Sample Questions

for

ALLEN SHARP

ALLEN's Scholarship Test and Reward Program

CLASSROOM CONTACT PROGRAMME

PRE-NURTURE & CAREER FOUNDATION : CLASS-IX

(FOR IX to X MOVING STUDENTS)

ALLEN CAREER INSTITUTE
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path to success

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INSTRUCTIONS

Things NOT ALLOWED in EXAM HALL : Blank Paper, clipboard, log table, slide rule, calculator, camera, mobile and any electronic or electrical gadget. If you are carrying any of these then keep them at a place specified by invigilator at your own risk

1. This Booklet is your Question Paper. DO NOT break seal of Booklet until the invigilator instructs to do so.
2. Fill your TALLENTEX Roll No. & Answer Sheet No. in the space provided on the cover page.
3. Carefully fill your **PAPER CODE** and present **CLASS** in space provided **(Serial No. 6 & 12)** of optical response sheet.
4. Please make sure that paper you received is of your class only.
5. Please make sure that the **Paper Code** Printed on the **Test Booklet Cover Page** and **Inner Pages** are the same. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of Test Booklet.
6. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS). You have to mark your answers in the ORS by darkening bubble, as per your answer choice, by using black or blue ball point pen.
7. After breaking the Question Paper seal, check there are **12 pages** in the booklet. This Question Paper contains 80 MCQs with 4 choices (Subjects: Physics: 15, Chemistry: 15, Biology: 15, Maths: 15 & Mental ability: 20).
8. Think wisely before darkening bubble as **there is negative marking for wrong answer**. Answer once marked by pen cannot be cancelled.
9. Marking Scheme:
   a. If darkened bubble is RIGHT answer : 4 Marks.
   b. If darkened bubble is WRONG answer: -1 Mark (Minus One Mark).
   c. If no bubble is darkened in any question: No Mark.
10. If you are found involved in cheating or disturbing others, then your ORS will be cancelled.
11. Do not put any stain on ORS and hand it over back properly to the invigilator.
12. You can take along the question paper after the test is over.

SECTION - A : PHYSICS

This section contains **15 Multiple Choice Questions**. Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

1. The distance between the image and the plane mirror is _____ the distance between object and mirror.
(1) more than (2) less than (3) equal to (4) cannot say

2. A balloon starts ascending upwards with a constant velocity of 10 m/s. When it has reached a height of 40 m above the ground, a packet of 2 kg is dropped from it. The time after which it strikes the ground is (g = 10 m/s^2)

(1) $2\sqrt{2}$ s (2) 2s (3) 4s (4) 6s

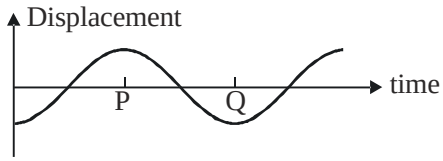
3. On July 4, 1776, the American colonies declared their independence. The table shows the lunar phases for June 1776.

Lunar Phases for June 1776	
Date	**Lunar phase**
June 2	Full moon
June 9	Last-quarter moon
June 16	New moon
June 24	First-quarter moon

What lunar phase occurred on July 4, 1776?
(1) Waning gibbous (2) Waxing gibbous (3) Waning crescent (4) Waxing crescent

4. What is the acceleration of a 1.4-kg object if the gravitational force pulls downward on it, but the air resistance pushes upward on it with a force of 2.5 N?
(1) 11.5 m/s^2, downward (2) 11.5 m/s^2, upward
(3) 8.0 m/s^2, downward (4) 8.0 m/s^2, upward

5. In the diagram given below, the interval PQ represents



(1) wavelength/2 (2) wavelength (3) 2 × amplitude (4) period

6. The mass of the body at the centre of earth is
(1) zero (2) unity
(3) same as that at surface (4) infinity

7. A body of mass 5 kg is sliding on a frictionless horizontal surface with a constant velocity of 2 m/s. The force required to keep moving the body with the same velocity is
(1) 10 N (2) 2.5 N (3) 5 N (4) zero

8. The colour of light is determined by its
(1) Wavelength (2) Frequency (3) Velocity (4) Amplitude

9. The initial velocity of an object is 20 m/s having retardation 2 m/s^2. The distance moved by object in first three seconds is
(1) 51 m (2) 69 m (3) 55 m (4) 63 m

10. Two bodies of masses M_1 and M_2 are initially at rest and their centres are R distance apart. If they move directly towards one another under the influence of their mutual gravitational attraction, then the ratio of the initial acceleration of M_1 to initial acceleration of M_2 would be

(1) $\frac{M_1}{M_2}$ (2) $\frac{M_2}{M_1}$ (3) 1 (4) $\frac{\sqrt{M_1}}{\sqrt{M_2}}$

11. In 5 seconds, 25 wavelengths of a wave pass a certain point. What is the wave's frequency?

(1) 0 Hz (2) 1 Hz (3) 5 Hz (4) 10 Hz

12. During launching, a space rocket accelerates uniformly from rest to 200 m/s in 5 seconds and then travels at constant speed for 4 seconds. How far does the rocket travels in 9 seconds?

(1) 1300 m (2) 500 m (3) 300 m (4) 1500 m

13. A body of mass 2 kg moving with a speed of 100 m/s hits a wall and rebounds with the same speed. If the contact time is (1/50) s, the force applied on the wall is

(1) 10^4 N (2) 2×10^4 N (3) 0 N (4) 4×10^4 N

14. Which of the following is not a constellation ?

(1) Orion (2) Cassiopeia (3) Leo major (4) Sirius

15. Unit of quantity represented by area under acceleration-time graph is

(1) s (2) m/s (3) m (4) m/s^2

SECTION-B : CHEMISTRY

This section contains **15 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

16. Most metallic elements have all of these properties EXCEPT

(1) being highly ductile (2) being a good electrical conductor

(3) being easily crumbled into pieces (4) having a high density

17. Mohit Mehta, a chemistry teacher gave different mixtures to four groups of students to separate their components. Which group was not following the correct method?

(1) Group 1 was separating a mixture of acetone and water by using separating funnel.

(2) Group 2 was separating a mixture of camphor and sodium chloride by using sublimation.

(3) Group 3 was separating a mixture of iron pins and sand by using a magnet.

(4) Group 4 was separating mud particles suspended in water using sedimentation and decantation.

18. Petroleum & Natural gas are generally formed from remains of :

(1) birds (2) sea organisms (3) water (4) sky

19. Recently, the phenomenon of superconductivity has been observed at 95 K. This temperature is nearly equal to

(1) –288° F (2) –146° F (3) –368° C (4) + 178°F

20. The element which can replace zinc from its salt solution is

(1) Al (2) Cu (3) Pb (4) H

21. What is burning of a substance in the presence of air with the evolution of heat called?

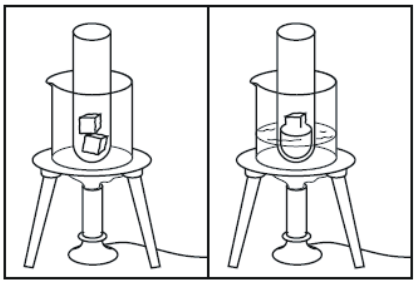
(1) Distillation (2) Carbonization (3) Combustion (4) Refining

22. Mercury in zinc amalgam is an example of what kind of binary solution?

(1) Solid - gas (2) Gas - liquid

(3) Liquid - solid (4) Solid - solid

23. The experimental setup shows that the small beaker is filled with ice. At first, the large beaker is empty. Where did the water in the large beaker probably come from?



(1) Water condensing on the small beaker's surface dripping down.
(2) Melted ice dripping down through a crack in the small beaker.
(3) A chemical reaction between the ice and the glass of the beaker.
(4) Water condensing on the inside of the large beaker.

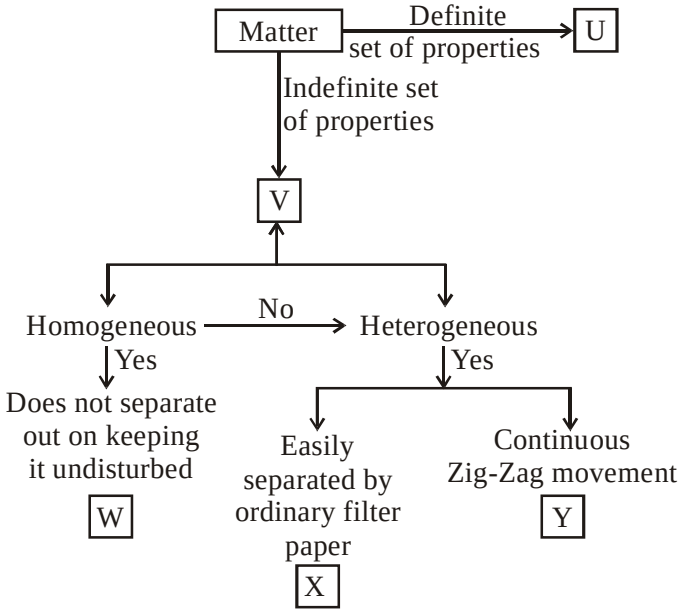
24. Essential requirements for producing fire are
(1) Fuel (2) Air (3) Heat (4) All of these

25. Due to high heat and pressure, buried plants turn into
(1) Wood (2) Coal (3) Fertilizer (4) Oil

26. The solid state of CO_2 is called
(1) Tear gas (2) Cooking gas (3) Laughing gas (4) Dry ice

27. Higher efficiency in the combustion of fuel can not be achieved by
(1) Adopting efficient fuel firing technique and equipment
(2) Proper fuel preparation
(3) Supplying correct quantity of combustion air
(4) Keeping the fuel gas exhaust temperature very high.

28. Study the given flow chart carefully and identify U, V, W, X and Y.



U	V	W	X	Y
(1) Mixture	Pure substance	Colloid	True solution	Suspension
(2) Pure substance	Mixture	True solution	Colloid	Suspension
(3) Pure substance	Mixture	Suspension	Colloid	True solution
(4) Pure substance	Mixture	True solution	Suspension	Colloid

29. Two scientists are doing an experiment designed to identify the boiling point of an unknown liquid. One scientist gets a result of 120°C, the other gets a result of 250°F. Which temperature is higher and by how much ?

(1) 250° F is higher temperature by 2°F
(2) 120° C is higher temperature by 4°F
(3) 250° F is higher temperature by 4°F
(4) 120° C is higher temperature by 2°F

30. A luminous flame appears

(1) red (2) green (3) yellow (4) blue

SECTION-C : BIOLOGY

This section contains **15 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

31. Xylem parenchyma

(1) is living
(2) Stores food
(3) Helps in sideways conduction of water
(4) All of these are correct

32. An ecosystem consists of

(1) Plants only
(2) Animals and microorganisms only
(3) Non living component
(4) All of these

33. Organelle which help in detoxification of many poisons and drugs is

(1) Rough endoplasmic reticulum
(2) Smooth endoplasmic reticulum
(3) Ribosome
(4) Dictyosomes

34. In an effort to get rid of mosquitoes, a city sprays its lake and wooded areas with insecticide. The insecticide also kills a large number of other insect species. Which of the following is true about the effect the insecticide will have on the organisms that live in the lake and wooded areas?

(1) All plants will not be affected.
(2) Only the insects will be affected by the insecticide.
(3) Only animals that prey on the insects will be affected.
(4) Plants and animals, as well as insects, will be affected.

35. Example of Rabi and Kharif crop (respectively) is

(1) Wheat and mustard
(2) Wheat and paddy
(3) Paddy and wheat
(4) Mustard and wheat

36. Ovum of female fuses with

(1) Only one sperm
(2) More than one sperm
(3) Two sperms
(4) Random number of sperms

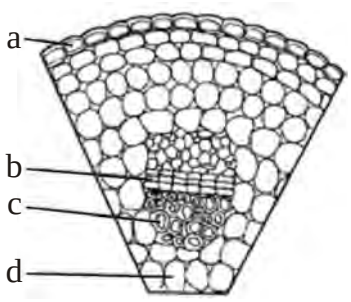
37. Sundarban biosphere reserve is in

(1) Tamil Nadu
(2) Uttarakhand
(3) West Bengal
(4) Rajasthan

38. Regulation of blood glucose level is done by

(1) Insulin
(2) GH (Growth Hormone)
(3) Thyroxine
(4) Estrogen

39. A leafy shoot is placed in a beaker containing a solution of a coloured dye. The given figure shows part of a section of the shoot after two days. Which part is now most coloured by the dye ?



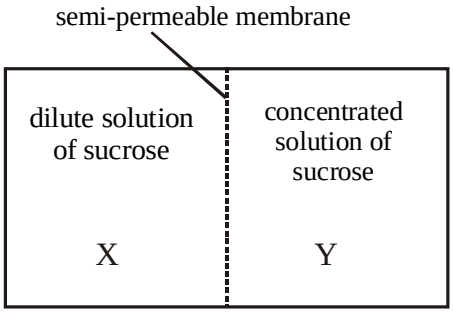
(1) a (2) b (3) c (4) d

40. Match the column and select the correct option.

Column A		Column B	
A	Catla	(i)	Bottom feeder
B	Rohu	(ii)	Middle Zone Feeder
C	Mrigal	(iii)	Surface feeder
D	Fish farming	(iv)	Culture fishery

(1) A-ii, B-iii, C-i, D-iv (2) A-iii, B-ii, C-i, D-iv
(3) A-ii, B-iii, C-iv, D-i (4) A-iv, B-iii, C-ii, D-i

41. The diagram below shows two solutions that are separated by a semi-permeable membrane. In which direction will most water molecules move?



(1) From X to Y, decreasing the concentration gradient of sucrose.
(2) From X to Y, increasing the concentration gradient of sucrose.
(3) From Y to X, decreasing the concentration gradient of sucrose.
(4) From Y to X, increasing the concentration gradient of sucrose.

42. Two farmers Ram and Shyam had sown the same seeds, but the crop of Ram didn't grow well. What could be the reason?

(1) Ram might have sowed the seeds very close.
(2) His soil was containing enough water.
(3) He sowed the seeds at uniform distance.
(4) He sowed the seeds at correct depth.

43. Shown below is the diagrammatic representation of an animal Tissue 'X'.

Tissue X

Which of the following holds true regarding this tissue?

(1) Tissue X is abundantly present in fat bodies of frog and blubber of whale.

(2) Tissue X is a type of dense connective tissue.

(3) Tissue X fills the spaces inside many organs and is commonly called packaging tissue of body.

(4) Tissue X is very strong and non-flexible vertebrate tissue.

44. Which of the following best describes the number of chromosomes in a normal human liver cell?

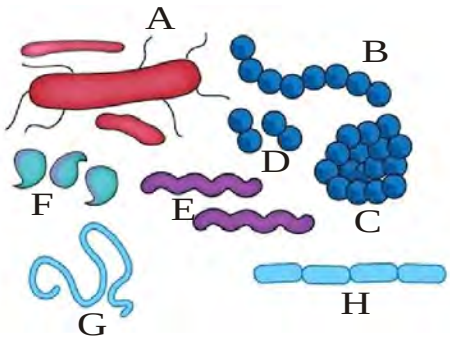
(1) 23 pairs of chromosomes

(2) 46 different types of chromosomes

(3) 46 male chromosomes and 46 female chromosomes

(4) 23 original chromosomes and 23 duplicate chromosomes

45. Which of the following is correct?



(1) A- coccus, B- bacillus, E- vibrio, F- spirillum

(2) A- bacillus, B- coccus, E- vibrio, F- spirillum

(3) A- bacillus, B- coccus, E- spirillum, F- vibrio

(4) A- coccus, B- bacillus, E- spirillum, F- vibrio

SECTION-D : MATHEMATICS

This section contains **15 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which **ONLY ONE** is correct.

46. The product of $\left(\frac{x}{y}+3xy\right)$ and $\left(\frac{y}{x}+8x\right)$ is

(1) $24x^2y+\frac{8x^2}{y}+3y^2+1$ (2) $24x^2y+\frac{8x}{y}+3y^2+1$

(3) $24x^2y+\frac{8x}{y}+3y^2+2x$ (4) $24x^2y+\frac{8x}{y}+3y+2x^2$

47. Which of the following represents the sum of numerator and denominator in the simplified expression of $(3.2\overline{3}+4.\overline{75})$?

(1) 798 (2) 2967 (3) 8901 (4) 989

48. Which of the following is a perfect cube?

(1) 100 (2) 1000 (3) 10000 (4) 100000

49. There are four children of different integer ages under 18. The product of their ages is 882. What is the sum of their ages?

(1) 23 (2) 25 (3) 27 (4) 31

50. What is the value of $(-2)^{-2}$?

(1) 1 (2) 4 (3) $\frac{1}{4}$ (4) $-\frac{1}{4}$

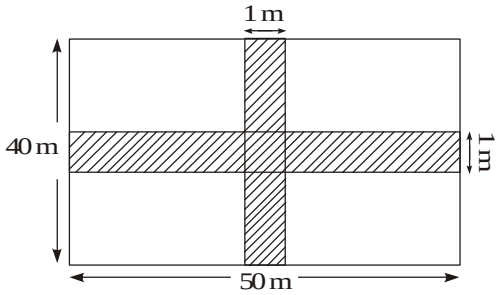
51. Factorise $(1 - 2x - x^2)(1 - 2x + 3x^2) + 4x^4$

(1) $(x + 1)^4$ (2) $(x - 1)^4$ (3) $(x + 1)^2 (x - 1)^2$ (4) $(x^2 + 2x + 3)^2$

52. The least square number which is exactly divisible by each of the numbers 4, 8, 10 and 12 is

(1) 7200 (2) 3600 (3) 2500 (4) 4096

53. The area of the shaded region in the following figure is



(1) 2000 m^2 (2) 90 m^2 (3) 45 cm^2 (4) 89 m^2

54. The value of $x^2 - 6x + 13$ can never be less than

(1) 5 (2) 4 (3) 6 (4) 13

55. Any cyclic parallelogram is a

(1) rectangle (2) rhombus

(3) trapezium (4) square

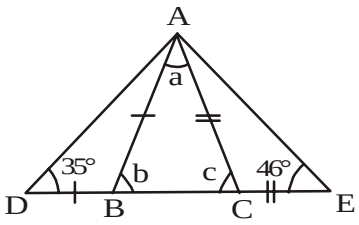
56. Solve $\frac{2x+5}{3} = 3x - 8$:

(1) -2 (2) -3 (3) $\frac{-29}{7}$ (4) $\frac{29}{7}$

57. A metal contains 70% tin, 25% brass and the rest is zinc. The quantity of zinc in 250 kg metal is

(1) 10 kg (2) 15 kg (3) 20 kg (4) None of these

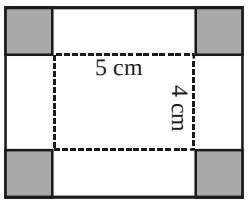
58. In the figure given, what are the values of $\angle b$, $\angle c$ and $\angle a$ respectively?



(1) 18°, 70° and 92° (2) 92°, 70° and 18°

(3) 70°, 92° and 18° (4) 70°, 18° and 92°

59. Four identical square are cut from the corners of the rectangular sheet of cardboard shown. This sheet is then folded along the dotted lines and taped to make a box with an open top. The base of the box measures 5 cm by 4 cm. The volume of the box is 60 cm^3. What was the area of the original sheet of cardboard?



(1) 56 cm^2 (2) 110 cm^2 (3) 156 cm^2 (4) 180 cm^2

60. If x and y vary inversely. Then using the following table

x	5
y	30

The value of x for y = 10 is

(1) 10 (2) 40 (3) 15 (4) 20

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. At my farmhouse I am facing East, then I turn left and walk 10 metres. I again turn right and walk 5 metres. Again I go 5 metres towards the South, and from there walk 5 metres towards the West. In which direction am I from my farmhouse?

(1) East (2) West (3) North (4) South

62. If BJP is coded DMK, how can RSS be written in that code?

(1) CPI (2) TVN (3) SJP (4) TDP

63. In a row of students, Aasish's rank is 39^{th} from right end and 49^{th} from the left end. If the number of girls in the row is twice than the boys, how many boys are sitting in the row?

(1) 87 (2) 58 (3) 29 (4) Can't be determined

64. A cube is coloured red on opposite faces, pink on 2 opposite faces, yellow on 2 opposite faces. Now the cube is cut into 125 small pieces equal sized cubes.

How many of these cubes have all 3 colours present on their faces?

(1) 16 (2) 10 (3) 8 (4) 24

65. If '1723' is to '42' then '2462' is to _____

(1) 56 (2) 36 (3) 84 (4) 96

66. In the following question a problem figure is given. The problem figure is hidden in one of the figures given as alternatives. Find the figure in which the problem figure is hidden.

Problem figure

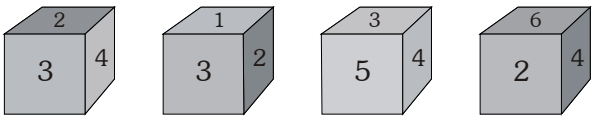
(1)  (2)  (3)  (4) 

67. Find the missing term.

AC, ZX, EG, VT, IK, ?

(1) SR (2) RP (3) PR (4) OQ

68. A dice has numbers 1, 2, 3, 4, 5 and 6 on its faces. Four positions of the dice are as shown below. The number on the face opposite to the face with number 2 is?

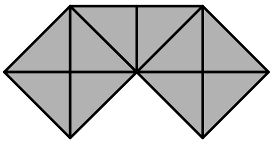


(1) 6 (2) 5 (3) 4 (4) 1

69. Makarand went 7 km to West and went 4 km after turning to left. Again he turned to left and went 3 km. Then went 9km to North and turned to right. After turning he went 4 km and then stopped. Then find the distance from the origin.

(1) 13 km (2) 9 km (3) 7 km (4) 5 km

70. Find the number of triangles in the given figure.



(1) 25 (2) 20 (3) 21 (4) 26

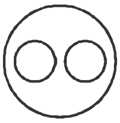
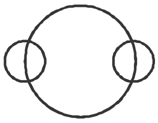
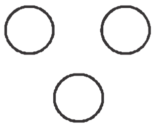
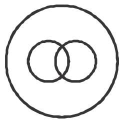
71. If '+' means '×', '–' means '÷', '÷' means '+' and '×' means '–'; then what will be value of the following expression?

540 – 36 + 12 ÷ 75 × 55

(1) 215 (2) 200 (3) 180 (4) 235

72. In the question given below contains three elements followed by four options. Choose the option that is best suitable for representing the elements.

Insects, Flies, Mosquitoes

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

73. Find the missing term ?

Z	J	M
D	E	D
3	6	?

(1) 6 (2) 8 (3) 7 (4) 9

74. If Neha says - "Amrita's father Raj is the only son of my father-in-law Mahesh", then how is Bindu, who is the sister of Amrita related to Mahesh?

(1) Daughter-in-law (2) Grand-daughter (3) Sister (4) Wife

75. Find the mirror image of the following figure.

BLACKBERRY

(1)  (2) 

(3)  (4) 

76. Find the missing term in the given series?

0, 4, 18, 48, 100, 180, ?, 448

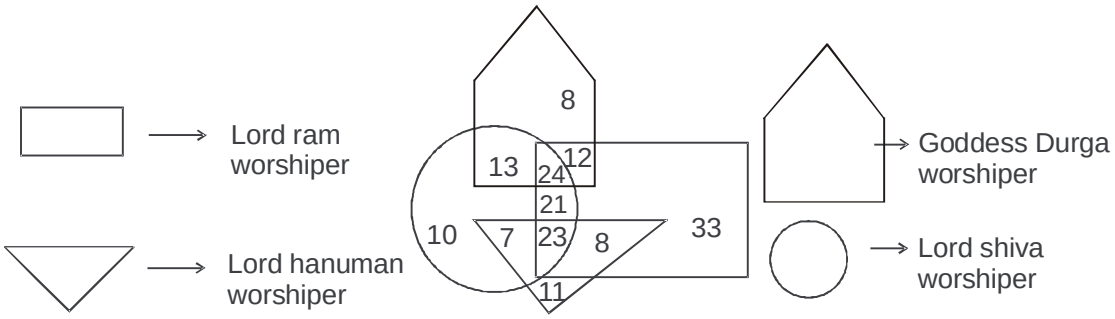
(1) 254 (2) 294 (3) 324 (4) 184

77. Choose the correct water-image of the fig. (X) from amongst the four alternatives (1), (2), (3) and (4) given along with it.

(X)

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

78. Study the information given in the diagram and answer the question given below.



How many people worship Lord Hanuman?

(1) 23 (2) 8 (3) 11 (4) 49

79. If A + B means A is brother of B

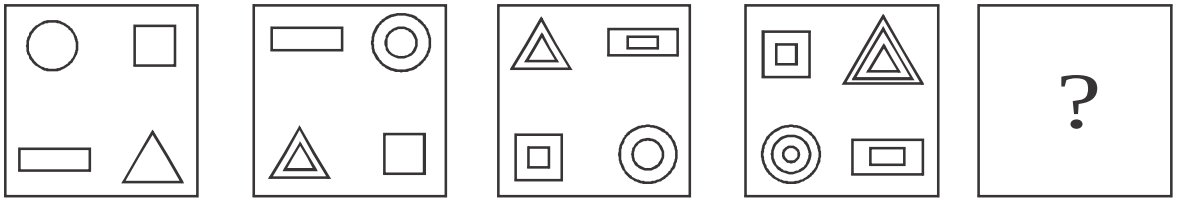
A / B means A is father of B

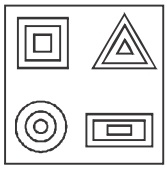
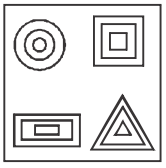
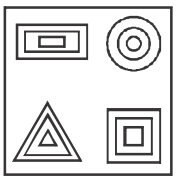
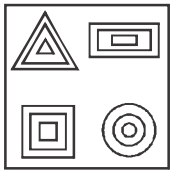
A * B means A is sister of B

which of the following means M is uncle of P?

(1) N * P / M (2) M + S / R / P (3) M + K / T * P (4) None of these

80. Find the missing figure ?



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

SPACE FOR ROUGH WORK

ANSWER KEY

Q. No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	3	3	1	3	1	3	4	2	1	2	3	1	2	4	2	3	1	2	1	1
Q. No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans.	3	3	1	4	2	4	4	4	1	3	4	4	2	4	2	1	3	1	3	2
Q. No.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	1	1	3	1	3	1	4	2	4	3	2	2	4	2	1	4	4	3	2	3
Q. No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Ans.	3	2	3	3	4	3	2	2	4	3	2	1	2	2	3	2	4	4	3	2