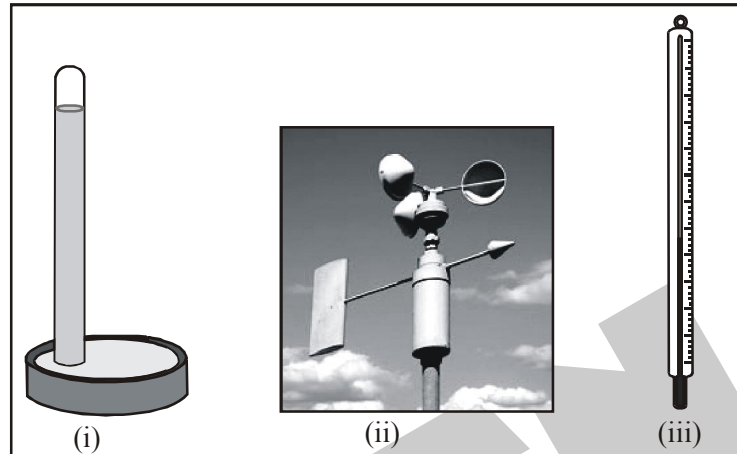


SECTION - A : PHYSICS

This section contains **12 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

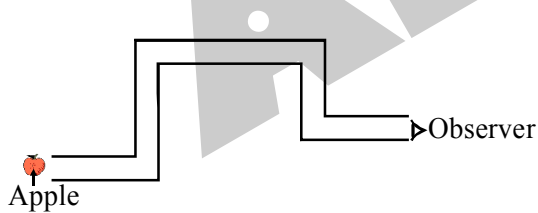
1. Study the following instruments.



Which combination of the above from (i) to (iii) would show temperature, wind speed and air pressure respectively ?

- (1) (ii); (i); (iii)
- (2) (iii); (ii); (i)
- (3) (ii); (iii); (i)
- (4) (i); (ii); (iii)

2. Look at the figure given below carefully.



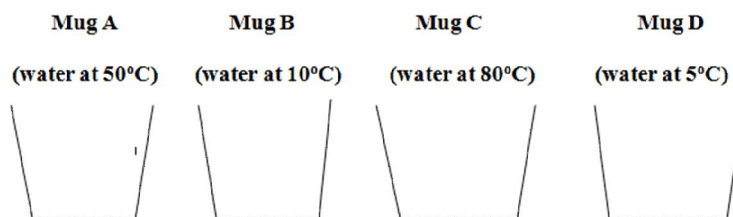
How many mirrors are required to enable the observer to see the apple ?

- (1) 4
- (2) 2
- (3) 1
- (4) 3

3. Anjali placed a metre stick in the playground at 8.00 a.m. in the morning. How will the shadow of the stick at 1:00 pm be in comparison to the one at 8:00 am?

- (1) There will be no shadow
- (2) The shadow will be longer and on the opposite side of the sun.
- (3) The shadow will be shorter and on the same side as the sun.
- (4) The shadow will be shorter and on the opposite side of the sun.

4. Four identical mugs of water were left on a table at room temperature as shown below.



Which mug(s) lose heat to the surrounding air?

- | | |
|------------------|------------------|
| (1) A and B only | (2) A and C only |
| (3) B and C only | (4) B and D only |
5. Two thermometers one Celsius and the other Fahrenheit are put into a hot bath. The reading on Fahrenheit thermometer is just three times the reading on Celsius thermometer. The temperature of bath is
- | | |
|------------|-------------|
| (1) 100 °C | (2) 80/3 °C |
| (3) 80 °C | (4) 70 °C |
6. Match the entries of column-I with column-II and choose the correct alternative.

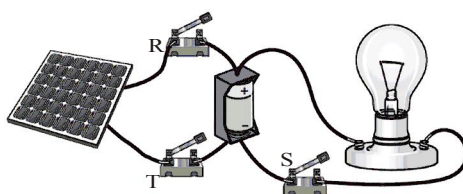
Column-I

Column-II

- | | |
|------------------|------------------------|
| (a) Lodestone | (p) repel each other |
| (b) Like poles | (q) natural magnet |
| (c) Hammering | (r) demagnetisation |
| (d) Unlike poles | (s) attract each other |

- (1) (a)–(r); (b)–(s); (c)–(q); (d)–(p)
 (2) (a)–(r); (b)–(q); (c)–(s); (d)–(p)
 (3) (a)–(q); (b)–(r); (c)–(p); (d)–(s)
 (4) (a)–(q); (b)–(p); (c)–(r); (d)–(s)

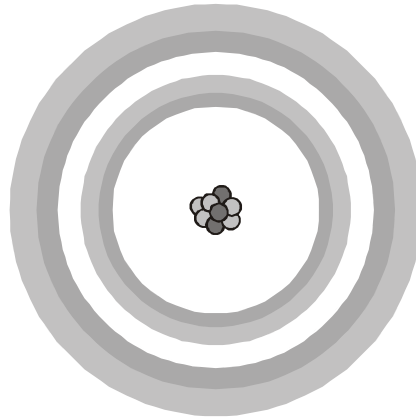
7. A simplified diagram of a system using solar energy is shown.



To recharge the battery for later use without lighting the bulb, which of the following switch(s) should be closed?

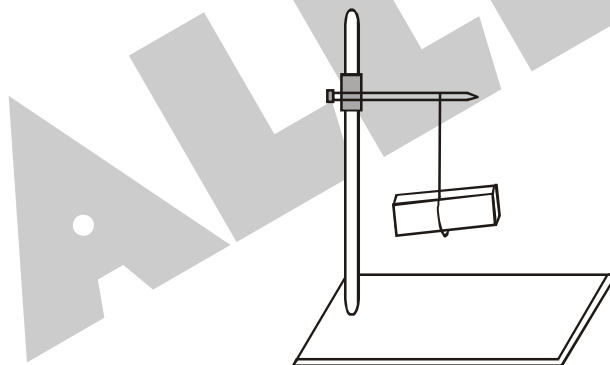
- | | |
|---------------------------|---------------------------|
| (1) Switch S only | (2) Switches R and S only |
| (3) Switches R and T only | (4) Switches R, S, and T |

8. A model of a beryllium atom is shown below.



What types of particles are found in the cloud surrounding the atom's nucleus?

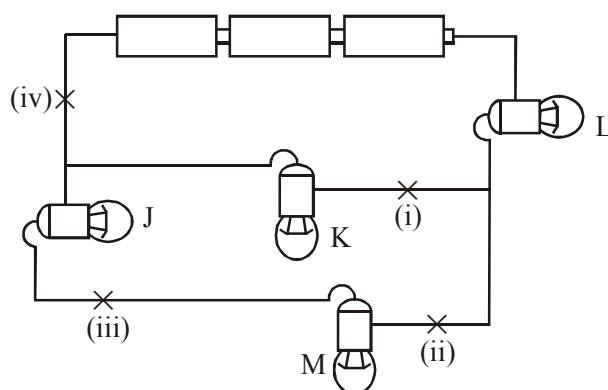
- (1) Positively charged particles and negatively charged particles
 - (2) Negatively charged particles only
 - (3) Neutral particles and positively charged particles
 - (4) Positively charged particles only
9. Suresh has a small piece of metal and a thread. To find whether the piece is a magnet or not, he



- (1) requires a piece of magnetic substance
 - (2) requires a piece of non-magnetic substance
 - (3) requires a magnet or a compass
 - (4) does not require anything else
10. Which of the following is not correct ?

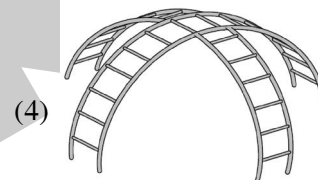
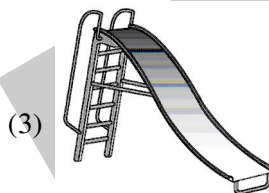
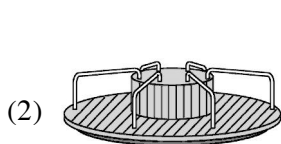
	Example	Type of Motion
(1)	Earth's motion	Periodic
(2)	A potter's wheel	Rotational
(3)	A swimmer swimming from one bank of a river to the other and back in a straight line	Translational
(4)	A cockroach trying to hide	Curvilinear

11. The diagram below shows four lighted bulb, J, K, L and M connected to three batteries. A switch is added such that when it is open, only one bulb is not lighted up while the other three remain lighted up at all times.



The part of the circuit in the diagram above where the switch is most likely placed is

- (1) (i) (2) (ii) (3) (iii) (4) (iv)
12. Which piece of playground equipment is made for oscillatory motion?



SECTION-B : CHEMISTRY

This section contains **11 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

13. What's common among motion of the planets around the sun, blinking of traffic lights and occurring of seasons?
- (1) Irreversible changes
 (2) Chemical changes
 (3) Periodic changes
 (4) Undesired changes
14. The fibres obtained from animals are made up of
- (1) Proteins (2) Glucose
 (3) Cellulose (4) Vitamins
15. Select the mismatched pair out of the following.
- (1) World water day – 22 march
 (2) Hydrosphere – solid part of earth's crust
 (3) Rain water harvesting – water conservation
 (4) Step wells – Traditional water harvesting structures

16. Two samples X and Y are tested with various indicators. The observations are listed in the following table.

Sample	Phenolphthalein	Methyl orange
X	Colourless	Red
Y	Light pink	Yellow

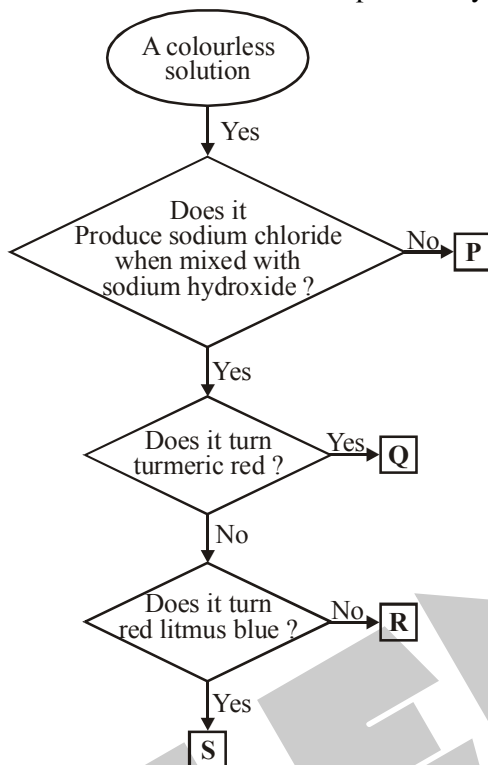
What are samples X and Y ?

- (1) X is HCl and Y is NaOH (2) X is NaOH and Y is HCl
(3) X is NaOH and Y is KOH (4) X is HCl and Y is HNO_3
17. Choose the incorrect statement among the following.
- (1) Tamarind, tomato and sour milk are the natural sources of tartaric acid, malonic acid and lactic acid respectively.
(2) The atmosphere of venus is made up of thick white and yellowish clouds of sulphuric acid.
(3) Sodium carbonate is used for removing hardness of water.
(4) Dilute HCl reacts with solid sodium carbonate to give brisk effervescence.
18. Water has its maximum density at
- (1) 100°C (2) 0°C (3) 4°C (4) 78°C
19. Cooking Crumpling a sheet of paper Burning of wood
Digestion of food Boiling an egg Crushing a can
Rusting of iron Melting of ice cube Breaking a glass
Grass mowing
- How many examples of chemical changes are there in the grid ?
- (1) 4 (2) 5 (3) 6 (4) 7
20. Which of the following is not a type of silk?
- (1) Mulberry silk (2) Tussar silk (3) Muga silk (4) Mohair silk
21. Identify an undesirable change from the following.
- (1) Ripening of fruits (2) Occurrence of earthquakes
(3) Preparing starch by photosynthesis in plants (4) Evaporation of sea water
22. Read the passage and select the option which correctly fills the blanks in any two of the below passage.

The science of raising silk worms, so as to obtain silk cocoons, is called sericulture. The initial step in the harvesting of silk fibre is to (A) the insect inside the cocoon. The cocoons are the dried and brushed to remove coarse (B) portion which consists of coarse filaments. After brushing, filaments from four to eight cocoons are joined and twisted. The thread is called (C) silk. It usually consists of (D) individual silk fibres.

- (1) (C)-old, (D)-40 (2) (B)-inner, (A)-generate
(3) (A)-kill, (C)-raw (4) (A)-kill, (C)-New

23. Study the flowchart shown here. Which letter could represent hydrochloric acid ?



(1) P

(2) Q

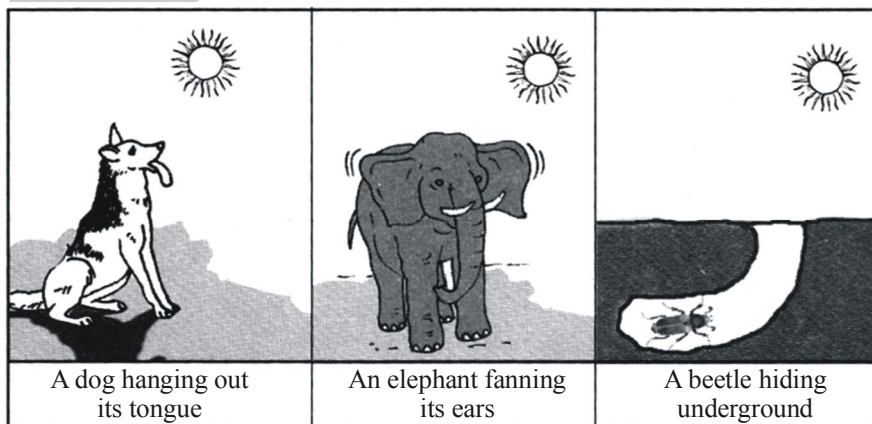
(3) R

(4) S

SECTION-C : BIOLOGY

This section contains **12 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

24. Look at the animals shown below.



Which of the following characteristics of living things are the animals showing ?

(1) Need food to stay alive

(2) Growth

(3) Reproduction

(4) Response to changes around them

25. Which one of the following plant does not have edible root ?

(1) Sugarcane

(2) Sweet potato

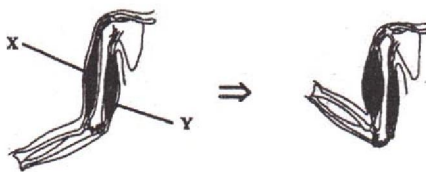
(3) Turnip

(4) Radish

26. Harry is an ecofriendly boy. He loves nature. Her mother is opposite to him. She throws everyday's wastes from the kitchen in the open vacant places. Which of the following activities he should suggest to minimize pollution ?
- (1) Throw the wastes in the near by water sources.
 - (2) Collect them all in big polythene and throw it in the vacant place near his house.
 - (3) Recycle the suitable wastes.
 - (4) Dump them in a pit and cover it with soil.
27. Which of the following is nonbiodegradable or cannot be recycled?



28. The method in which the stem of a plant is used to produce a new plant without detaching it from the plant is called
- (1) Grafting
 - (2) Layering
 - (3) Cutting
 - (4) All of these
29. Look at the figure shown here. What is happening to the X and Y muscles during this movement?



- (1) X is contracting, Y is contracting
 - (2) X is contracting, Y is expanding
 - (3) X is expanding, Y is contracting
 - (4) X is expanding, Y is expanding
30. The patches of green or brown colour developed on surface of bread which is present in a moist warm place, these patches are actually
- (1) Fungi
 - (2) Algae
 - (3) Small green plants
 - (4) Hidden colour of bread
31. Shoulder joint
- (i) is a ball and socket type of joint.
 - (ii) is a joint in which the rounded end of one bone fits into cavity of other bone.
 - (iii) allows movement in all directions.
- Which of the above statements correct regarding shoulder joint ?
- (1) (ii) & (iii) only
 - (2) (i) & (iii) only
 - (3) (i) & (ii) only
 - (4) All the above
32. Lily has divided living things into two groups.

Need air to live	Can live without air
birds, humans, snakes, crocodiles	trees, fishes, snails, earthworms

What mistake she has done while dividing these two groups ?

- (1) Only humans need air to live.
- (2) Only birds and humans need air to live.
- (3) Only trees and fishes can live without air.
- (4) The living things in both lists need air to live.

33. The below diagram is showing plant with



- (1) Parallel venation and tap root system (2) Parallel venation and fibrous root system
 (3) Reticulate venation and tap root system (4) Reticulate venation and fibrous root system
34. To determine _____ of a place, sunset, sunrise, moonset moonrise, maximum and minimum temperature, humidity, rainfall, etc are recorded for on an average 25 years.
 (1) weather (2) climate (3) both (1) and (2) (4) adaptation
35. Look at the picture given below. Which one of the following types of tooth does the picture represent ?

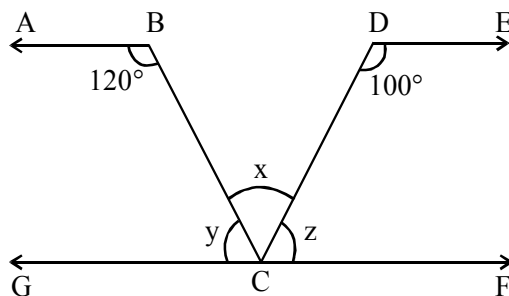


- (1) Incisors (2) Canine (3) Lateral incisor (4) Molar

SECTION-D : MATHEMATICS

This section contains **25 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

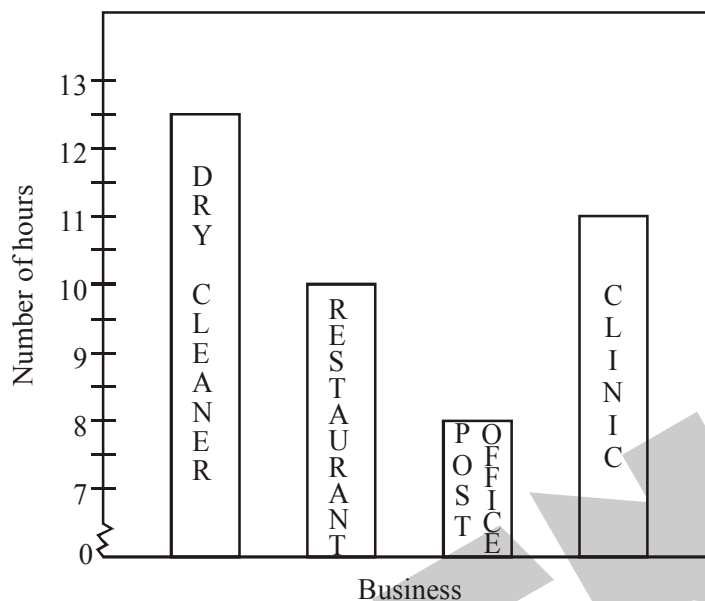
36. What least digit replaces to * so that the number 653*47 is divisible by 11 ?
 (1) 9 (2) 6 (3) 2 (4) 1
37. Define : $a * b = 2(a + b) + 2a$; where a,b are any two numbers. If $3 * x = 4$, then x is
 (1) 2 (2) - 4 (3) 6 (4) 8
38. The first class fare from Chandigarh to Jaipur is Rs. 557 and the sleeper class fare is Rs. 165. How much would a family of 4 members save by choosing to travel by sleeper class?
 (1) Rs. 1200 (2) Rs. 1568 (3) Rs. 2420 (4) Rs. 1634
39. $AB \parallel GF$ and $DE \parallel GF$, then x is _____ .



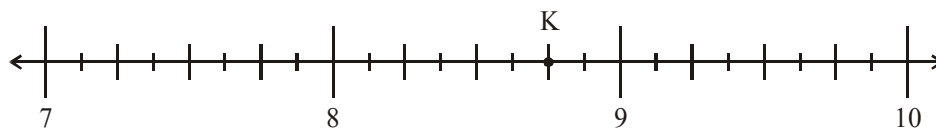
- (1) 20° (2) 60° (3) 40° (4) 80°

40. The value of $0.\overline{2} + 0.\overline{3} + 0.\overline{4} + 0.\overline{9} + 0.\overline{39}$ is
- (1) $0.\overline{57}$ (2) $1\frac{20}{33}$ (3) $2\frac{1}{3}$ (4) $2\frac{13}{33}$
41. A room is $12\frac{1}{4}$ m long and 7 m wide. The maximum length of a square tile to fill the floor of the room with whole number of tiles should be
- (1) 200 cm (2) 175 cm
(3) 125 cm (4) 350 cm
42. Consider the following statements
- A : The product of an integer and a rational number can never be a natural number.
B : The quotient of division of an integer by a rational number can never be an integer.
- Which of the statements given above is/are correct ?
- (1) A only (2) B only
(3) Both A and B (4) Neither A nor B
43. Two years ago, there were 33 members in college union. Last year, the number of member quadrupled from the previous year and this year there are 30 more members. If 23 members went to leave the union next year. What would be the number of members in next year?
- (1) 140 (2) 145 (3) 132 (4) 139
44. When freezing, water increases its volume by $\frac{1}{11}$. By what part of its volume will ice decrease when it melts and turns back into water ?
- (1) $\frac{1}{11}$ (2) $\frac{1}{10}$ (3) $\frac{1}{12}$ (4) $\frac{1}{13}$
45. The standard form of 2347000000 is _____ .
- (1) 2347×10^9 (2) 2.347×10^9
(3) 23.47×10^9 (4) 2.347×10^{-9}
46. A fruit vendor has 260 mangoes, 292 oranges and 220 apples. He sells each of these fruits in a package containing the same number of fruits of the same kind and has found that 4 apples, 4 oranges and 4 mangoes are left out. Find the greatest possible size of the package, where size of the package is defined as the number of fruits in each package.
- (1) 10 (2) 8
(3) 4 (4) None of these

47. The graph shows the number of hours that four business were open on friday.
Based on the information in the graph, which statement could be true ?



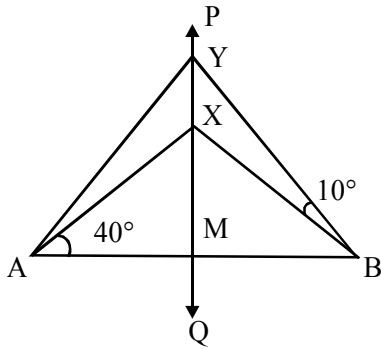
- (1) The dry cleaner opened at 6 : 15 A.M. and closed at 6 : 15 P.M.
 (2) The restaurant opened at 11 : 45 A.M. and closed at 9 : 30 P.M.
 (3) The post office opened at 9 : 00 A.M. and closed at 6 : 00 P.M.
 (4) The clinic opened at 7 : 30 A.M. and closed at 6 : 30 P.M.
48. How many meters of carpet 63 cm wide will be required to cover the floor of a room 14 m by 9 m?
 (1) 200 (2) 210
 (3) 220 (4) 185
49. The location of point K is shown on the number line below.



What mixed number is presented by the location of point K?

- (1) $8\frac{3}{4}$ (2) $8\frac{2}{5}$ (3) $8\frac{3}{5}$ (4) $8\frac{4}{5}$
50. Find the ratio of the price of pencil to that of ball pen. If pencils cost Rs 16 per score and ball pens cost Rs 8.40 per dozen.
 (1) 8 : 7 (2) 7 : 8
 (3) 9 : 11 (4) 11 : 9

51.



In the figure above, \overline{PQ} is the perpendicular bisector of \overline{AB} . If $\angle XAB = 40^\circ$, $\angle XBY = 10^\circ$, then find $\angle AYX$.

- (1) 30° (2) 40° (3) 50° (4) 60°

52. If $x^{y^z} = 2^8$, then find the maximum possible value of $x \times y \times z$ where $x, y, z > 0$.

- (1) 16 (2) 12 (3) 256 (4) 24

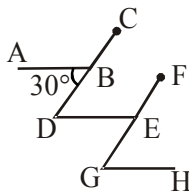
53. Consider the following statements:

- (i) If three sides of a triangle are equal to three sides of another triangle, then the triangles are congruent.
 (ii) If three angles of a triangle are equal to three angles of another triangle respectively, then the two triangles are congruent.

Of these statements,

- (1) (i) is correct and (ii) is false. (2) Both (i) and (ii) are false.
 (3) Both (i) and (ii) are correct. (4) (i) is false and (ii) is correct.

54. $AB \parallel DE \parallel GH$ and $DC \parallel GF$, $\angle ABD = 30^\circ$ then $\angle EGH = ?$



- (1) 150° (2) 30° (3) 60° (4) Can't be determined

55. Find the mean of: 8, 11, 6, 14, 17 and 13

- (1) 10.5 (2) 11.5 (3) 12.5 (4) 13.5

56. What is the largest even three-digit number that can be expressed as the product of three distinct primes ?

- (1) 998 (2) 996 (3) 994 (4) 992

57. In a school of 6,422 students, ratio of girls to boys $5 : 8$, $\frac{1}{5}$ th of the girls and $\frac{1}{8}$ th of the boys took part in a school camp. Fraction of the total strength took part in the camp is

- (1) $\frac{2}{13}$ (2) $\frac{2}{7}$ (3) $\frac{3}{11}$ (4) $\frac{2}{9}$

58. If $f(x) = 2x + a$ and $g(x) = 4f(x) + 9$. Then find the value of a if $g(4) = 49$
 (1) 3 (2) 2 (3) 5 (4) 7
59. This question is based on matching the columns. Each part has 4 choices (i), (ii), (iii) and (iv) out of which only one is correct.

Match the Column

Column-I		Column-II	
(a)	— — —	(i)	Existence of multiplicative identity
(b)	— — —	(ii)	Existence of multiplicative inverse
(c)	— — —	(iii)	Existence of additive identity
(d)	$\frac{4}{7} \times \frac{7}{4} = 1$	(iv)	Closure property

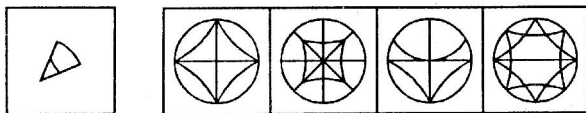
- (1) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
 (2) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)
 (3) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)
 (4) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)
60. Simplify : $7x + 4 \{x^2 \div (5x \div 10)\} - 3 \{2 - x^3 \div (3x^2 \div x)\}$
 (1) $x^2 + 15x + 6$ (2) $x^2 - 15x + 6$
 (3) $x^2 + 15x - 6$ (4) $x^2 + 13x - 6$

SECTION-E : MENTAL ABILITY

This section contains **20 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

61. If I stands in up side down position with my face pointing Northwards, in what direction will my right-hand point?
 (1) East (2) West (3) North (4) South
62. Ramakant walks Northwards. After a while, he turns to his right and a little further to his left. Finally, after walking a distance of one kilometre, he turns to his left again. In which direction is he moving now ?
 (1) North (2) South (3) East (4) West

63. Doremon travelled 4 km straight towards South. He turned left and travelled 6 km straight, then turned right and travelled 4 km straight. How far is he from the starting point?
 (1) 8 km (2) 10 km
 (3) 12 km (4) None of these
64. If the following words are arranged in the alphabetical order, which word will paper at the end?
 (1) Olympic (2) Olympia
 (3) Oval (4) Ovulet
65. In a certain code HANGER is written as TDIMCG. How is KURESH be written in that code?
 (1) JRGQWJ (2) LVSFTI
 (3) MSTGUJ (4) MVTFUI
66. A group of letters is given which are numbered as 1, 2, 3, 4, 5 and 6. Below are given four alternatives containing combinations of these number. Select that combination of numbers so that letters arranged accordingly form a meaningful word.
 A E G I M N
 1 2 3 4 5 6
 (1) 6, 1, 3, 5, 4, 2 (2) 2, 6, 4, 3, 5, 1
 (3) 3, 4, 6, 1, 2, 5 (4) 2, 4, 3, 6, 1, 5
67. If JOSEPH is coded as FKOALD, then GEORGE will be coded as :
 (1) HAKNCA (2) CBKNCA (3) CALNCA (4) CAKNCA
68. Anil and Sunil are ranked seventh and eleventh respectively from the top in a class of 31 students. What will be their respective ranks from the bottom in the class ?
 (1) 20th and 24th (2) 24th and 20th
 (3) 25th and 21st (4) 26th and 22nd
69. Choose the alternative figure in which the question figure (X) is embedded.



(X) (1) (2) (3) (4)

70. If English Alphabet series written in reverse order then which will be the sixth letter to the right of sixteenth letter from your right ?
 (1) V (2) Q (3) J (4) E
71. Choose the alternative which closely resembles the water- image of the given combination :
ENMITY
 (1) **ENMITY** (2) **YTIMIƆ** (3) **ƆLIMNƆ** (4) **ƆMITY**

72. Choose the alternative which is closely resembles the Mirror- image of the given combination :

395PERSON7

(1) **395PERSON7**

(2) **395PERSON7**

(3) **7NOSPERS93**

(4) **7NOSPERS93**

73. Find the number which will complete the series 3, 15, 35, 63, ?, 143

(1) 199

(2) 999

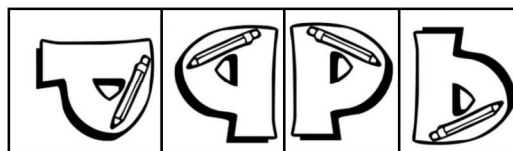
(3) 99

(4) 298

74. Choose the Water Image of figure (X).



(X)



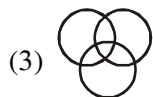
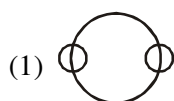
(1)

(2)

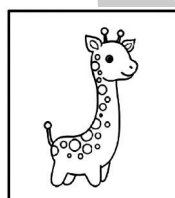
(3)

(4)

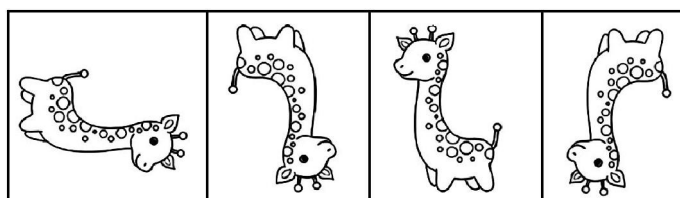
75. Which of the following diagrams indicates the best relation between Profit, Dividend and Bonus?



76. Choose the Mirror Image of figure (X) is



(X)



(1)

(2)

(3)

(4)

77. '20-10' means 200, '8 ÷ 4' means 12, '6 × 2' means 4 and '12 + 3' means 4, then
 $100 - 10 \times 1000 \div 1000 + 100 \times 10 = ?$

(1) 1090

(2) 0

(3) 1900

(4) 20

78. What number will come in place of question mark in the following series ?

160, 80, 40, 20, 10, ?

(1) 8

(2) 7

(3) 6

(4) 5

79. Four numbers are given out of which three are alike in some manner while one is different. Choose the one which is different from rest three.

(1) 4

(2) 8

(3) 16

(4) 36

80. What will be the value of given expression :

$$120 \div 10 + 19 \times 2 - 44 + 13$$

(1) 13

(2) 19

(3) 20

(4) 22

ALLEN

ANSWER KEY

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