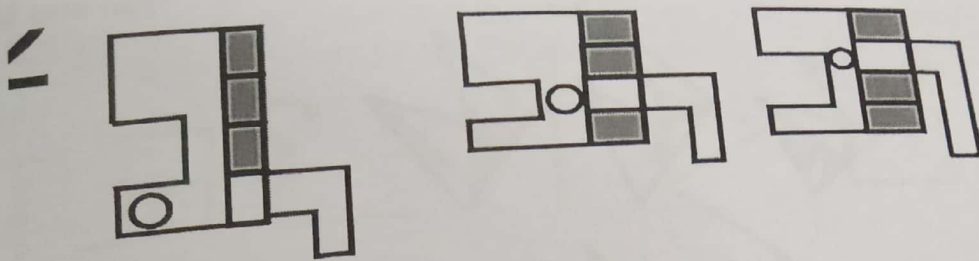
9.



Answer:

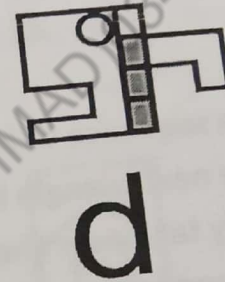
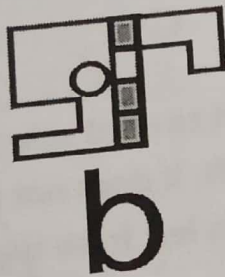
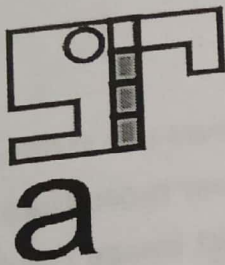


The answer is B, images 1 and 3 are reflections of each other, meaning that the solution to this problem will be a reflection of image 2, which is b.

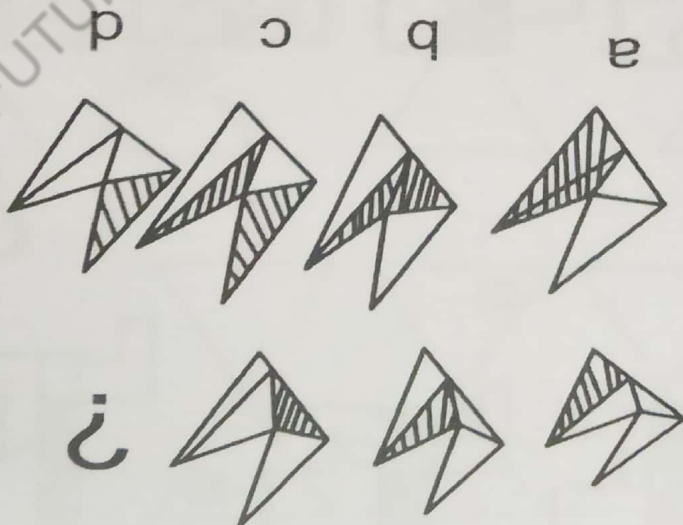


?

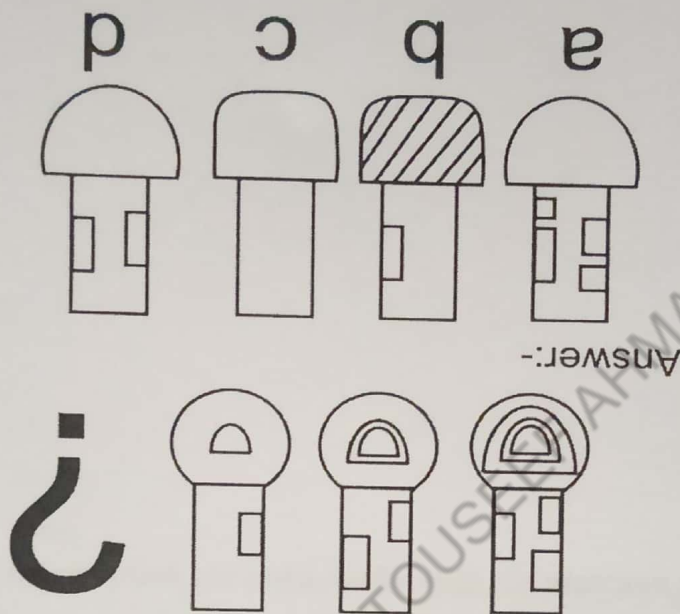
Answer:



The answer is A, when you look at the sequence of the images left to right, you see the white section moving up the line of blocks on the brown line along with its attached shape. This means the solution will contain the next block above the third image with the attached segment, this points to A being the answer.



The answer is D, the sequence of images from the left to right side shows the striped section of the image moving to the next triangle in its way to the left. It does not cover more than one triangle so this means it will only take over the next triangle to its left from the last image the only image with one triangle filled in and to the left is image D.

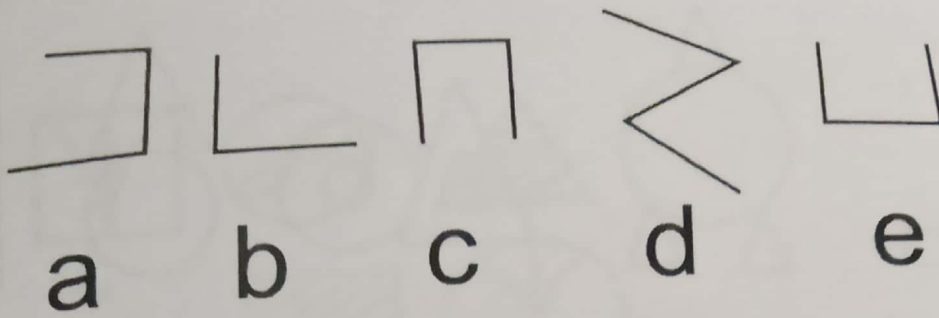


Answer:-

The answer is C. In the sequence of images moving from left to right, you see with each new image on the right, a circle and a rectangle disappear with each new image. The last image showed one circle and one rectangle this means the next image will have no rectangle or circle. The only answer with that criteria is C.

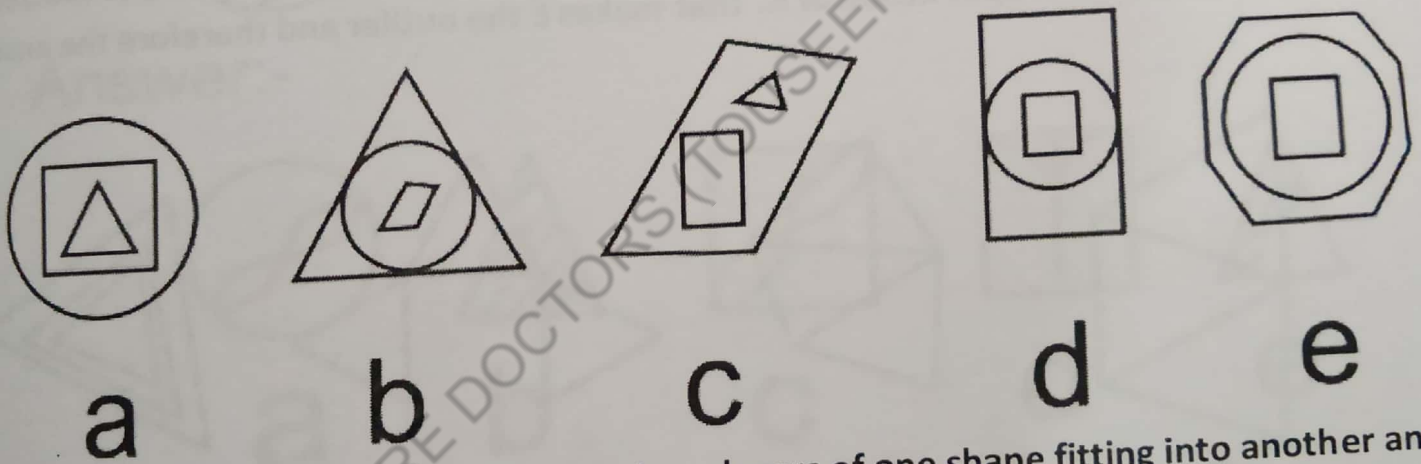
Choose the odd one out

13.



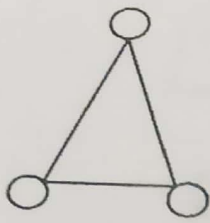
The answer is B, all the rest of the images are comprised of three lines, while B is only made of two lines.

14.



The answer is C, all the rest of the images have three layers of one shape fitting into another and then overlapped by the last shape. Image C does not, with two shapes only put into another and no set inside one another.

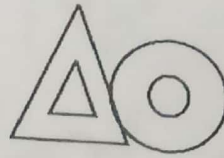
15.



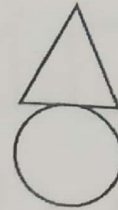
a



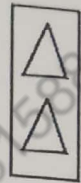
b



c



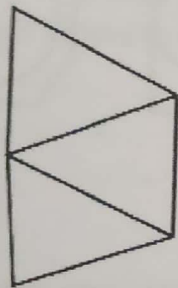
d



e

The answer is E, all the other images show an element of shapes touching one another but not inside one another. The only exceptions to this are C and E, but with C, the element of shapes touching is maintained while E just has shapes inside of it. That makes E the outlier and therefore the answer.

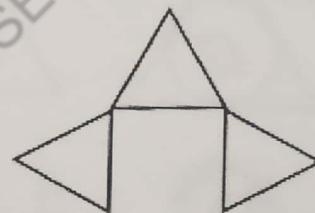
16.



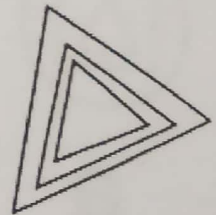
a



b



c

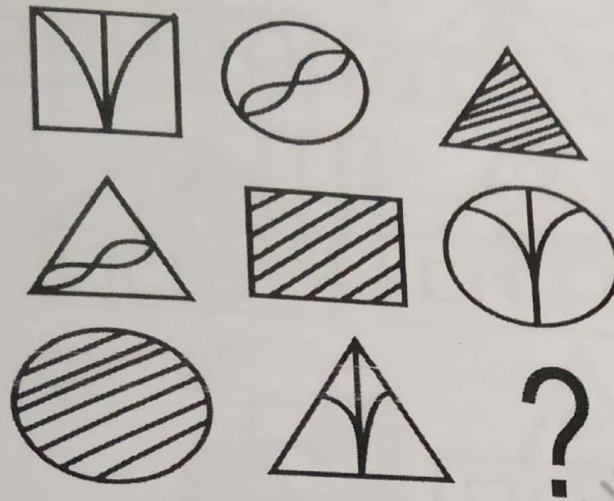


d

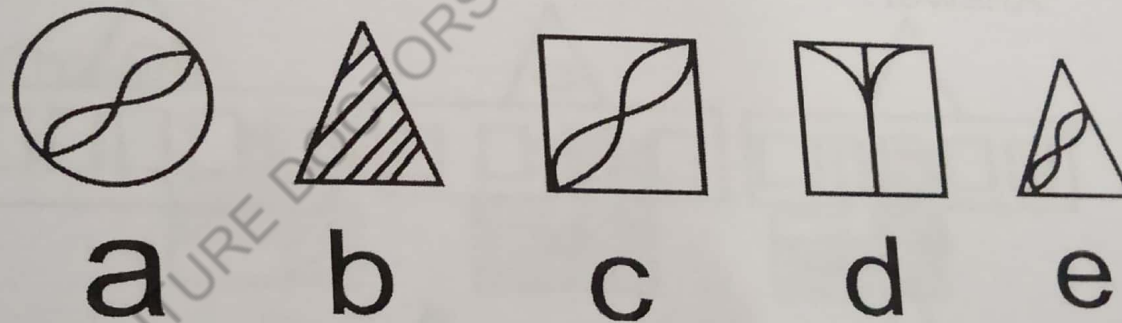
The answer is D, all the rest of the images showcase triangles interacting/connecting with one another, there are no overlaps or images inside of these triangles. D is the exception to this pattern and therefore the answer.

Choose the correct option to complete the pattern

17.



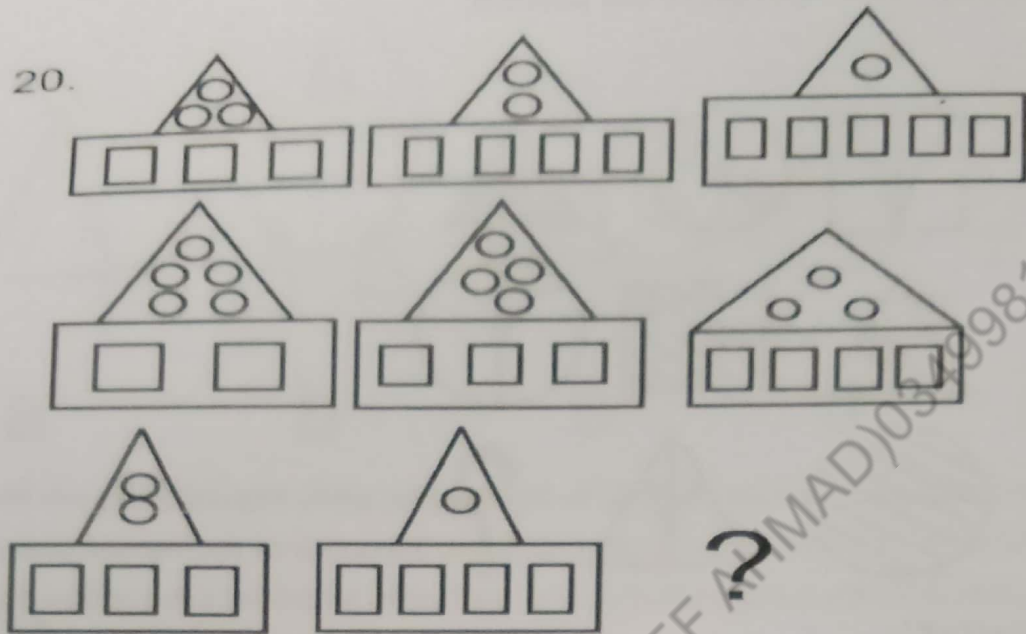
Answer:-



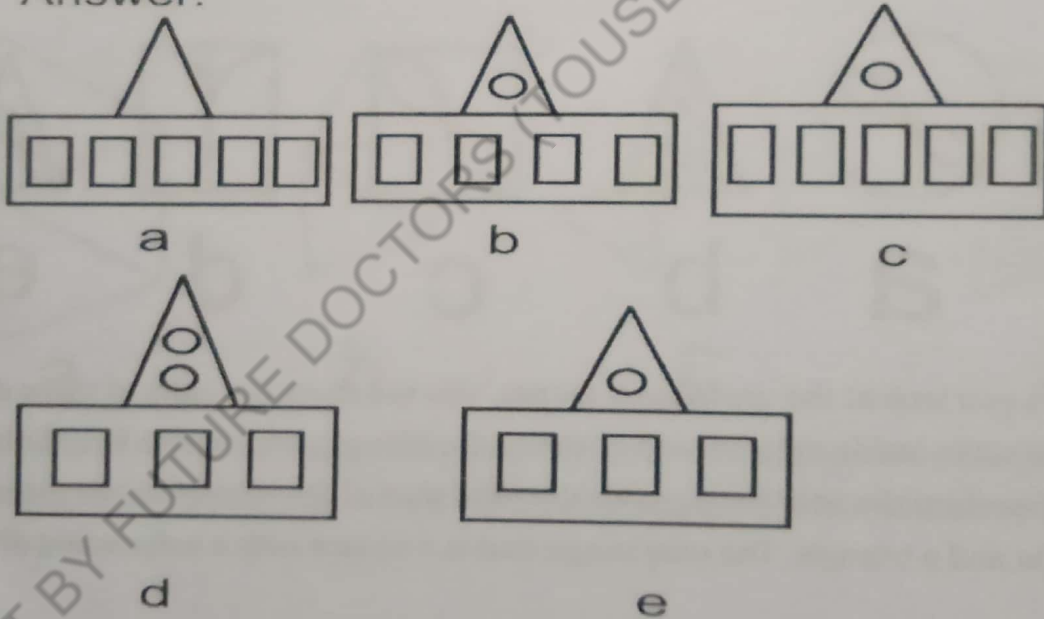
The answer is C, as you look at the unstripped shapes, you see there are pairs of three different shapes sharing the same inside pattern such as the circle, triangle, and square having the same inside triangles, therefore the solution must be the third part of the second image pattern which is a helix within a circle and a triangle. The only image that is a square with a helix inside of it is C.

18.

20.

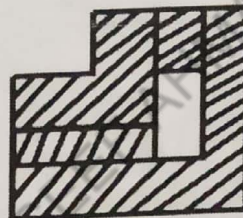
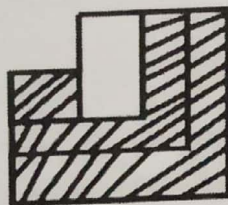
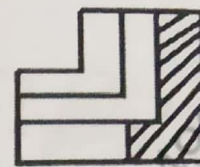
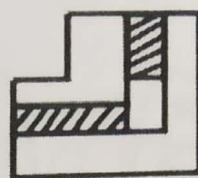
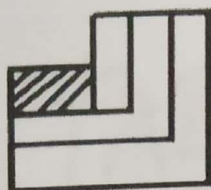
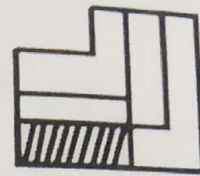
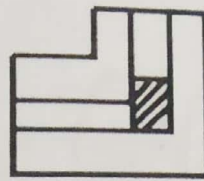
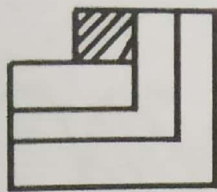


Answer:



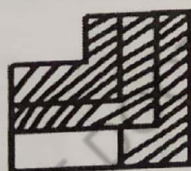
The answer is A. As you follow the sequence of images from left to right for each row, you see that each progressive image has one less circle inside the triangle as you move left. With the third row, you see two circles in the triangle, then one, and the last one must have no circles. The only image that matches that criteria is A.

18.

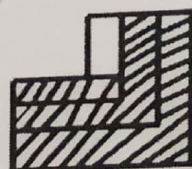


?

Answer:



a



b



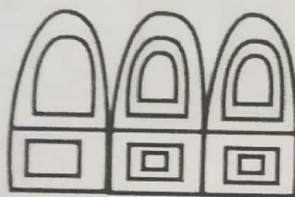
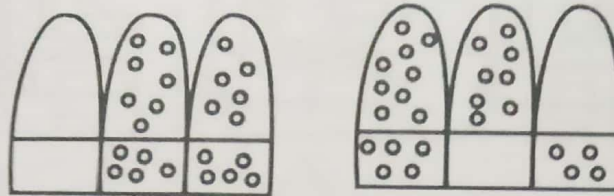
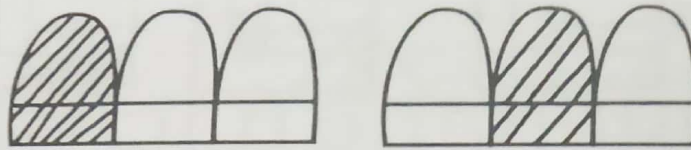
c



d

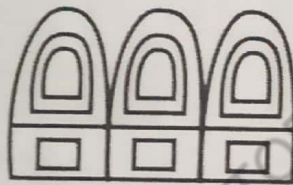
The answer is A. As you follow down each row, you see that the first image in the column is inverted in the last image in each row. The stripped section of the first row is unstripped in the third. Therefore the solution of this problem will show the stripped section of the first image in the third row as unstripped for the last image. The only image that fits this criteria is A.

20.

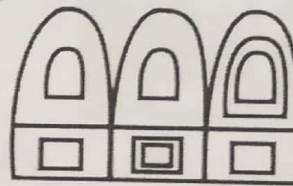


?

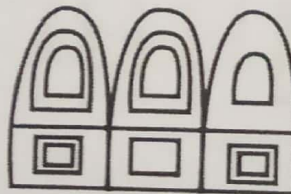
Answer:



a



b

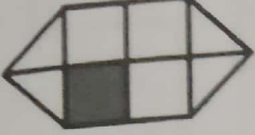
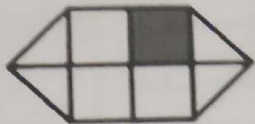



c

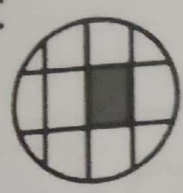
The answer is C. Looking at the patterns of the first two images the striped section was shifted to the right, the same occurred with the second set of images. However the patterns remained the same and another was done to alter the images other than moving the outlier pattern to the right. With that in mind, the solution will contain the same patterns in its image and only the outlier pattern will be moved, the only possible answer with that criteria is C.

Choose the correct option

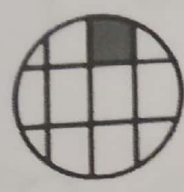
21.

A  is to  as  is to?

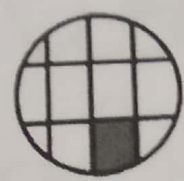
Answer:



a



b



c



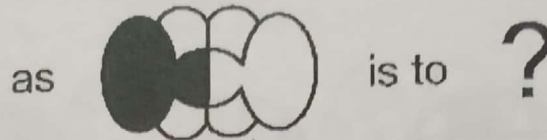
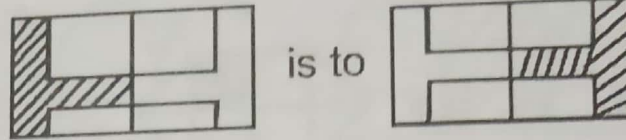
d

The answer is B. If you look at the first two images, you see that the dark square in the first image, moves up to the right diagonally. Therefore the comparison aspect of this exercise means that the solution should have the dark square presented in the first image also move up and to the right diagonally. The only image that does this is B.

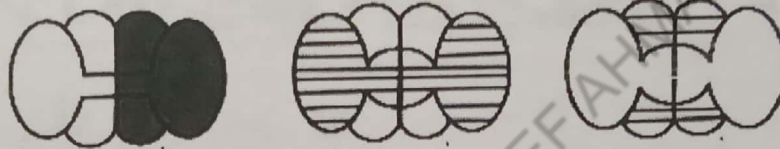
MDCAT BY FUTURE DOCTORS (MOJIB AHMAD) 99815886

22.

32.



Answer:



a

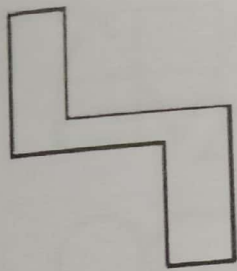
b

c

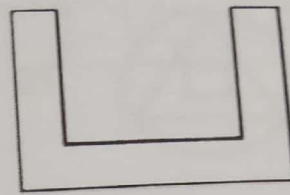


d

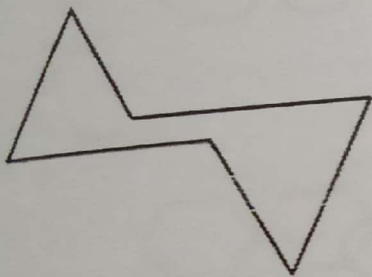
The answer is D. When you look at the first two images, they show the striped/coloured section of the image, being reflected between the two images. Therefore the solution will show the coloured section of the third image, being reflected from the left side to the right side. The only image that does this is D.



is to



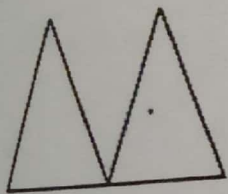
as



is to

?

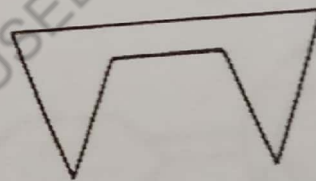
Answer:



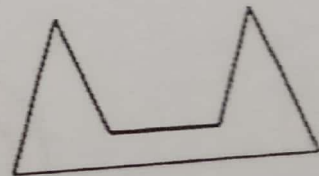
a



b



c



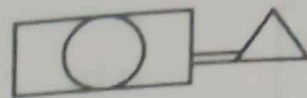
d

The answer is D. Looking the the first two images you see, a multiangular line straightened to only two angles, with the ends facing upwards. When you look at the image beneath that, the multiangular shape is presented with triangles, therefore the solution will present these triangles straightened upwards. The only solution with that answer id D.

24.



is to

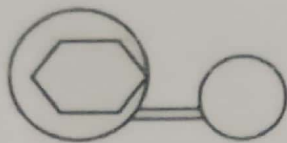


as

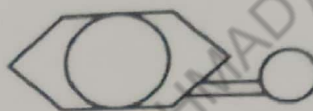


is to ?

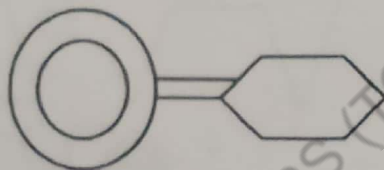
Answer:



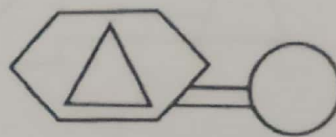
a



b



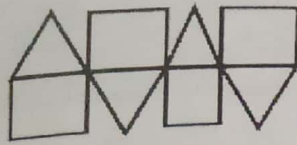
c



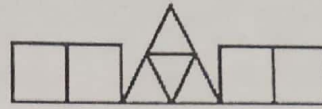
d

The answer is A. When looking at the first two images, you see that the first image is deconstructed partially within the second image, you see that the second layer of the three shapes that overlap, is taken to the outer left of the image. Therefore the solution will also do the same with the third image. The only image which showcases this is A.

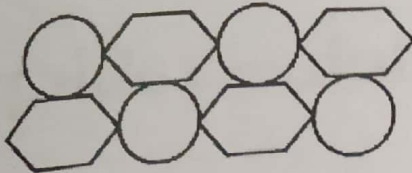
25.



is to



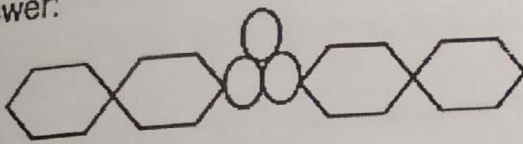
as



is to

?

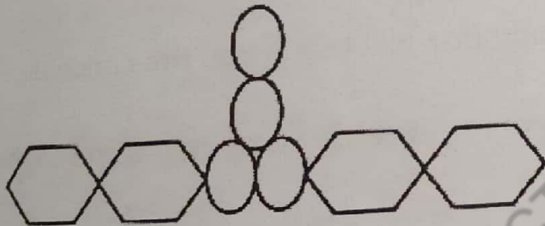
Answer:



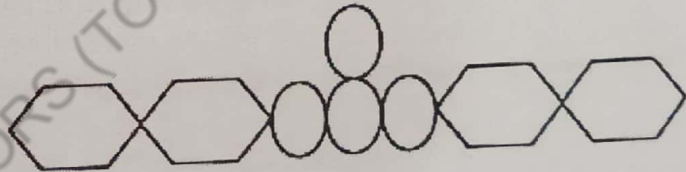
a



b



c



d

The answer is D, when you look at the first image, you see that every second shape is placed on the outer ends of the second image (squares) while every first shape is stacked in the middle (triangles). This means the solution will also apply the same pattern and deconstruction with our second row. The hexagons will be placed outwards will the circles are stacked. The only answer with the same pattern as the second image shown in the first row is D.

# PERSONALITY TEST

## MECHANICAL APTITUDE TEST (MAT)

### INSTRUCTIONS

1. This is a test of Mechanical Aptitude.
2. It contains 45 questions with possible answers printed on a separate answer sheet.
3. You will be given 15 minutes for this test.
4. You have to read each question and find the correct answer from the figure of the same number and encircle the correct answer out of the choices given in the answer sheet.
5. One question has only one correct answer. Encircle only the one which you think is correct on answer sheet.

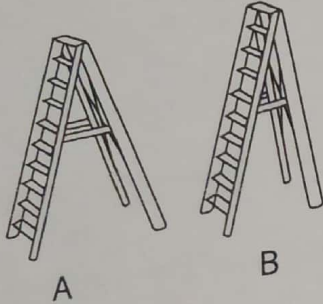
### EXAMPLE:

You have possible answers printed in front of the question. If you think A is the correct answer you will encircle A like this ☒ A ☐ B ☐ C. If B is the correct answer in your opinion you will encircle B like this ☐ A ☒ B ☐ C. If you think that both the stairs can fall with equal ease you will encircle C like this ☐ A ☐ B ☒ C.

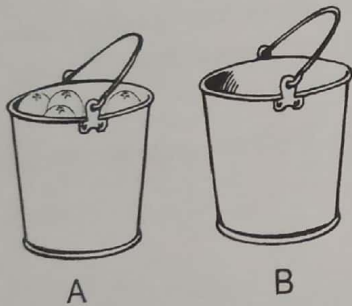
# PERSONALITY TEST

## MECHANICAL APTITUDE TEST (MAT)

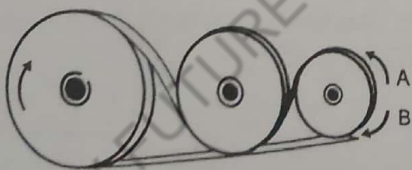
1. Which stair can fall down easily? If both can fall with equal ease encircle C as your answer.



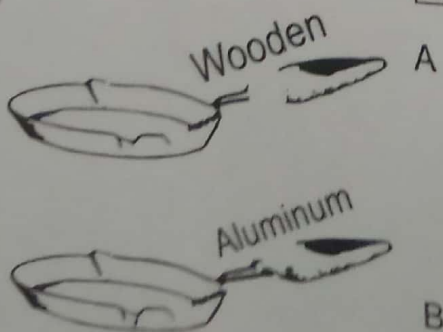
2. Which weighs more?



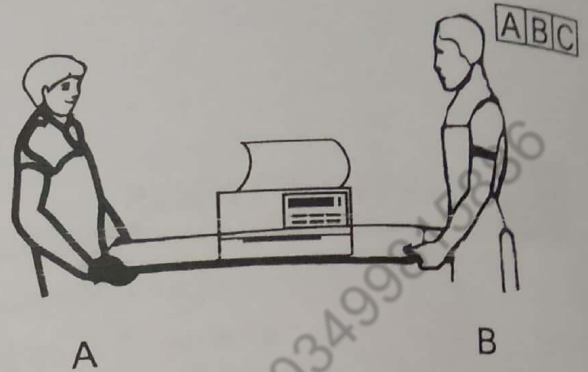
3. If the bigger wheel moves in the direction of arrow, which way will the smallest wheel move?



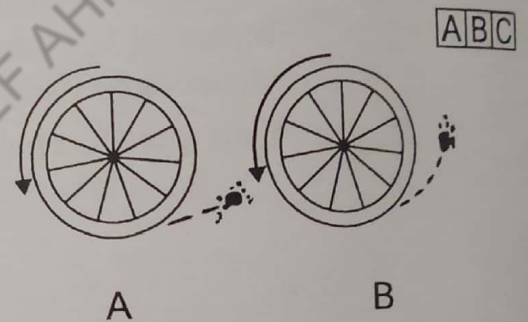
4. Which frying pan will be easier to handle?



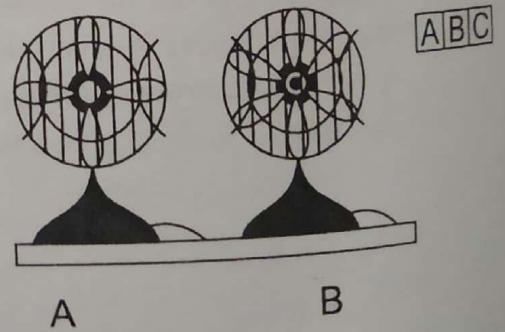
5. Which man has the heavier load? If equal mark C.



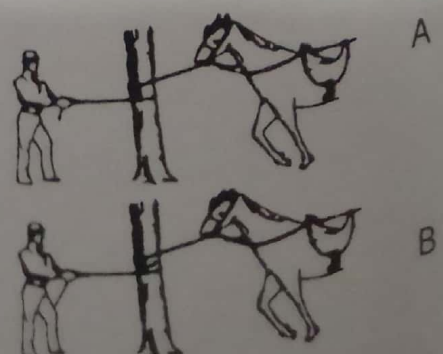
6. Which picture shows how mud slings from the wheel of a bicycle?



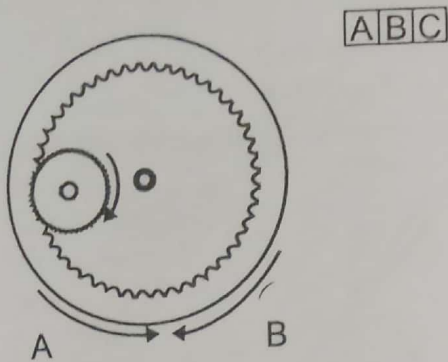
7. Which fan needs the more powerful motor? If equal mark c.



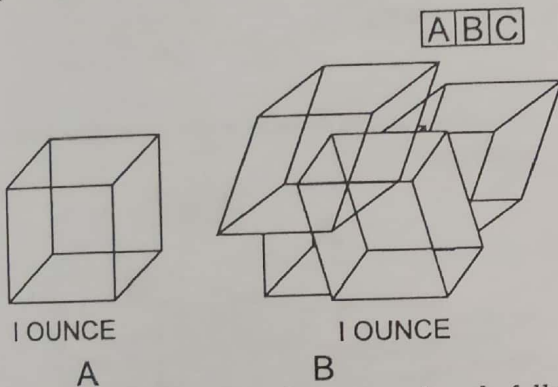
8. Which horse will be harder to hold?



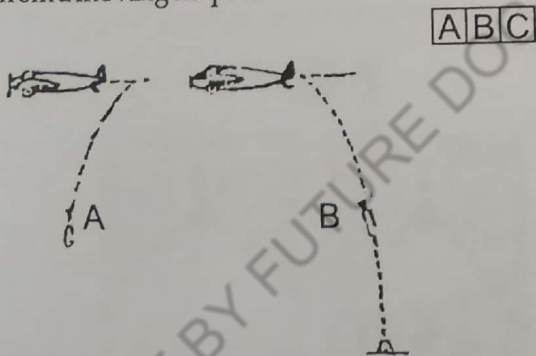
9. If the small wheel goes in the direction shown, in which direction will the large wheel go?



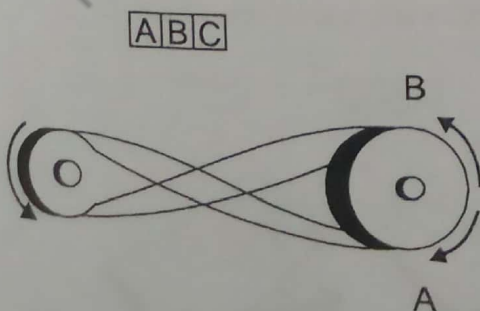
10. Which one of the ice will cool a drink more quickly?



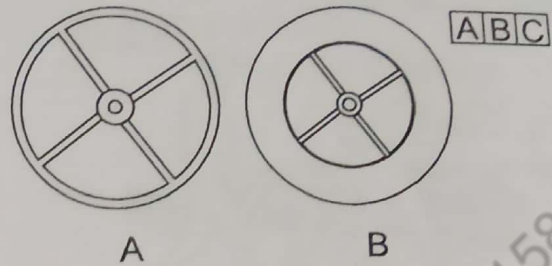
11. Which picture shows the way a bomb falls from a moving air plane?



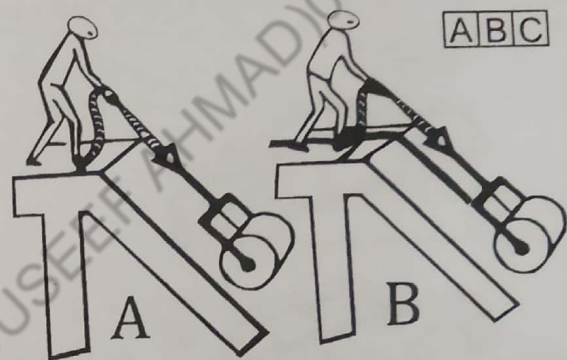
12. If the small wheel moves in the direction of arrow in which direction will the big wheel move?



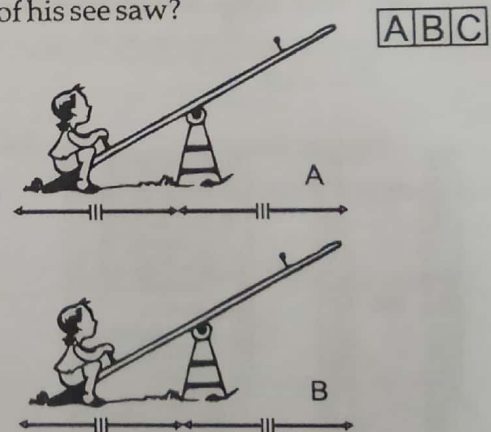
13. Which wheel will keep going longer after the power has been shut off?



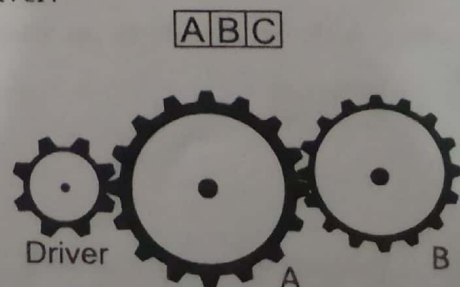
14. Who uses more force to pull up the roller?



15. If the two boys weigh the same, which one of them can balance a heavier boy on the other end of his see saw?

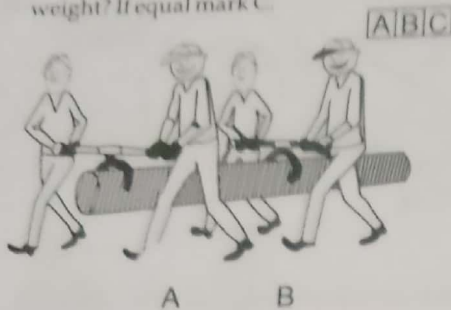


16. Which gear will turn the same way as the driver?

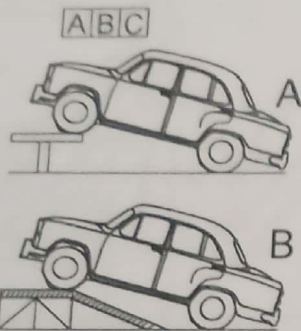


Career Finder

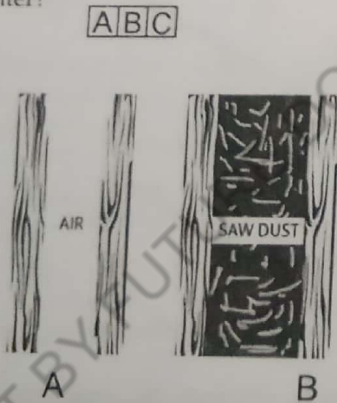
17. Which pair of men A or B is carrying more weight? If equal mark C.



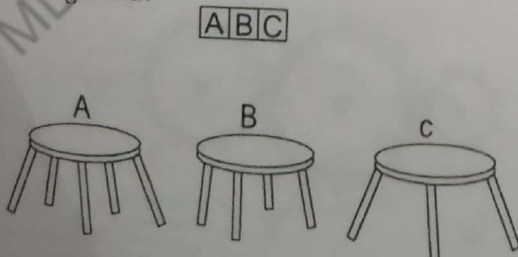
18. Which car is less likely to roll? If equal mark C.



19. Which wall will keep a house warmer in winter?

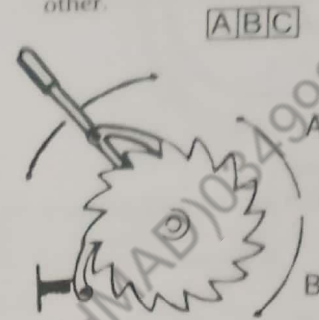


20. Which stool will be steadiest on uneven ground?

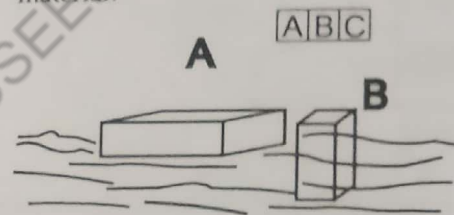


21. If the handle is moved forward, how will the wheel move?

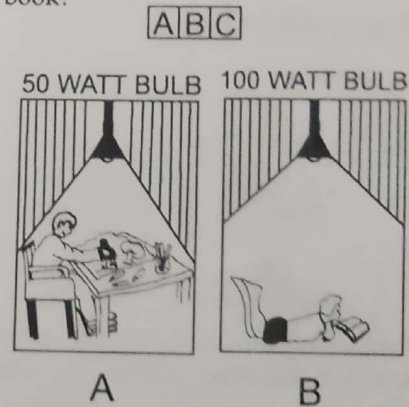
- (a) Towards A.  
(b) Towards B.  
(c) First in one direction and then in the other.



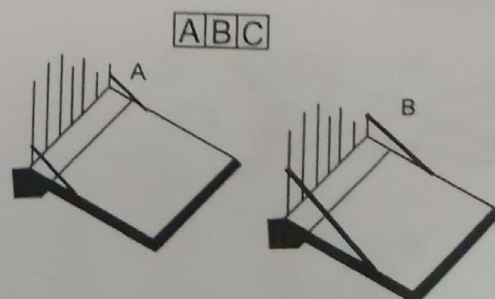
22. Which of these objects is made of the heavier material?



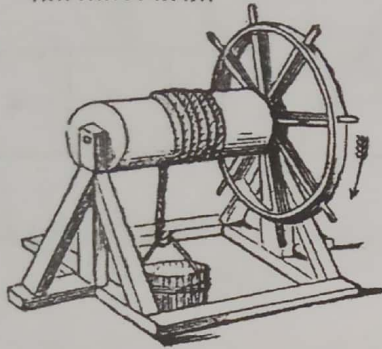
23. Which boy gets more light on the page of his book?



24. Which shelf is stronger? If equal, mark C.



25. If the handle is moved in the given direction, the weight will
- (a) move up ABC
- (b) go down
- (c) not move at all



26. Bottles shown in Fig. contain equal volumes of milk and butter. Which of the following statement is true.
- (a) Bottle containing butter will have more weight.
- (b) Bottle containing milk will have more weight.
- (c) Both the bottles will have same weight.

ABC



Milk

A



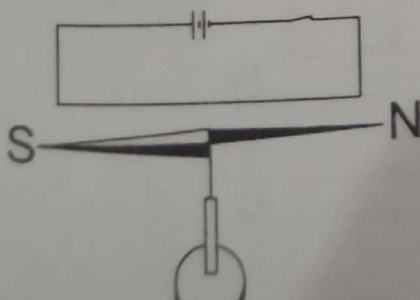
Butter

B

27. On closing the switch of the circuit shown, the north of the magnetic needle will always point:

ABC

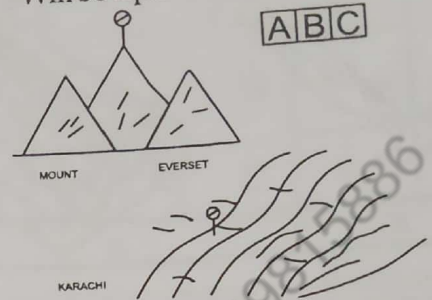
- (a) In the direction of current.
- (b) Opposite to the direction of current.
- (c) In any direction irrespective of the direction of current.



28. Air pressure (Barometer reading) at Mount Everest and Karachi will be:

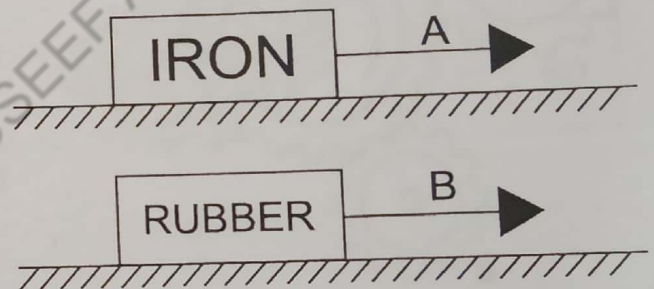
- (a) High at mount Everest.
- (b) High at Karachi.
- (c) Will be equal at both places.

ABC



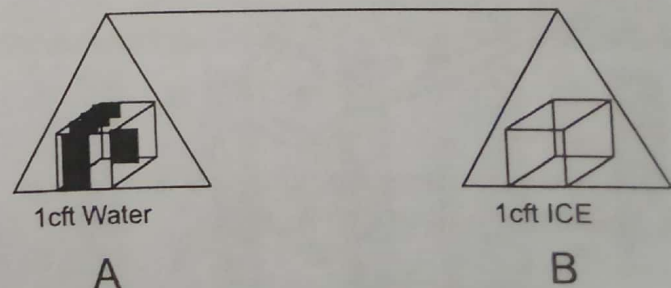
29. If weight of the block A & B is equal then which block requires more force when pulled on the surface. If A & B requires equal force then mark "C".

ABC



30. Which one will have more weight.
- (a) 1cft of water at room temperature
- (b) 1cft of ice
- (c) Both will have the same weight.

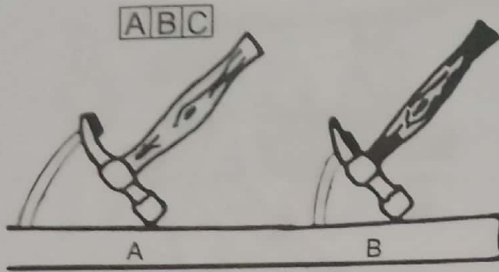
ABC



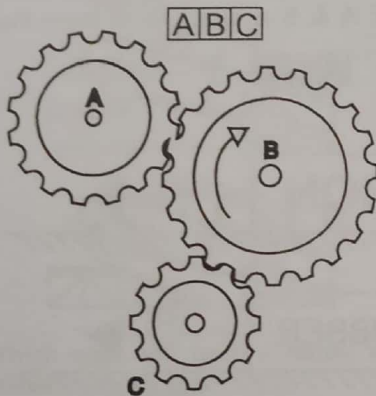
A

B

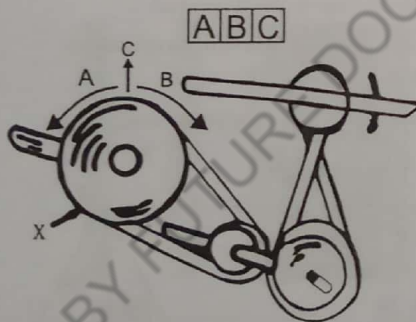
31. Which hammer will pull nail more easily.  
(a) Hammer A. (b) Hammer B.  
(c) Neither of A and B



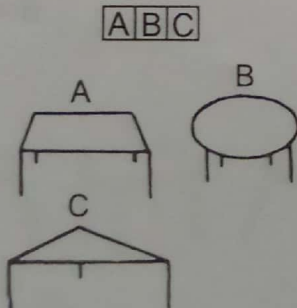
32. Which one of the wheel (gear) will rotate faster? A, B or C.



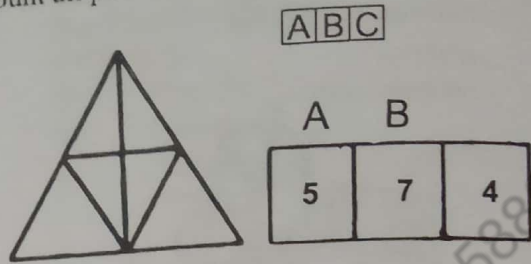
33. In which direction wheel "X" turns A, B or C.



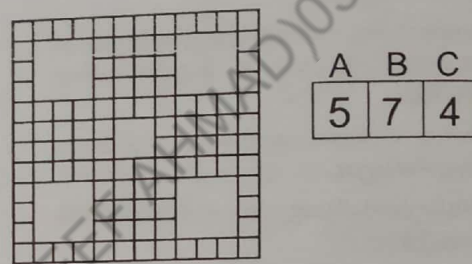
34. Here you see different podiums. Which one is the most difficult to tilt? A, B or C



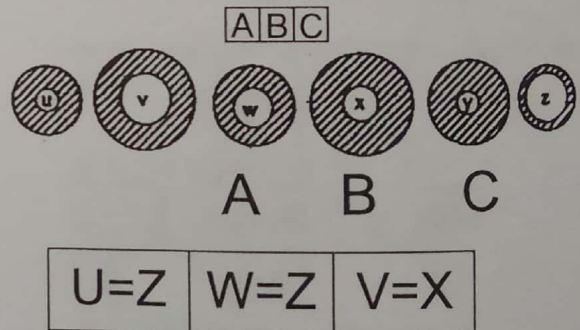
35. Count all possible equilateral triangles.



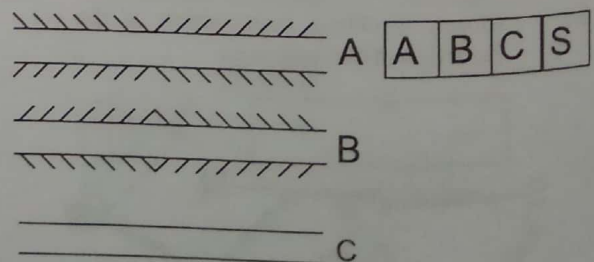
36. Count all the Big squares in the following figure.



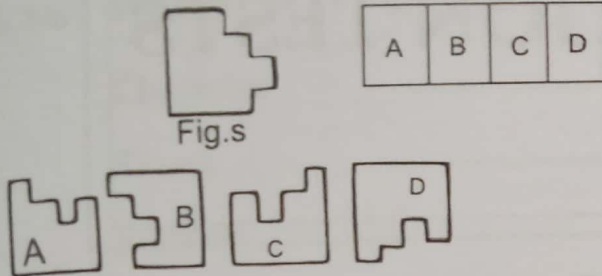
37. Find the circles with equal diameter.



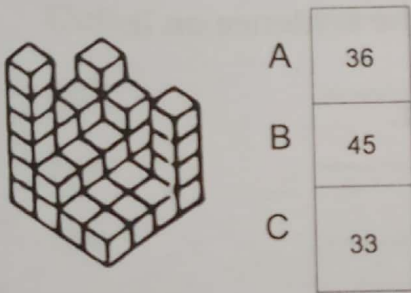
38. Which set of lines is parallel? If all are parallel write "S" in your answers.



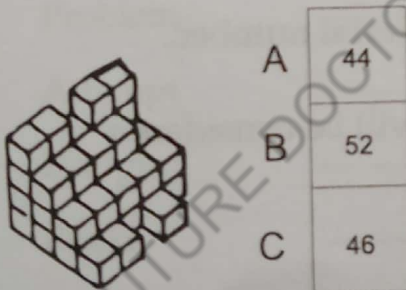
39. Which one of the lettered figure makes a rectangle with the given figure "S" En-circle the correct answer.



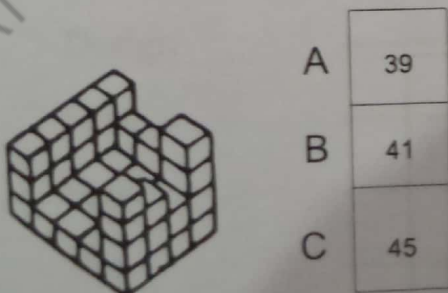
40. The cubes in the figure given below.



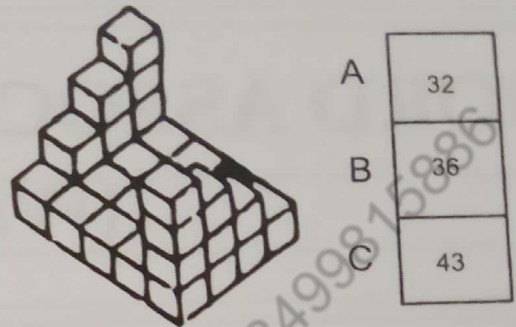
41. Count the cubes in the figure given below.



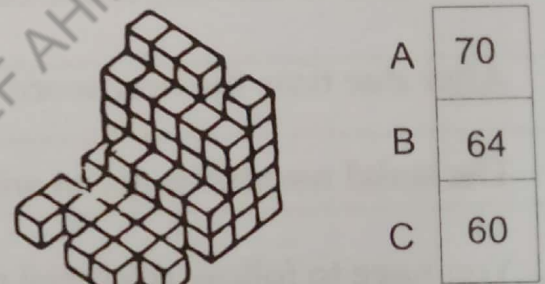
42. Count the cubes in the figure given below.



43. Count the cubes in the figure given below.



44. How many cubes are found in the figure given below?



### ANSWER KEY

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

# WORD ASSOCIATION TESTS (WAT)

## Instructions

1. You have 15 seconds to see each word and make sentence on it.
2. After due time the new word will be displayed.
3. The serial number is given with each word.
4. You have to follow the serial number.
5. Write your answer against the corresponding serial number.
6. If you laid wrong serial number your answer will be considered incorrect.

### Example:

Below is an example of a word which is displayed on the card or screen.

**GLASS**

# WORD ASSOCIATION TESTS

Sr.No	Words	Response
1.	Character	
2.	Travel	
3.	Journey	
4.	Respect	
5.	Duty	
6.	Life	
7.	Poor	
8.	Use	
9.	Climb	
10.	Problem	
11.	Attempt	
12.	Happy	
13.	Books	
14.	Rest	
15.	Short	
16.	Design	
17.	Save	
18.	Sick	
19.	War	
20.	Alone	
21.	Father	
22.	System	

Peer Finder

Sr. No	Words	Response
23.	Make	
24.	Nature	
25.	Trust	
26.	Attack	
27.	Beat	
28.	Continuous	
29.	Punctuality	
30.	Failure	
31.	Science	
32.	Space	
33.	Sky	
34.	Goal	
35.	Busy	
36.	Mother	
37.	Save	
38.	False	
39.	Knowledge	
40.	Sleep	
41.	Unfair	
42.	Sister	
43.	Cannot	
44.	Project	
45.	Regular	
46.	Adventure	
47.	Fortune	
48.	Choose	
49.	Impossible	
50.	Efficiency	



## ANSWERS:

### WORD ASSOCIATION TESTS

Sr. No	Words	Response
1.	CHARACTER	<u>A man should have good character.</u>
2.	TRAVEL	<u>I travelled by train.</u>
3.	JOURNEY	<u>The aeroplane reduces the journey.</u>
4.	RESPECT	<u>I respect my parents.</u>
5.	DUTY	<u>Duty should be done honestly.</u>
6.	LIFE	<u>Life is full of blessings.</u>
7.	POOR	<u>I help the poor.</u>
8.	USE	<u>Use of cigarette is not good.</u>
9.	CLIMB	<u>Monkey climbs up quickly.</u>
10.	PROBLEM	<u>I try to solve my problem myself.</u>
11.	ATTEMPT	<u>Attempt short questions quickly.</u>
12.	HAPPY	<u>Be happy always.</u>
13.	BOOKS	<u>Always read good books.</u>
14.	REST	<u>Rest is good for a test.</u>
15.	SHORT	<u>Short and brilliant life is good.</u>
16.	DESIGN	<u>Design on face is forbidden in Islam.</u>
17.	SAVE	<u>Save money where it is possible.</u>
18.	SICK	<u>Help the sick.</u>
19.	WAR	<u>Sometime war is necessary.</u>
20.	ALONE	<u>Life is not for alone person.</u>
21.	FATHER	<u>Quaid-i-Azam is the father of nation.</u>
22.	SYSTEM	<u>Democratic system is good.</u>

## Career Finder

- |                 |   |
|-----------------|---|
| 23. MAKE        | <u>Society makes a man good.</u>                |
| 24. NATURE      | <u>Nature cannot be changed.</u>                |
| 25. TRUST       | <u>Always trust in Allah.</u>                   |
| 26. ATTACK      | <u>Attack the enemy of the Muslim.</u>          |
| 27. BEAT        | <u>My father beat me at home.</u>               |
| 28. CONTINUOUS  | <u>Always remain continuous.</u>                |
| 29. PUNCTUALITY | <u>Punctuality is a good habit.</u>             |
| 30. FAILURE     | <u>Failure in examination made him sad.</u>     |
| 31. SCIENCE     | <u>Science improves the standard of life.</u>   |
| 32. SPACE       | <u>Scientists studied the space thoroughly.</u> |
| 33. SKY         | <u>Sky looks very beautiful.</u>                |
| 34. GOAL        | <u>I try my best to achieve my goal.</u>        |
| 35. BUSY        | <u>Man should always be busy in his work.</u>   |
| 36. MOTHER      | <u>I love my mother.</u>                        |
| 37. SAVE        | <u>Save for the rainy days.</u>                 |
| 38. FALSE       | <u>Don't make the false friend.</u>             |
| 39. KNOWLEDGE   | <u>Little knowledge is a dangerous thing.</u>   |
| 40. SLEEP       | <u>I often sleep in my room.</u>                |
| 41. UNFAIR      | <u>Don't collect money by unfair means.</u>     |
| 42. SISTER      | <u>I love my sister.</u>                        |
| 43. CANNOT      | <u>I cannot buy this car.</u>                   |
| 44. PROJECT     | <u>My project is to build a hospital.</u>       |
| 45. REGULAR     | <u>Always be regular.</u>                       |
| 46. ADVENTURE   | <u>His life is full of adventure.</u>           |
| 47. FORTUNE     | <u>Never run after fortune.</u>                 |
| 48. CHOOSE      | <u>Choose the best profession.</u>              |
| 49. IMPOSSIBLE  | <u>Nothing is impossible.</u>                   |
| 50. EFFICIENCY  | <u>You should use your efficiency</u>           |

# SENTENCE COMPLETION TEST

Direction:

Complete the following sentences:

1. Live for .....
2. Wine has more demerits .....
3. I believe in .....
4. Your goal is .....
5. War and peace .....
6. I saw her alone .....
7. During journey .....
8. Early in the morning .....
9. He went to Kohat .....
10. Marriage is .....
11. Our neighbours .....
12. The people of Pakistan .....
13. Life of Muslim .....
14. Islam is a .....
15. Democracy is .....
16. The present generation .....
17. The past-government was .....
18. The life of a soldier .....
19. The problem of Kashmir .....
20. Time is a .....
21. He has a knife .....
22. He lived a .....
23. A black snake .....
24. The main problem of Pakistan .....
25. India is with Afghanistan .....



## ANSWERS:

# Solution to Sentence Completion Test

Direction:

Complete the following sentences:

1. Live for others.
2. Wine has more demerits than blessings.
3. I believe in hard work.
4. Your goal is very important in your life.
5. War and peace are the part of a nation's life.
6. I saw her alone and helped her.
7. During journey he enjoys much.
8. Early in the morning he says his prayer.
9. He went to Kohat for I.S.S.B. Tests.
10. Marriage is not a child play.
11. Our neighbours are good of behaviour.
12. The people of Pakistan are very hard working.
13. Life of Muslim is devoted to Islam.
14. Islam is a great religion.
15. Democracy is necessary for progress.
16. The present generation is very intelligent.
17. The past-government was in favour of Atomic energy.
18. The life of a soldier is the name of Discipline.
19. The problem of Kashmir should be solved now.
20. Time is a horse without reins.
21. He has a knife to cut fruits.
22. He lived a very simple life.
23. A black snake should be kept far.
24. The main problem of Pakistan is overpopulation.
25. India is dependent on Pakistan for its trade with Afghanistan.

# SENTENCE COMPLETION

## TEST No. 2

Direction:

Complete the following sentences:

- 1- ہمارے نوجوان \_\_\_\_\_
- 2- پاکستانی لڑکیاں \_\_\_\_\_
- 3- پاکستان کا مستقبل \_\_\_\_\_
- 4- سپاہی کی زندگی \_\_\_\_\_
- 5- پاکستانی فلمیں محض \_\_\_\_\_
- 6- آج کل کے لڑکے \_\_\_\_\_
- 7- مشرقی پاکستان \_\_\_\_\_
- 8- صوبہ پنجاب میں \_\_\_\_\_
- 9- جمہوری نظام \_\_\_\_\_
- 10- پاکستانی قوم \_\_\_\_\_
- 11- مسلمان بڑی \_\_\_\_\_
- 12- ہمارا معاشرہ \_\_\_\_\_
- 13- انسان کو ہمیشہ \_\_\_\_\_
- 14- اُس نے اپنی والدہ سے کہا \_\_\_\_\_
- 15- فوجی زندگی \_\_\_\_\_
- 16- آج کل کی سیاسی پارٹیاں \_\_\_\_\_
- 17- آج کل فیشن \_\_\_\_\_
- 18- ٹیلی ویژن \_\_\_\_\_
- 19- مسئلہ کشمیر کا \_\_\_\_\_
- 20- پاکستان کی معاشی حالت \_\_\_\_\_
- 21- میں فرصت کے اوقات میں \_\_\_\_\_
- 22- ورزش ایک \_\_\_\_\_
- 23- یو۔ این۔ او کو مسئلہ کشمیر \_\_\_\_\_
- 24- جزل اسبلی میں ہمیشہ \_\_\_\_\_
- 25- وقت کسی کا \_\_\_\_\_
- 26- موجودہ دور \_\_\_\_\_

# THEMATIC APPERCEPTION TESTS (TAT)

## OR

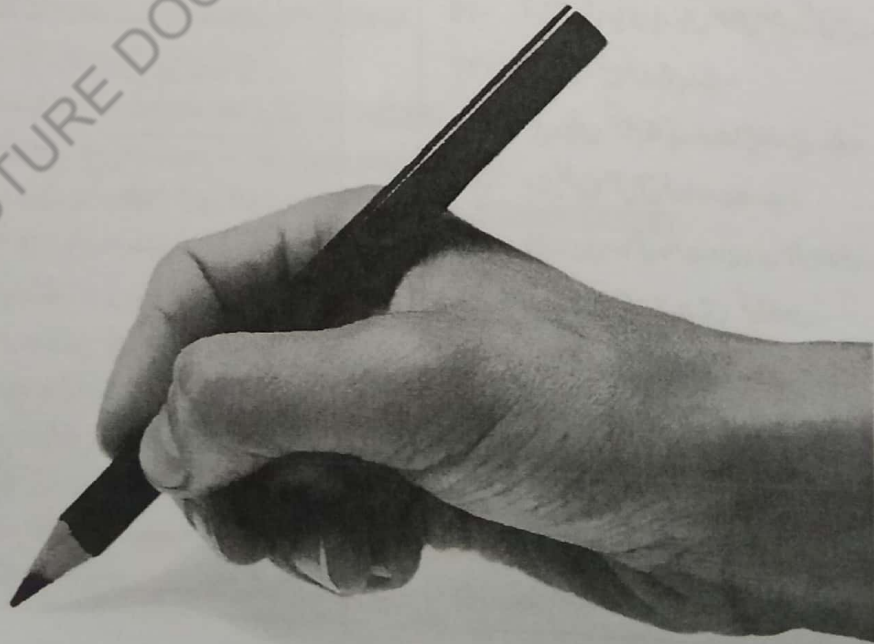
### PICTURE STORY WRITING

#### INSTRUCTIONS

1. There will be displayed 3 Pictures on the screen one after each.
2. You have to write a story on each picture.
3. You will be allowed 30 seconds to see the picture and 3½ minutes to write the story.
4. After 4 minutes next picture will be displayed on the screen.
5. You have to write the story in English language only.

نوٹ:

تصویر کے نیچے دی گئی خالی جگہ پر خود کہانی لکھیں بعد ازاں مجوزہ جوابات میں دی گئی کہانیوں سے موازنہ کریں۔



# PICTURES FOR STORY WRITING

## PICTURE NO. 1



Space for story.

PICTURE NO. 2



Space for story.

MDCAT BY FUTURE DOCTORS

## PICTURE NO. 3



Space for story.

# PICTURE STORY WRITING

**E**xplanatory Answers  
with  
Examiner's Review

## *Suggested stories on Picture No. 1*

### Story No. 1

Akmal is a bold, tough and intelligent Forest Officer. He faced the wild animals with cool courage and patience and succeeded in rescuing many poor victims. Once he was driving along a road frequented by the wild elephants. Suddenly he saw a beautiful girl being chased by a wild elephant at a distance. The girl was overcome by fear, fainted and fell on the centre of the road. He realised that unless he acted at once, the girl would be trampled by the elephant. He drove his car with terrific speed past the unconscious girl and blocked the path of the elephant with his car. Next he removed his coat, set fire to it and threw it towards the elephant. The elephant was frightened of the fire and ran into the jungle. He ran back to the girl and quickly carried her to the car and drove away swiftly before the elephant could return. At some distance he saw a jeep where the anxious parents of the girl were waiting for their daughter. By now the girl Sofia came out of her fainting. There was a happy reunion. The parents appreciated the courage of Akmal. Sofia fell in love with Akmal and they got married.

## Story No. 2

In the picture we see a beautiful girl lying on the centre of the road. There is a car at a near distance in which one boy is sitting. The boy is Amjad, only son of rich parents, and senior student in the same college. He was greatly attracted by the beauty of Shazia and decided to have her at any cost and by any means. Shazia did not like Amjad because of his many bad qualities. Besides she was in love with another boy, who was very good though quite poor. One day Amjad chased Shazia, abducted her with the help of some bad characters and attempted to rape her in his car. She struggled and fought with all her might and he eventually strangled her to death. Then he abandoned her dead body on a lonely road. Just then he heard some jeep or lorry driving up. He got frightened, drove off in a mad hurry. In his agitated condition he dashed against a tree and got killed.

## Story No. 3

Sheraz was a business man. One day he was urgently called to the next town to conclude some urgent business. He was to travel with substantial amount of money, all by himself on the deserted road. He did not also want to take others with him since he could not trust them. Ultimately he picked up some courage and decided to drive down himself in his car. While half way through he saw a beautiful girl lying on the centre of the road. Sheraz was afraid to stop and investigate why she was lying there. But her beauty was too tempting. He stopped the car at some distance and came near her to have a closer look. Just then the girl got up and cried out aloud. A few armed men came rushing from nearby bushes. The girl alleged that he attempted to molest her. The men threatened him with dire consequences. He gave away all the money he carried along with his wrist watch and diamond ring to satisfy them. To prevent him from rushing to the police, they burnt his car. He was overcome with shame. He did not want to return home in that condition. He fell into a river and committed suicide.

## Story No. 4

Irfan was a smart and capable police officer. He was bold, confident and devoted to his duty. One day a kidnapping case was reported to him. Two dacoits had kidnapped a beautiful girl and her little brother for a huge ransom. He was combing the dacoits, hide-out with police party but could not locate them. He decided to go further on the road in his car to find further clues if any. On the way he saw the kidnapped girl lying unconscious on the road. At once he rushed to her rescue and gave her first aid. The girl Saba then said that she managed to slip out from the dacoits but fainted on the road because of hunger and fatigue. She was afraid that the dacoits would kill her little brother as soon as they discovered her escape. Irfan therefore decided to face the dacoits single handed. Saba led him to the secret hide-out. He shot and wounded them when they tried to attack him. Thus by his brave and timely act Irfan succeeded in saving two young lives.

# EXAMINER'S REVIEW *on* Stories Of Picture No.1

## Comments on Story No. 1

The hero is ready to risk his life in order to save an unknown victim. When faced with danger he is able to think quickly and come out with a reasonable solution to overcome the problem. The story has a positive and happy ending. The author thus reveals himself as a resourceful and imaginative individual with a high sense of responsibility. Socially he is a good mixer and displays a sympathetic and helpful attitude. He makes good use of the opportunities presented to him. He has the urge and drive to better his lot.

☒ SELECTED

## Comments on Story No. 2

This story talks about a frustrated and incompetent hero and an unsuccessful heroine. We find the hero totally selfish, lacking in character and resorting to criminal acts to satisfy his lust. The heroine comes as a helpless victim. She is not successful in her efforts to save herself. The hero appears to be haunted by the fear of defeat and suffering from inferiority complex. He is not sure as to what precisely he wants and how he should go about to realise his ambition. This individual lacks stamina, determination and the positive attitudes necessary for success and leadership.

☒ REJECTED

## Comments on Story No. 3

The hero is ready to risk his life in order to save an unknown victim. When faced with danger he is able to think quickly and come out with a reasonable solution to overcome the problem. The story has a positive and happy ending. The author thus reveals himself as a resourceful and imaginative individual with a high sense of responsibility. Socially he is a good mixer and displays a sympathetic and helpful attitude. He makes good use of the opportunities presented to him. He has the urge and drive to better his lot.

☐ NOT SELECTED

## Comments on Story No. 4

The hero is ready to risk his life in order to save an unknown victim. When faced with danger he is able to think quickly and come out with a reasonable solution to overcome the problem. The story has a positive and happy ending. The author thus reveals himself as a resourceful and imaginative individual with a high sense of responsibility. Socially he is a good mixer and displays a sympathetic and helpful attitude. He makes good use of the opportunities presented to him. He has the urge and drive to better his lot.

☒ SELECTED

# Suggested stories on Picture No. 2

## Story No. 1

Shahid an intelligent, smart youngman began his career as an advocate just a year ago. He got married and we see him at the jewel shop with his wife, selecting an engagement ring for her. As he was about to select a costly diamond ring, Kanwal, his wife insisted that he choose a gold ring at a nominal cost. She said that Shahid should spend all the money he should could find then on building up a good law library. Later on when he becomes a famous and reputed lawyer with large income, he can buy her all the jewels in the world to his heart's content. Shahid yielded to the sensible advice of his bride, concentrating his efforts on elevating himself as the leading lawyer of the country. With the encouragement of his wife and by tireless hard work he soon became the leading man in the legal profession. He was then able to present a fabulous diamond necklace to his wife, when they celebrated the tenth anniversary of their wedding.

## Story No. 2

Sohail though quite intelligent, was rather lazy. He could secure only a third division in the final engineering examination. While all his efforts to land himself in a suitable job proved futile he decided to become a smuggler, dealing in the movement of gold and diamonds. In the picture we see him at a jewel shop with his accomplice. He is posing as a customer but really observing the place so that he can commit a robbery there. But he was not prepared for the burglar alarm and the two ferocious Alsatians. He was caught red-handed while attempting to rob the shop and was sentenced to seven years rigorous imprisonment. At the jail he made an abortive bid to escape and got shot by the sentry in the process.

## Story No. 3

Shan inherited a lot of money while still a college student when his father, a banker, died in an automobile accident. An obstinate and pleasure loving individual, Shan squandered his wealth on women. Here we see him at a jewellery mart buying costly ornaments for one of his girl friends. Finding girls falling easy prey to attractive jewels, he decided to set-up a jewellery shop himself. But he spent all his time away from the shop with women of easy virtue. Soon his business proved to be a terrible failure. He could not repay his debts and had to go to prison in default. The disease he acquired became worse in the prison and he died unmourned and uncared for by any one in the end.

### Story No. 4

Naveed, a well built, strong muscled and intelligent young man, has joined the police force, as a detective inspector. He was bold and imaginative and volunteered for the difficult risky assignment of catching the gang engaged in smuggling of diamonds and gold. After studying the situation and analysing the case history he decided to concentrate on a big jewellery shop in the city. One day he saw a well armed, beautiful young lady alighting from a posh, huge imported car and walking into the jewel shop with a majestic approach. He followed her inside the shop unobtrusively. He saw the lady removing a shining necklace from her shapely white neck and handing it over to the owner, saying that it did not suit her and she preferred another design. She spent some time looking at other pieces shown to her and finally choose the one offered by the owner. Naveed saw that the one she returned was a necklace made of real diamonds and the one she now selected was a mere imitation. When he attempted to question the lady, the thugs in the shop attacked him. Naveed who was an adept in karate had no problem in tackling them, as well as the lady who brought out a revolver from her hand bag. He succeeded in arresting the culprits and smashing the gang.

# EXAMINER'S REVIEW<sub>on</sub>

## Stories Of Picture No.2

### Comments on Story No. 1

A good story is presented with an optimistic ending. The hero has been depicted as a keen and resourceful individual who has ambitions and will. The heroine of the story has been pictured as a sincere and unassuming person, out to help the hero. The author thus reveals moderation and sincerity in his approach. He conserves his energy and resources and puts them to advantageous use. He displays interest and also the ability to put in sustained hard work.

☒ SELECTED

### Comments on Story No. 2

In this story we find the hero engaging himself unsuccessfully in various anti-social activities. He is averse to hard and honest work. He is eager to make money through short cut and meets with utter failure in the process. The author displays anti-social and negative characteristics. Though somewhat clear he is lazy and hence can cause serious headache to the organisation. With his pessimistic approach, he is not likely to improve with training.

☒ REJECTED

### Comments on Story No. 3

The story reflects a careless and irresponsible attitude on the part of the author. He identifies himself with the hero who lacks imagination and self-control. The hero allows himself to drift and ends up penniless and suffers imprisonment. The author's approach is thus negative oriented. He appears to shun hard work and balanced approach in sorting out his problems. An individual who cannot be relied upon.

☐ NOT SELECTED

### Comments on Story No. 4

In this story we find the hero bold and enterprising. He displays commendable initiative and seizes the opportunities with pluck and determination. His reaction is quick and approach is thorough. He is ready to cope up with unexpected situations in a cool and confident manner. The author's approach is optimistic and self-assured. He faces issue in a competent and capable manner. He is willing to take risk and make full use of his mental and physical gifts. A dependable individual who will deliver the goods.

☒ SELECTED

## *Suggested stories on Picture No. 3*

### **Story No. 1**

Ashraf is a keen and capable pilot of PIA. Although quite young, because of his interest, enthusiasm and urge he had already clocked over 20,000 hours of flying and risen to the position of senior jet pilot and captain of the Jumbo jet. Besides being an excellent pilot, he was also intelligent, smart and resourceful. On his own initiative he had mastered the techniques of coping up with hijackers and trained his crew very well in that art. Himself and his devoted, disciplined crew had a good understanding. Because of their alertness and imagination they successfully foiled the efforts of some hijackers and brought them to book. Once when Ashraf was piloting the Jumbo jet, a girl hijacker walked into the cock-pit and holding a revolver in her hand, ordered him to change course. He was not perturbed but acted with calm and confidence.

He verbally agreed to obey her orders but noted that she was standing lightly without anything to support her in case of a sudden turn of the aircraft. He pressed the alarm bell to the passengers to fasten their belts, gave the signal to the crew members and suddenly banked the aircraft deeply to the right. The girl hijacker was taken unawares and fell on the floor. The crew member who was ready and waiting pounced on her and disarmed her. Within a few minutes the aircraft made an emergency landing in a nearby airfield. The hijackers were handed over to the police and the aircraft took off again and reached its destination safely. He was awarded a medal for his courageous act.

## Story No. 2

Murtaza, boasted of himself as best transport pilot in the airlines or for that matter in the entire country. He also had good physique and build and with the good pay he received as a senior pilot, he was able to have many girl friends. No wonder that he regarded himself as a Don Juan who could win over any girl. Being overconfident, one day while piloting his aeroplane, he indulged himself in some day dreaming. The plane drifted, ran into clouds and the violent bumps shook Captain Murtaza and woke him rudely from his dreams. To his horror he realised that the aircraft had lost height and might run into some hill tops. He was totally confused and baffled and did what he could to gain height. Just then a smart girl with striking curves appeared at his elbow and told him that the plane had been hijacked. She ordered him to change course and head to an airfield located in a foreign country. He was impressed with the youthful figure and beauty of the girl hijacker. He began to stare at the girl, forgetting that his aircraft was in a dangerous situation. That was rather unfortunate. The aircraft dashed against a hill and was blown to pieces.

## Story No. 3

Sobia was a strikingly beautiful girl with provocative features. She was conscious of her beauty and proud of her ability to make men go mad after her. She joined the airlines as an airhostess. Captain Azhar, a pilot in the same airlines was a gay bachelor and both decided to have fun and it ended up in an affair. Very soon she was with child and she entreated him to marry her. He did not like the idea of being bothered with the responsibility of a wife and child. Once when they flew together she threatened to commit suicide if Azhar did not marry her. He was tactless and got irritated. He told her to go to hell and ordered her to get out of the cock-pit. She was infuriated and threatened to kill him first before ending her own life. He tried to snatch the revolver from her. In the struggle the revolver exploded. He was fatally injured and vital instruments of the aeroplane being damaged, the plane plunged towards the ground and exploded.

## Story No. 4

Lala Rukh was a beautiful and an intelligent girl with a friendly disposition. She was the beauty queen of her college and graduated with distinction and first division. Since she had an adventurous disposition, she wanted to visit foreign countries. But at the same time did not wish to become a permanent career girl, she decided to join PIA as an airhostess and served for five years on contract. After a year of her joining the PIA, Indo-Pak relations deteriorated badly and the hijacking of PIA Fokker Friendship aircraft by Indian gunmen took place. She as a devout patriot and determined to protect the PIA aircraft against Indian hijacking attempts. She was observant and watched all concerned closely and intelligently. One day she found the Captain of her aircraft acting in a suspicious manner. He loaded many personal baggages in the aircraft. He also took two passengers aboard skirting the security checks. Lala Rukh spoke to the security officer in confidence and four smart guards in civil dress were made to travel in the plane. During the flight there was a stage managed hijacking by the collaborators of the Captain. But their show was a short lived one. She faced the pilot with a revolver in her hand. She forced the Captain to fly in the normal route and thwarted the hijacking attempt. Her timely and brave act thus saved the valuable aircraft and a good deal of inconvenience and risk to the passengers. The Govt. appreciated her bold action by awarding her a medal.

# EXAMINER'S REVIEW<sub>on</sub>

## Stories Of Picture No.3

### Comments on Story No. 1

A well-written, purposive and meaningful story. The hero displays remarkable presence of mind, courage and resourcefulness in the face of serious danger. He has good initiative, reveals foresight and makes advance preparations. He proves to be a good leader and develops his team into a well knit unit. His approach is systematic and methodical. The author thus displays important leadership qualities, dynamism and self-confidence.

☒ SELECTED

### Comments on Story No. 2

The author has fair expressive faculty but the characters in the story have been depicted as anti-social individuals having serious personality drawbacks. The hero is selfish, indulgent and lacks the necessary sense of responsibility. His main obsession appears to be the satisfaction of his sexual appetite. The heroine has also been projected as anti-social hijacker. The story has a negative ending. Faced with a difficult situation the hero is unable to tackle the problem with competence. The story has a pessimistic ending. The candidate is emotional, works in fits and starts and susceptible to temptations.

☒ REJECTED

### Comments on Story No. 3

An involved story is running in fits and starts. Both the hero and heroine have been depicted as selfish and irresponsible individuals. They display a rigid, obstinate, one-sided approach. The author thus, does not display an attitude of give and take. He has conflicting desires and cannot be relied upon to complete his responsibilities efficiently and conscientiously. Displays a negative bent of mind and defeatist attitude.

☒ REJECTED

### Comments on Story No. 4

A purposive story narrating the bold and plucky action of the heroine. The author projects his main character as a positive and gifted individual. The resourceful heroine displays courage, loyalty and cooperative attitude. We find she manages to get things done as an efficient and capable leader. The author thus thinks on positive and healthy lines. He is confident of success.

☒ SELECTED

# STORY COMPLETION TEST

## INSTRUCTIONS

1. There will be displayed 3 incomplete sentences on the screen.
2. You have to write a story on each sentence.
3. You will be allowed 30 seconds to see the sentence and 3½ minutes to write the story.
4. After 4 minutes new sentence will be displayed on the screen.
5. You may use either Urdu or English language in writing.

نوٹ:

عبارت / جملہ کے نیچے دی گئی خالی جگہ پر خود کہانی لکھیں بعد ازاں مجوزہ جوابات میں دی گئی کہانیوں سے موازنہ کریں۔

Q. Complete the following stories in English or Urdu.

1. Aslam was a young man and was reading in his room. All of sudden.

اسلم نوجوان آدمی تھا اور اپنے کمرے میں محو مطالعہ تھا کہ اچانک

2. Nasreen was going alone in the Jungle. All of sudden.

نسرین جنگل میں اکیلی جا رہی تھی کہ اچانک

3. One night Afzal was sleeping in his home, at midnight he awoke up.

ایک رات افضل اپنے گھر میں سو رہا تھا آدھی رات کو اس کی آنکھ کھلی

مجوزہ جوابات (Suggested Answers)

نوٹ:

آپ کو تاکید کی جاتی ہے کہ نفسیاتی امتحانات کے جوابات آپ خود لکھیں۔ ہمارے جوابات کو رٹا نہ لگائیں۔

## ماڈل حل نامکمل کہانی

### کہانی نمبر 1

اسلم ایک نوجوان طالب علم تھا۔ وہ اپنے کمرے میں محو مطالعہ تھا کہ اچانک اس نے باہر سے شور سنا کہ ایک جیپ نے ایک سکوتر کو ٹکرا مار دی ہے۔ وہ باہر نکلا اس نے دیکھا کہ جیپ تیزی سے نکل گئی مگر اسلم نے اس کا نمبر اور رنگ لکھ لیا۔ زخمی بے ہوش ہو گیا تھا۔ اسلم نے اس کو ابتدائی طبی امداد مہیا کی۔ اسی اثنا میں اس نے دیکھا کہ ایک کار سڑک پر کھڑی ہے۔ اس نے ڈرائیور سے اسے اور زخمی کو ہسپتال تک پہنچانے کی درخواست کی۔ اس نے سکوتر سوار کو ہسپتال میں داخل کرایا۔ اس کے والدین اور پولیس کو اس کے بارے میں اطلاع دی۔ اسلم کی فراہم کردہ اطلاعات کی رو سے پولیس نے جیپ کو قبضے میں لے لیا۔ بعد میں معلوم ہوا کہ جیپ میں بدنام ڈاکو سوار تھے جو ایک قریبی بینک میں ڈاکہ ڈال کر آ رہے تھے۔ اسلم کے بروقت عمل اور فراست نے نہ صرف زخمی کو بچا لیا بلکہ ڈاکوؤں کو پکڑنے میں بھی بھرپور مدد کی۔ اسلم کو حکومت اور بینک کی طرف سے بھاری انعام دیا گیا۔

### ماہر نفسیات کا تجزیہ (ماڈل)

یہ کہانی مصنف کے تعمیری رویے کی نشاندہی کرتی ہے۔ مصنف نے ہیرو کو ایک Active فرد کے طور پر پیش کیا ہے۔ یہ رد عمل مصنف کے ہوشیار ہونے کی عکاسی کرتا ہے۔ کہانی سے یہ بھی ظاہر ہوتا ہے کہ مصنف ایک مشاہد بین اور Social Service دماغ رکھتا ہے۔ اس کے ساتھ یہ بھی ظاہر ہوتا ہے کہ مصنف کی طبیعت میں گھبراہٹ یا بھٹکاپن کی عادت نہیں ہے۔ ملاحظہ ہو وہ اتنی تازک صورتحال میں بھی اپنے Sences میں رہتا ہے اور ڈاکوؤں کی جیپ کا نمبر وغیرہ نوٹ کر لیتا ہے۔ لہذا

”اہل قرار دیا گیا“

## کہانی نمبر 2

اسلم ایک نوجوان آدمی تھا۔ وہ اپنے کمرے میں جو مطالعہ تھا کہ اچانک اس نے سنا کہ باہر کچھ شور ہو رہا ہے۔ اس نے دیکھا کہ کچھ لڑکے اس کے چھوٹے بھائی سے لڑ رہے تھے اور انہوں نے اسے زخمی کر دیا تھا۔ اسلم بچائے اس کے کہ اپنے بھائی کو ابتدائی طبی امداد فراہم کرتا۔ الٹا اسے کوئے لگ گیا۔ لڑکوں کو بھی برا بھلا کہا جس کی وجہ سے لڑکوں کی اس سے لڑائی ہو گئی۔ نتیجتاً اسلم کافی زخمی ہو گیا۔ جب وہ ہسپتال سے فارغ ہوا تو اس کے امتحان ہو چکے تھے جس کی وجہ سے اس کا ایک سال ضائع ہو گیا۔ مزید برآں پڑھائی کا حرج ہونے کی وجہ سے وہ کورس بھی مکمل نہیں کر سکا اور اب اس کے ڈاکٹر بننے کا خواب شاید کبھی پورا نہ ہو سکے۔ وہ آج تک اس دن کو کوس رہا ہے جب اس نے غصے میں آ کر لڑکوں سے لڑائی کی۔

## نفسیاتی تجزیہ (ماڈل)

اس کہانی کے ہیرو کا کردار مصنف کے منفی رد عمل کا منہ بولتا ثبوت ہے۔ مصنف کو موقع مل کا کوئی اندازہ نہیں ہے کہ اس موقع پر کیا کرنا چاہیے۔ یوں معلوم ہوتا ہے کہ مصنف ایک لا ابالی قسم کا انسان ہے۔ اسے کسی نگین صورتحال سے نمٹنے کا بالکل ادراک نہیں ہے۔ چاہے تو یہ تھا کہ وہ سب سے پہلے اپنے بھائی کی مرہم پٹی کرتا اور لڑاکا لڑکوں کے بارے میں پوچس سے رجوع کرتا لیکن اس نے اپنے بھائی کو کونے کے ساتھ لڑکوں سے بھی لڑائی مول لے لی۔ مصنف میں سوچنے سمجھنے اور موقع مل سے نمٹنے کی صلاحیت مفقود ہے لہذا

”ماڈل قرا کر دیا گیا“

نوٹ:

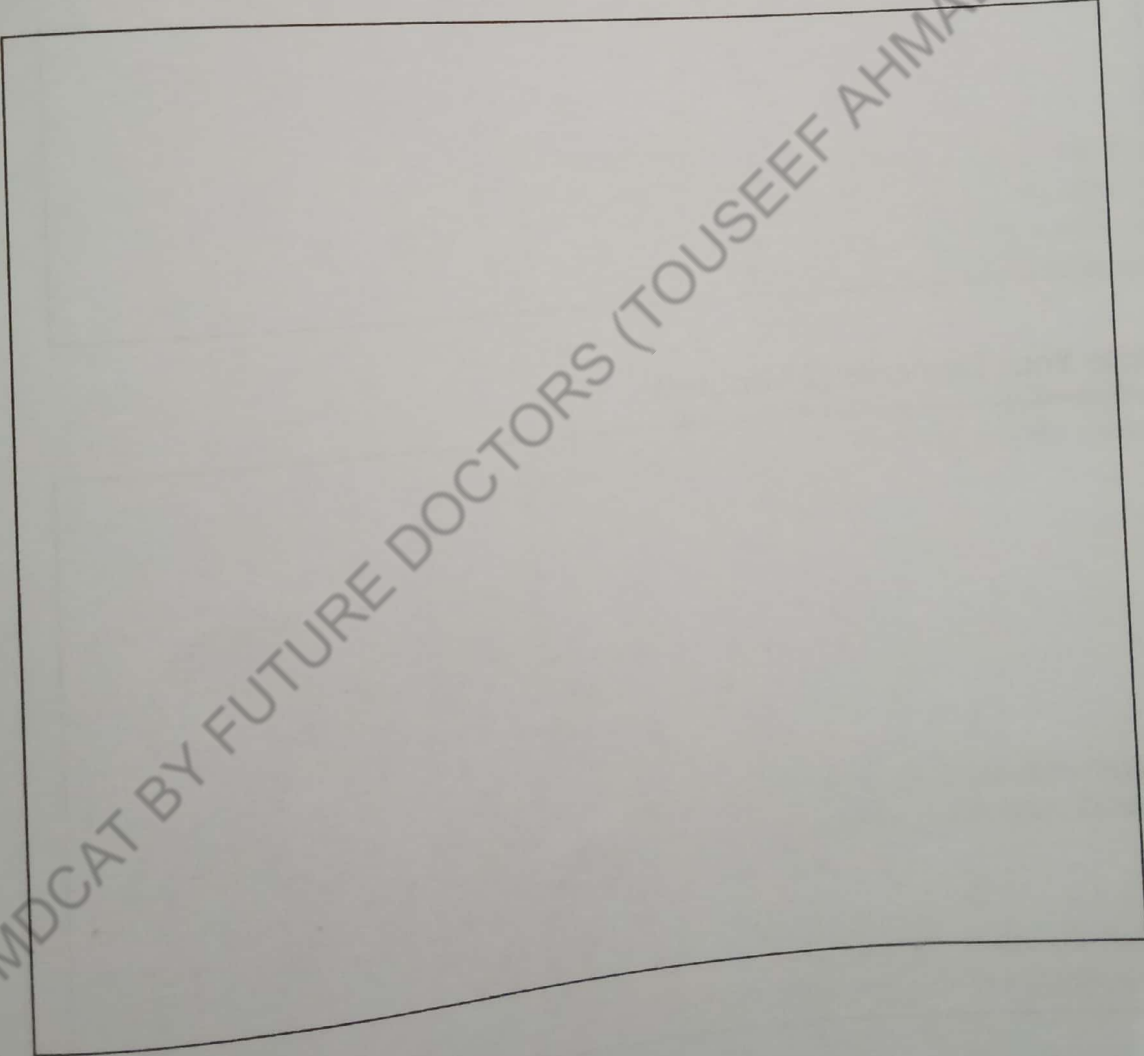
مندرجہ بالا مثالوں کو مد نظر رکھتے ہوئے باقی کہانیاں مقررہ وقت میں خود مکمل کریں۔

## قلمی تصویر تحریر کرنا یا خود بیانی

وقت 10 منٹ

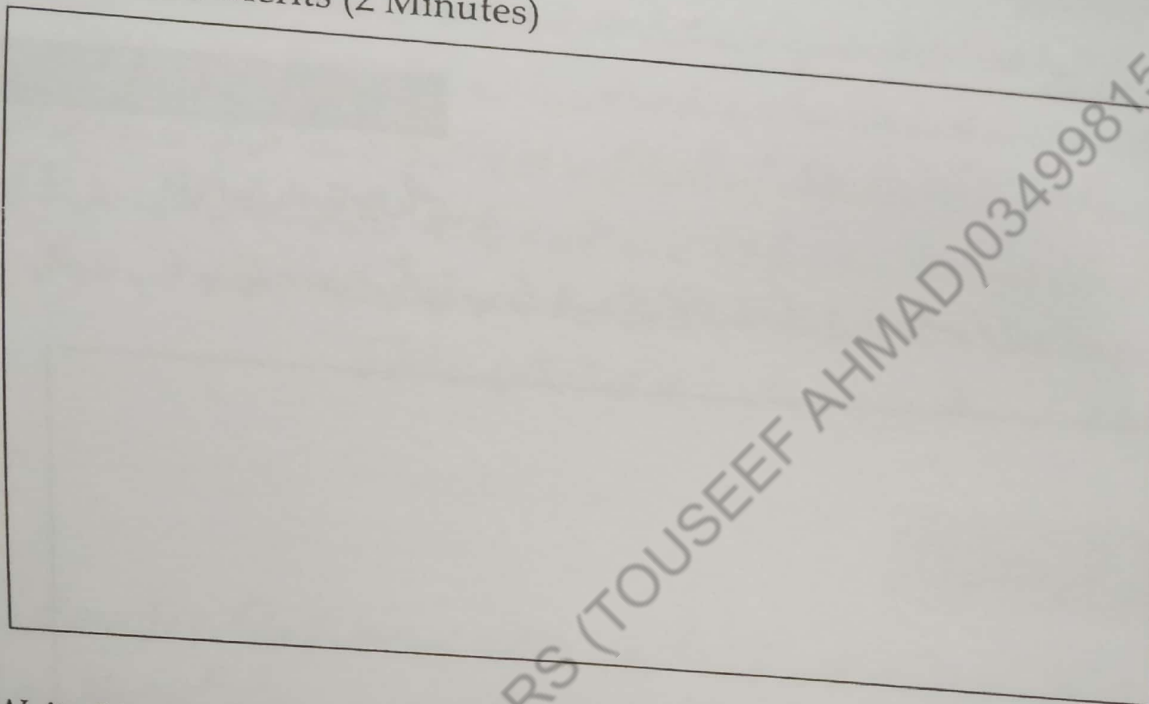
مندرجہ ذیل سوالات حل کریں۔

- 1- اپنی خوبیاں اور خامیاں لکھیں۔
- 2- آپ کے دوست اور دشمن آپ کے بارے میں جو رائے رکھتے ہیں اسے قلمبند کریں۔

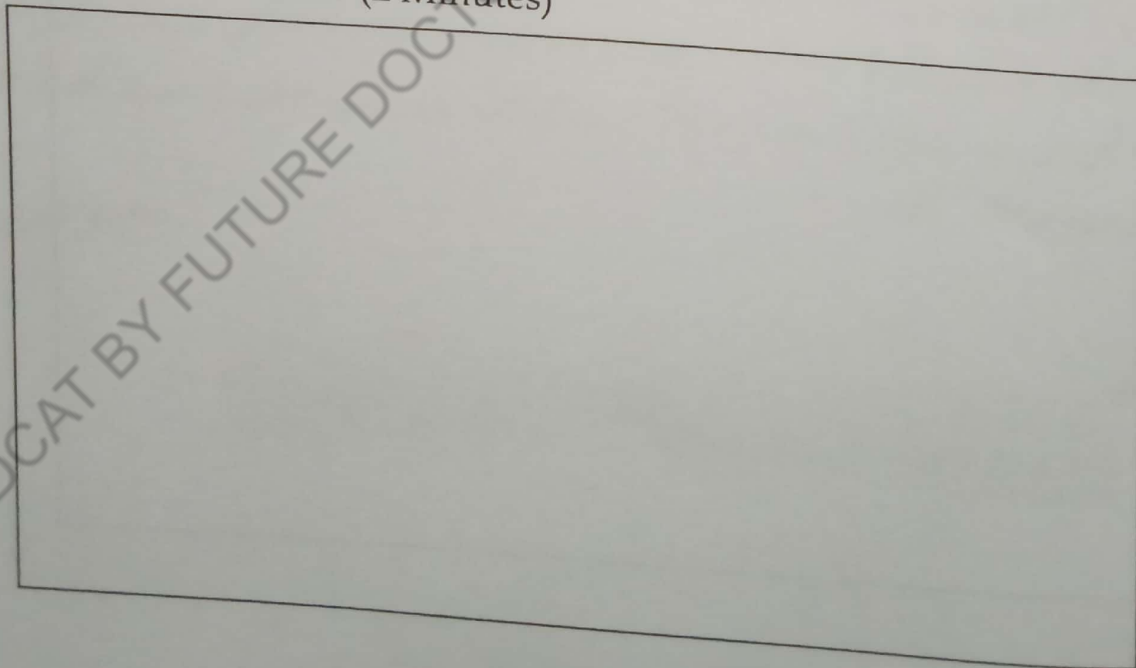


## Self-Assessment

Write Your Merits (2 Minutes)



Write Your Demerits (2 Minutes)



MDCAT BY FUTURE DOCTORS (TOUSEEF AHMAD) 03499815886

## SOLUTION

# How to write?

## SELF DESCRIPTION

Write your own life history up to the present day. Write the details as per the following headings. Points which cannot be covered under these headings are to be mentioned under the last heading. Write each heading in your account as interesting as possible.

### PART - I : MY HOME

Divide this part into the following two headings:

(a) **My Family**

Describe your father and mother, brother and sister giving their education, occupation and the behaviour of your father. Give the behaviour of your parents towards you. Who has influenced you most in your life and why? Whom (Brother/Sister) you like most & why?

(b) **My Environment**

Describe your home, mohallah, etc. Describe the type of people who live around you, and your association with various people including friends/girl friends.

### PART - II : MY SCHOOL LIFE

Divide this part into the following two headings:

(a) **My Early Life**

Describe your life from birth to the primary class (upto 7th class). Give details of how you spend your spare time. Types of schools attended and your teachers etc.

(b) **College Life**

Describe your life upto the Matric. Type of students, standard of education, type of teachers. Any friends and their peculiarities.

(c) **Marks & Division in 8th, 9th & other Examinations.**

**PART - III : EXTRA ACTIVITIES**

Divide this part into the following three headings:

- (a) **Games and Sports**  
Give details of all the games and sports you can take part in giving degree of proficiency. Include both outdoor and indoor sports.
- (b) **Hobbies**  
Give details of your hobbies giving reasons why you like them.
- (c) **Special Interests**  
Give details of any other activity in which you have interest and good at.

**PART - IV : MISCELLANEOUS**

Divide this part into the following headings.

- (a) **Why I want to join the Army?**
- (b) **My best character trait (with reasons).**
- (c) **Any other details including details about your life that have not been included in the headings above.**

**PART - V**

Any unforgettable EVENT / INCIDENT of your life. It may include unforgettable dream, thrashing by parents or teachers or greatest ambition.

## ماڈل حل ذاتی تجزیہ

دوستوں کی نظر میں (خوبیاں): وہ کہتے ہیں کہ

- 1- میں محنتی اور ذہین ہوں۔
- 2- کالج باقاعدگی سے جاتا ہوں۔
- 3- ہر اچھے کام میں پہل کرتا ہوں۔
- 4- ہوم ورک روزانہ کرتا ہوں۔
- 5- لیکچر غور سے سنتا ہوں۔

مخالفین کی نظر میں (خامیاں): وہ کہتے ہیں کہ

- 1- میں تیز تیز بولتا ہوں۔
- 2- ایک ہی کھیل کھیلتا ہوں۔
- 3- بہت تیز لکھتا ہوں۔
- 4- اخبار بنی زیادہ کرتا ہوں۔
- 5- اساتذہ کرام سے سوالات کرتا ہوں۔

نوٹ:

- 1- مخالفین کی رائے یا خامی ایسی لکھنی ہے جو مخالفین کی نظر میں تو خامی ہو، ویسے وہ آپ کی خوبی ہو۔
- 2- اگلے صفحات میں خوبیاں اور خامیاں ایک مضمون کی صورت میں دی جا رہی ہیں تاکہ امیدوار زیادہ سے زیادہ مواد یاد رکھیں۔

## میری خوبیاں اور کمزوریاں:

اپنی خوبیاں بیان کرنا تو اپنے منہ میاں مٹھو بننا ہے۔ آدمی کی خوبیوں کا صحیح اندازہ تو دوسرے لوگ لگا سکتے ہیں۔ کہتے ہیں انسان کو اپنی چھوٹی خوبیاں بڑی دکھائی دیتی ہیں اور اپنی بڑی بڑی کمزوریاں بھی چھوٹی نظر آتی ہیں تاہم میں اپنی چند اچھی باتیں گنوانے کی کوشش کرتا ہوں۔ تو سنیے میری پہلی خوبی یہ ہے کہ میں اپنے والدین اور اساتذہ کا فرمانبردار ہوں۔ میرے خیال میں یہ ایک بنیادی خوبی ہے بلکہ بہت سی خوبیوں کی جڑ ہے کیونکہ اسی خوبی کی بدولت مجھے دوسری اچھائیاں حاصل ہوئی ہیں۔ ظاہر ہے کہ والدین اور استاد اپنی عمر، تعلیم اور تجربے کی بنا پر ہم سے کہیں زیادہ دانا ہیں اور پھر دونوں میرے دلی خیر خواہ بھی ہیں۔ ہر استاد کی یہ کوشش ہوتی ہے کہ اس کا شاگرد اس سے بھی زیادہ تعلیم حاصل کرے۔ اسی طرح والدین بھی دل و جان سے یہ چاہتے ہیں کہ ان کی اولاد ان سے بھی زیادہ فائز المرام ہو جائے۔ اس لیے ان کا میرے لیے جو حکم ہوتا ہے وہ میری ہی بہتری کے لیے اور تعلیم و تربیت کے لیے ہوتا ہے۔ ان کے احکام کی تعمیل کر کے میں ہی فائدہ اٹھاتا ہوں۔ اگر میں ان کے احکام اور مشوروں کو نظر انداز کر کے اپنی پسند اور اپنے فیصلوں کو ترجیح دوں تو ضرور ٹھوکریں کھاؤں۔ ٹھوکر کھا کر تجربہ تو بے شک مجھے حاصل ہو جائے گا مگر اسی طرح ہر کام میں اپنے تجربات کے ذریعے صحیح راستہ متعین کرنا پڑے تو عمر عزیز کا بہت سا حصہ تو گرنے اور اٹھنے میں ہی صرف ہو جائے اس لئے عافیت اسی میں ہے کہ اپنے مہربان رہنماؤں کے علم اور تجربہ سے فائدہ اٹھایا جائے یعنی بڑوں کی اور بالخصوص والدین اور اساتذہ کی فرمانبرداری کی جائے۔ میری دوسری خوبی یہ ہے کہ میں سکول کی حاضری میں باقاعدہ رہتا ہوں۔ کبھی نانہ نہیں کرتا اور وقت کی پابندی کو لازمی جانتا ہوں۔ باقاعدگی اور پابندی وقت ہر کام میں کامیابی کا راز ہے وہی عمل بار آور ہوتا ہے جو مستقل ہو۔

میری تیسری اچھی عادت یہ ہے کہ آج کا کام کل پر کبھی نہیں چھوڑتا۔ سکول سے جو بھی کام گھر پر کرنے کے لیے ملے میں جب تک پورا نہ کر لوں کسی دوسرے شغل میں میرا دل نہیں لگتا۔ میرے اساتذہ میری اس عادت سے بہت خوش رہتے ہیں اور دوسرے لڑکوں کو میری مثال دے کر شرمندہ کیا کرتے ہیں۔ میری چوتھی خوبی یہ سمجھنے کہ خدا کے فضل و کرم سے مجھے اسی کم سنی میں نماز کی پکی عادت ہو گئی ہے۔ جہاں تک ممکن ہو مسجد میں باجماعت نماز ادا کرتا ہوں۔ میری پانچویں خوبی یہ ماننے کہ میں نے قرآن کریم ناظرہ پورا پڑھ لیا ہے۔ اور اب قاری صاحب کے پاس ہر روز آدھا گھنٹہ قرات کی مشق کرتا ہوں۔ میری چھٹی خوبی یہ ہے کہ میں بری صحبت سے پرہیز کرتا ہوں۔ اچھے لڑکوں کے ساتھ دوستی رکھتا ہوں۔ شام کو ورزش اور تفریح کے لئے بھی ایسے ہی دوستوں کے ساتھ کھیلتا ہوں۔

خوبیاں تو بہت ہو چکیں اب میری کمزوریاں بھی سن لیجئے۔ میری سب سے بڑی کمزوری ٹی وی کے پروگرام ہیں جب بھی کوئی دلچسپ پروگرام ہو میں ضرور دیکھتا ہوں۔ رات کو کتنی بھی دیر ہو جائے پروگرام دیکھ چکنے کے بعد سکول کا باقی کام کر لیتا ہوں۔ میری دوسری کمزوری یہ ہے کہ میں دودھ پینا پسند نہیں کرتا۔ والدین چاہتے ہیں کہ میں دودھ زیادہ استعمال کروں مگر مجھے گلاس منہ سے لگاتے ہی ابکیاں آنے لگتی ہیں۔ میری تیسری کمزوری یہ ہے مجھے جو جیب خرچ ملتا ہے وہ اکثر جیب میں ہی گھر واپس آ جاتا ہے۔ سکول کی کنٹینر پر جانے کو جی نہیں چاہتا البتہ کوئی دوست کھینچ کر لے جائے تو چلا جاتا ہوں مگر کھاتے ہیں وہ اور دام میں ادا کرتا ہوں۔

# MEDICAL TEST

After you have qualified in ISSB you will be asked to appear for Final Medical Test. These are a few things which are tested:-

1. Urine Test
2. Eye Sight Test
3. Chest X Ray
4. Ear, Nose and Throat (ENT)
5. Height, Weight and Chest
6. Heart Examination
7. Teeth Test
8. Knee Knocking Test
9. Flat Foot Test
10. Bones Test
11. Blood Pressure Test
12. Inherited Disease Test
13. Colour Blindness Test

You must not be afraid of Medical Examination. You might have not appeared in one earlier, but nonetheless you should not pay heed to any stories or rumours about it. It is a simple examination. If you are a normal healthy person, there is no reason why you should not be able to qualify it. However you should not be disappointed, if for one reason or another you are not selected in it. You must understand that a strict check up is made because of the extraordinary hardships and physical tasks which an army officer is supposed to perform. In normal civilian life you seldom undergo those difficult tasks. It does not happen in the life of a civilian that he has to run a mile in less than 10 minutes or run nine miles in 90 minutes or so. For physical exertions, better physical standards are required. It is mainly for this reason that even normal healthy people are rejected. Someone having heard murmur or flat foot may not suffer because of it throughout his life and lead a healthy life but in army he is likely to suffer because of it. This is precisely why army selection board conserves even smaller things.

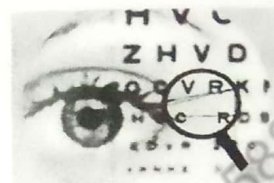
There are certain defects which may not be cured easily but with a little effort, you can improve other things. If a person has 5 eyesight, he may not improve it but a person having 1.5 is likely to improve. As far as height is concerned, you can improve it with the help of certain exercises but not to a very great extent. However an improvement of 2 inches may be possible with the help of some exercises. In the same way you can easily gain weight or lessen it and improve the chest girth.

## MEDICAL CHECK UP

There are a few points, which may help you in medical check up:

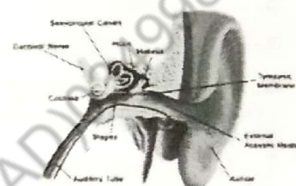
### EYESIGHT

Do not tax your eyesight just before the check up. Do not read for long time while waiting for the check up. Wash your eyes with cold water and if it is summer, do not stand in sun, it may have a temporary effect on your eyesight.



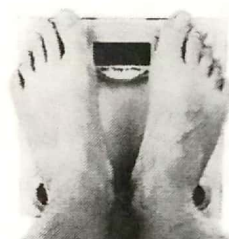
### EARS

Please clean your ears before going for check up. There may be certain deposits in your ears, please get them cleaned from some ear specialist, if you need it.



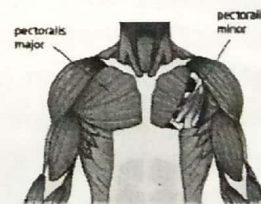
### WEIGHT

If you have less weight, take milk before being weighed. If it is summer, take lot of water, if you are over-weight, you may avoid morning breakfast. Those who have less weight should sleep more and take good diet. Those who are over weight should sleep less and take good exercise which may reduce the weight. The physical exercises would help in balancing your weight. However you should not be bothered, if you have less weight, you will gain it with the help of exercises and good food.



### CHEST

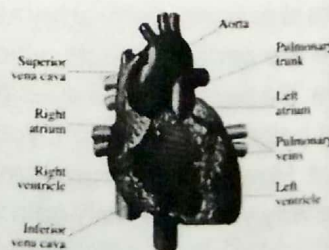
Apply olive oil on your chest in the morning and do push ups daily increasing it to fifty. Chest spander spring will also help to broaden the expansion of your chest. You can improve 2-inch in less than two months, if you perform those exercises regularly.



### HEART

You should get yourself medically examined by some doctor and he can advise you, if you have minor trouble. It is always better to undergo medical examination beforehand, if you feel that there is some defect. For minor defects, you may be deferred for sometime. However, once you are O.K. you will be able to qualify for the medical test.

You can appeal against the decision of the medical examination. However if rejected by a medical board, you will be in-eligible to apply for commission again, therefore you must take this point in mind before appealing to medical board. It may be still better, if you try your luck once more in another course and wait for sometimes rather than blocking your way for the rest of your life.



## MINIMUM PHYSICAL STANDARD

The candidates must fulfil the minimum physical standard which is as follows:-

- |    |                      |       |               |
|----|----------------------|-------|---------------|
| 1. | Height without shoes | ..... | 5 ft 2 inches |
| 2. | Chest (Normal)       | ..... | 30 ½ inches   |
| 3. | Chest (Expanded)     | ..... | 32 ½ inches   |

## MEDICAL CHART

Age years	Height	Minimum chest Measurement (Relative to age and height)	Weight (minimum)
16 - 17	64" - 66"	30" - 32"	110 lbs
	67" - 69"	30 ½" - 32 ½"	
	70" and above	31" - 33"	
18 - 20	64" - 66"	31" - 33"	115 lbs
	67" - 69"	31 ½" - 33 ½"	
	70" and above	32" - 34"	
21 - 22	64" - 66"	31 ½" - 33 ½"	120 lbs
	67" - 69"	32" - 34"	
	70" and above	32" - 34 ½"	

## HEIGHT & WEIGHT CHART WITH RESPECT TO AGE FACTOR

Age	18	19	20	21	22	23	24	25
(Height in Inches)	WEIGHT IN POUNDS							
58	87	91	96	100	105	110	115	119
59	90	94	99	104	109	114	119	124
60	93	97	102	107	112	118	123	128
61	96	100	106	111	116	122	127	132
62	100	104	109	115	120	126	131	136
63	104	107	113	118	124	130	135	141
64	107	110	116	122	128	134	140	145
65	110	114	120	126	132	138	144	150
66	114	118	124	130	136	142	148	155
67	118	121	127	134	140	146	153	159
68	121	125	131	138	144	151	158	164
69	125	128	135	142	149	156	162	169
70	128	132	139	146	153	160	167	174
71	132	136	143	150	157	165	172	179
72	136	140	147	154	162	169	177	184
73	140	144	151	159	166	174	182	189
74	144	148	155	163	171	179	186	194
75	148	152	160	168	176	184	192	200
76	152	156	164	172	178	189	197	205

Height

Age

# INTERVIEWS

Interview is essential Part of Defence Services. each candidate is interviewed individually, by a Deputy President. The time for each candidate varies. An interview may have the following breakdown:-

1. Family background
2. Educational background
3. Technical Questions

## EXAMPLE:

- a.  $1/2 + 2/4 = ?$
- b.  $3 \times 3 = ?$
4. General Knowledge
5. Character Analysis

## EXAMPLE:

- a. Do you see Vulgar Channels / CDs?
- b. How many girl friends do you have ?
- c. Do you see BPs?
6. General Awareness

## EXAMPLE:

- a. What did you eat at breakfast?
- b. How many Kms. is Jehlum from here? (If the Candidates belong to Jehlum)
7. Games and Hobbies

## EXAMPLE:

- a. What do you do in your spare time ?
- b. Detailed information about the game.
- c. Details about the hobby.
8. Islamiat
9. Current / General Affairs

## EXAMPLE:

- a. Where is our PM/President these days?
- b. What developments took place in the last week?
- c. What do you understand by Afghanistan Crisis?

# Sample Interview For Defense Forces

Candidate Assalam-o-Alaikum

Chairman Wa Alaikum-us-Salam, Please take your seat

Candidate Thank you, Sir.

Chairman What are the categories of modern war?

Candidate Sir, the categories of the modern war are: total war, limited war, local war, cold war, etc.

First Member Will you please furnish some elaboration on "total war"?

Candidate Sir, the total war denotes the carrying on of conflict with all the resources and all the weapons of mass destruction without any limitation to its nature and geography. No distinction is made between the military and civil population. There is seldom any respect for the rights of neutrals, morals or human rights, etc. Such a war, usually, engulfs the entire world and develops into a global war.

Second Member Will you please give some detail "on limited war"?

Candidate Sir, the limited war is restricted in many ways. It may be limited in its means of objects and location. It represents a war in which weapons of war or destruction are not used against the home front. In this category there may be restriction on the means of fighting, but locality is not limited.

Third Member What is "cold war"?

Candidate Sir, cold war is mainly a political rather than a military affair. It precedes a formal declaration of war. It refers to a condition of international dispute somewhere between negotiation and war itself. It is, in fact, a dangerous situation where relations among nations have become strained and the next step in the worsening plight can lead to armed war. The participant nations in the cold war are, indeed, in political and economic conflict except by the exercise of mutual restraint, total war by which a country aims at uprooting the existing balance of power. It makes utmost attempts to weaken the enemy by winning over his possible allies, overthrowing constitutional authority through subversion and infiltration, confusing his beliefs and undermining his economy. The cold war, on account of division of the world in two blocs, following divergent policies, has acquired a world-wide range. Each bloc is seeking to reach, before war becomes inevitable, such a position that it can be won with the minimum period of fighting.

Third Member Please tell us, also, about "hot war"?

Candidate Sir, at a time when a country finds it difficult to settle an international dispute, then it starts a conflict to solve that issue which is called "hot war" or a "shooting war".

Chairman That will do, please.

Candidate Thank You, sir, Assalam-o-Alaikum

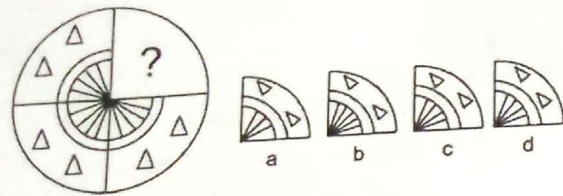
Chairman Wa Alaikum-us-Salam

# ERRATA (ج)

Correction

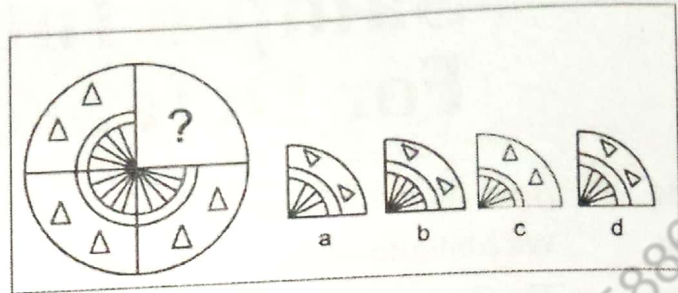
Question / Page No

Q. 6/ Page No 227



The answer is C.

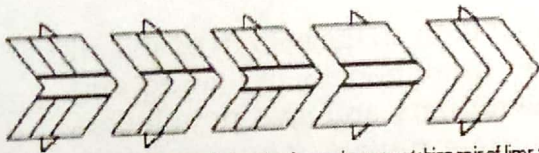
Q. 6



The answer is C.

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14.



The second image does not belong, all the other images have a matching pair of lines and symmetry on both sides of their shape. The second one does not have a matched line and therefore is asymmetrical, making it the odd one out.

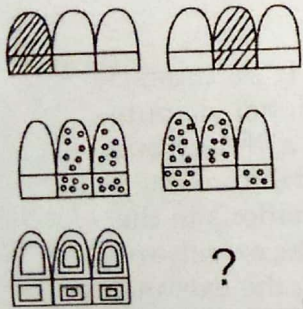
Q 14



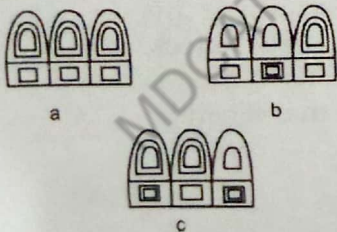
The second image does not belong, all the other images have a matching pair of lines and symmetry on both sides of their shape. The second one does not have a matched line and therefore is asymmetrical, making it the odd one out.

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20.

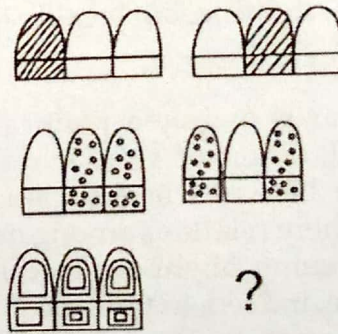


Answer:

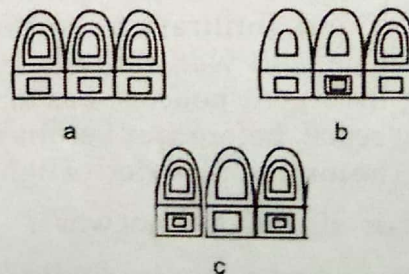


The answer is C. Looking at the patterns of the first two images the striped section was shifted to the right, the same occurred with the second set of images. However the patterns remained the same and another was done to alter the images other than moving the outlier pattern to the right. With that in mind, the solution will contain the same patterns in its image and only the outlier pattern will be moved, the only possible answer with that criteria is C.

Q. 20



Answer:



The answer is C. Looking at the patterns of the first two images the striped section was shifted to the right, the same occurred with the second set of images. However the patterns remained the same and another was done to alter the images other than moving the outlier pattern to the right. With that in mind, the solution will contain the same patterns in its image and only the outlier pattern will be moved, the only possible answer with that criteria is C.