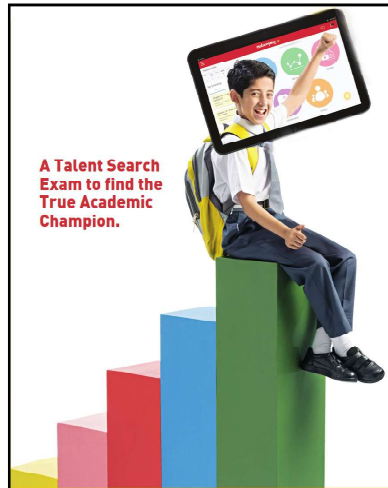


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SAMPLE PAPER

for

CLASS X

Name : _____

School Name : _____

Contact No. : _____



INSTRUCTIONS

Time duration: 1:00 hrs. (Time of OMR filling is included in time duration).

Maximum Marks: 240

This Paper contains 60 questions divided in two sections

Section-A Mental Aptitude 20 questions 80 marks

Section-B Scholastic Aptitude 40 questions 160 marks

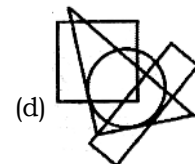
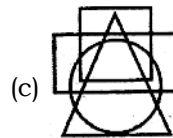
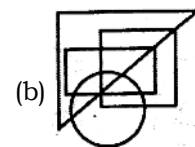
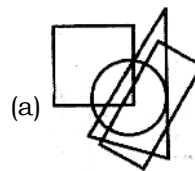
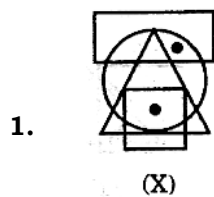
Each Question has a single correct answer. There is **NEGATIVE MARKING** for wrong answers.

Marking Scheme: +4 marks for correct answers; -1 mark for incorrect answers

**SECTION-A (MAT)
MENTAL APTITUDE**

(Marking Scheme : Correct Answer +4 , Incorrect Answer -1)

Directions : In the following question, from amongst the figures marked (a), (b) (c) and (d) select the one which satisfies the same conditions of placement of the dot as in fig. (X)



Directions : The following question is based on a dice numbered 1 to 6 in different ways as indicated :

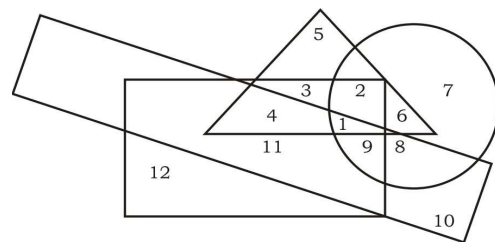
2. If 1 is opposite to 2 and adjacent to 3 and 4, then which of the following statements is necessarily true ?
- (a) 2 is adjacent to 6
 - (b) 3 is adjacent to 4
 - (c) 4 is opposite to 6
 - (d) 3 is opposite to 5

Directions (Q.3 & 4) : In each of the following questions, a word has been coded and its code is written against it to the left of the sign ":". The word to the right of it has been coded on the same principle and the code is given as one of the four alternatives under it. To find the answer you have to consult the matching of the small letters against the capital letters as given below and arrive at the principle involved in the coding. The coding in each question has not necessarily been done on the same pattern. Find the correct alternative in each case.

A	B	C	D	E	F	G	H	I	J	K	L	M
n	l	d	j	x	k	y	l	b	f	a	t	z
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
w	v	q	r	o	m	c	p	h	s	g	u	e

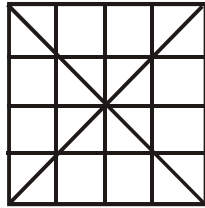
3. HEART : bklmp :: NERVOUS : ?
- (a) wintrid
 - (b) yiqovbn
 - (c) wxohvpm
 - (d) vkmsqhc
4. NERVOUS : xypiwqn :: AGHAST : ?
- (a) nyinmc
 - (b) zkyzom
 - (c) liblcp
 - (d) ozjond

Directions (Q.5 & 6) : In the following figure, the circle stands for employed, the square stands for hard working, the triangle stands for rural and the rectangle stands for intelligent. Study the figure carefully and answer the questions that follow.



5. Rural employed people who are neither intelligent nor hard working are indicated by region
- (a) 2
 - (b) 4
 - (c) 6
 - (d) 9
6. Rural employed people who are neither intelligent nor hard working are indicated by region
- (a) 10
 - (b) 9
 - (c) 6
 - (d) 4

7. How many triangles does the following figure have ?



- (a) 36 (b) 40
(c) 44 (d) 48
8. A watch, which gains uniformly, is 2 minutes slow at noon on monday, and is 4 minutes, 48 seconds fast at 2 P.M. on the following monday. At what time it was correct.
(a) 2 p.m. on tuesday
(b) 2 p.m. on wednesday
(c) 3 p.m. on thursday
(d) 1 p.m. on friday

Directions : (9 to 11): Study the following information carefully and answer the questions given below it :

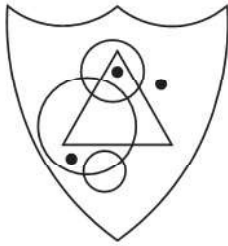
There are six persons A, B, C, D, E and F. C is the sister of F. B is the brother of E's husband. D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group.

9. Who is E's husband?
(a) B (b) C
(c) A (d) F
10. How many male members are there in the group?
(a) One (b) Two
(c) Three (d) Four
11. Which of the following is a group of brothers ?
(a) ABF (b) ABD
(c) BFC (d) BDF

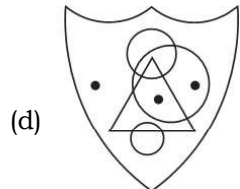
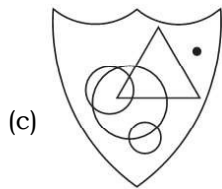
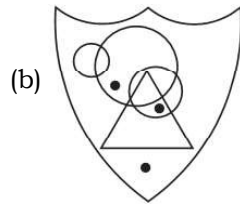
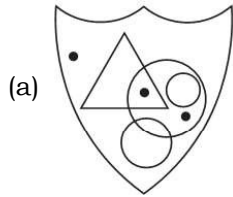
Directions : In the following question, a matrix of certain characters is given. These characters follow a certain trend, row-wise or column-wise. Find out this trend and choose the missing character accordingly.

12. If $A = 2B$, $B > C$ which of the following is definitely false?
(a) $A > B + C$ (b) $A - B > C$
(c) $A - 2B < C$ (d) $A = B \div C$
13. A man walks 10 km towards north. From there he walks 6 km towards south. Then he walks 3 km towards east. How far and in which direction is he with reference to his starting point?
(a) 7 km east (b) 5 km west
(c) 5 km north-east (d) 7 km west

14.



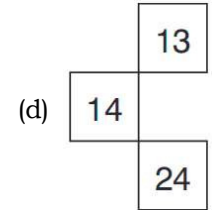
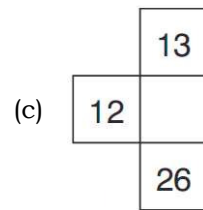
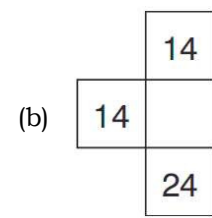
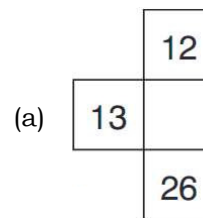
Which shield below has most in common with the shield above?



15.

1	3	5	7
4	8	?	16
7	?	19	25
10	18	?	34

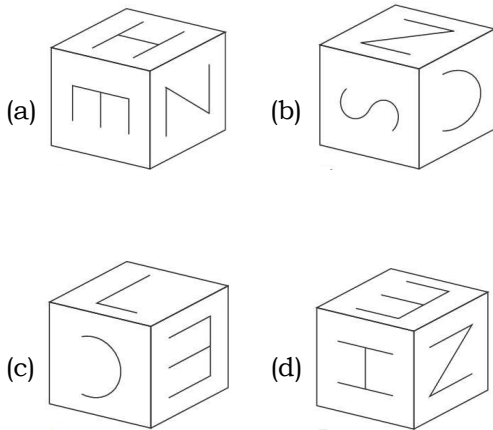
Which is the missing section?



16.



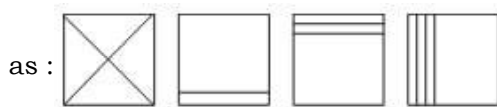
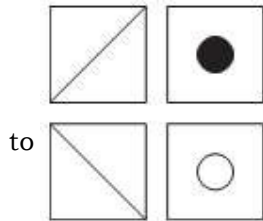
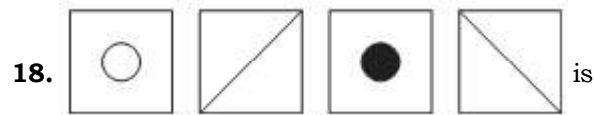
When the above is folded to form a cube, which is the only one of the following that can be produced?



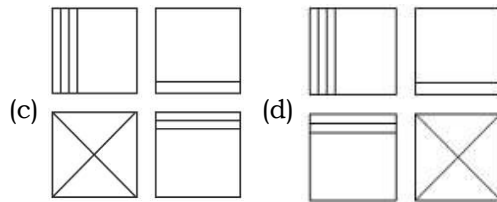
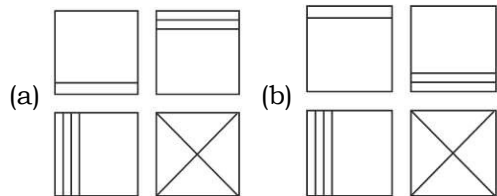
Direction (Q. 17) : In the following question, a series of numbers is given followed by a blank space with a (?) question mark on it. The number to be filled in the blank is given as one of the alternative among the four given under. Find the correct alternative.

17. 55296, ?, 288, 36, 9

- (a) 3456
- (b) 3436
- (c) 4638
- (d) 3638



is to :



19.

3	2	2
6	20	4
12	25	64
6	10	?

- (a) 6 (b) 8
 (c) 12 (d) 10

20. $4 - \frac{5}{1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{4}}}} = ?$

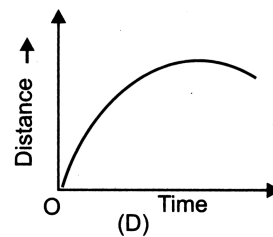
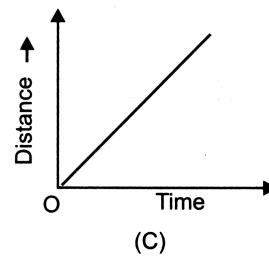
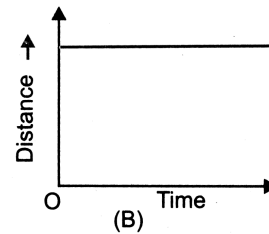
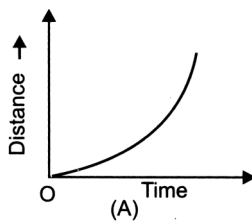
- (a) $\frac{31}{40}$ (b) $\frac{1}{8}$
 (c) $\frac{4}{9}$ (d) $1\frac{9}{31}$

SECTION-B (SAT)
SCHOLASTIC APTITUDE TEST

(Marking Scheme : Correct Answer +4 , Incorrect Answer -1)

PHYSICS

21. The numerical ratio of displacement to distance for a moving object is
- (a) always less than 1
 - (b) always more than 1
 - (c) always equal to 1
 - (d) equal or less than 1
22. A student is studying the motion of an object. The correct representation of uniform motion of the object is shown by the figure.



- (a) A
- (b) B
- (c) C
- (d) D

23. Akshil buys 5 gram of gold at the poles. The weight of the gold at the equator will be
(a) 5g (b) less than 5 g
(c) greater than 5 g (d) 5.5 g
24. If the density of the object placed in a liquid is equal to the density of the liquid, the object will
(a) float wholly immersed
(b) sink
(c) float half immersed
(d) float completely above the liquid
25. Work done is zero, when
(a) force and displacement of the body are in the same direction
(b) force and displacement of the body are in the opposite direction
(c) force acting on the body is perpendicular to the direction of the displacement of the body
(d) none of these
26. A deuteron and an α -particle are placed in an electric field. The forces acting on them are F_1 and F_2 , and their accelerations are a_1 and a_2 respectively.
(a) $F_1 = F_2$ (b) $F_1 \neq F_2$
(c) $a_1 \neq a_2$
(d) None of these
27. The distance between two point charges is increased by 10%. The force of interaction
(a) increases by 10%
(b) decreases by 10%
(c) decreases by 17%
(d) decreases by 21%
28. In India, the frequency of A.C. current is _____ cycles per second.
(a) 50 (b) 100
(c) 60 (d) None
29. The refractive index depends upon the _____ of propagation of light in different media.
(a) relative speed
(b) density of medium
(c) amplitude
(d) frequency
30. What will happen to the current passing through a resistance, if potential difference across is doubled and the resistance is halved it ?
(a) remains unchanged
(b) becomes double
(c) becomes half
(d) becomes four times

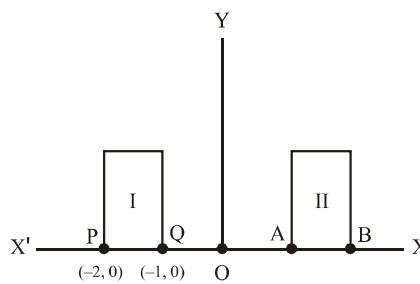
CHEMISTRY

31. Which of the following is correct statement ?
- (a) Na_2S is Sodium sulphide, Na_2SO_3 is Sodium sulphite and Na_2SO_4 is Sodium sulphate
- (b) Na_2S is Sodium sulphite, Na_2SO_3 is Sodium sulphide and Na_2SO_4 is Sodium sulphate
- (c) Na_2S is Sodium sulphite, Na_2SO_3 is Sodium sulphate and Na_2SO_4 is Sodium sulphide
- (d) Na_2S is Sodium sulphide, Na_2SO_3 is Sodium sulphate and Na_2SO_4 is Sodium thiosulphate
32. Mass of one atom of oxygen is :
- (a) $\frac{16}{6.022 \times 10^{23}} \text{ g}$
- (b) $\frac{32}{6.022 \times 10^{23}} \text{ g}$
- (c) $\frac{1}{6.022 \times 10^{23}} \text{ g}$
- (d) 32 u
33. An element has 3 valence electrons in its outermost 3rd shell, the name of element is
- (a) B (b) Al
- (c) Ga (d) In
34. What is the formula of ethanoic acid ?
- (a) HCOOH (b) CH_3COOH
- (c) $\text{C}_2\text{H}_5\text{COOH}$ (d) $\text{C}_3\text{H}_7\text{COOH}$
35. Iron is _____
- (a) more reactive than zinc
- (b) more reactive than aluminium
- (c) less reactive than copper
- (d) less reactive than aluminium
36. When the gases sulphur dioxide and hydrogen sulphide mix in the presence of water, the reaction is $\text{SO}_2 + 2\text{H}_2\text{S} \rightarrow 2\text{H}_2\text{O} + 3\text{S}$. Here hydrogen sulphide is acting as -
- (a) an oxidising agent
- (b) a reducing agent
- (c) a dehydrating agent
- (d) a catalyst
37. In the reaction $\text{PbO} + \text{C} \rightarrow \text{Pb} + \text{CO}$.
- (a) PbO is oxidised
- (b) C acts as oxidising agent
- (c) C acts as a reducing agent
- (d) This reaction does not represent a redox reaction.

38. Which of the following reaction is/are a double displacement reaction (s) ?
- (i) $\text{AgNO}_3 + \text{NaBr} \rightarrow \text{NaNO}_3 + \text{AgBr}$
 (ii) $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{HCl}$
 (iii) $\text{As}_2\text{O}_3 + 3\text{H}_2\text{S} \rightarrow \text{As}_2\text{S}_3 + 3\text{H}_2\text{O}$
 (iv) $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$
- (a) (i) & (ii) (b) Only (iii)
 (c) Only (iv) (d) (i) to (iv) all
39. A redox reaction is one in which -
- (a) both the substances are reduced.
 (b) both the substances are oxidised.
 (c) an acid is neutralised by the base.
 (d) one substance is oxidised, while the other is reduced.
40. The reaction in which two compounds exchange their ions to form two new compounds is -
- (a) a displacement reaction
 (b) a decomposition reaction
 (c) an addition reaction
 (d) a double displacement reaction

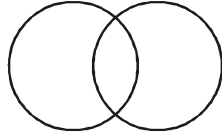
MATHS

41. On joining mid-points of a quadrilateral a parallelogram is formed, then quadrilateral may be
- (a) Parallelogram
 (b) Rhombus
 (c) Cyclic quadrilateral
 (d) All of the above
42. How many circles can pass through two fixed points ?
- (a) 1 (b) 2
 (c) 3 (d) more than 3
43. The diagram show two squares. If square I is transformed into square II by reflection, find co-ordinates of B.

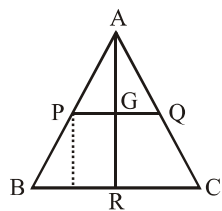


- (a) (0, 2) (b) (2, 0)
 (c) (2, 2) (d) none of these

44. In the diagram two equal circles of radius 4 cm intersect each other such that each passes through the centre of the other. Find the length of the common chord.



- (a) $2\sqrt{3}$ cm (b) $4\sqrt{3}$ cm
 (c) $4\sqrt{2}$ cm (d) 8 cm
45. A horse is tied to a vertex of a field having the shape of an equilateral triangle with a rope, the length of which is half of the length of a side of the triangle. The percentage of the total area of the field over which the horse can graze is approximately
- (a) 20 to 22% (b) 25 to 27%
 (c) 30 to 32% (d) 48 to 50%
46. ABC is a triangle. A line PQ intersects the sides AB and AC in points P and Q such that $\frac{AP}{PB} = \frac{AQ}{QC} = \frac{m}{n}$. m, n being positive integers. The line PQ will pass through the centre of gravity of the triangle if the value of m, n respectively is



- (a) 2, 3 (b) 1, 2
 (c) 1, 3 (d) 2, 1
47. The number of triangles with any three of the length 1, 4, 6 and 8 cms, as sides is
- (a) 4 (b) 2
 (c) 1 (d) 0
48. Let $y = \frac{1}{2 + \frac{1}{3 + \frac{1}{2 + \frac{1}{3 + \dots}}}}$, then the value of y is
- (a) $\frac{\sqrt{13}+3}{2}$ (b) $\frac{\sqrt{13}-3}{2}$
 (c) $\frac{\sqrt{15}+3}{2}$ (d) $\frac{\sqrt{15}-3}{2}$
49. The number of values of x which satisfy $\sqrt{2^x} + \frac{1}{\sqrt{2^x}} = 2$
- (a) 0 (b) 1
 (c) 2 (d) none of these
50. The roots of $(x^2 - x)^2 - 8(x^2 - x) + 12 = 0$ are
- (a) -1, 1, 3, 2 (b) 1, 1, 2, 3
 (c) -1, -2, 3, -2 (d) -1, -2, 3, 2

BIOLOGY

51. The girth of the stem or root increases due to:
- (a) lateral meristem
 - (b) intercalary meristem
 - (c) apical meristem
 - (d) both a and b
52. Typhoid and tuberculosis are :
- (a) Viral diseases
 - (b) Protozoan diseases
 - (c) Bacterial diseases
 - (d) Helminth diseases
53. Mark the correct statement:
- (a) The smallest cell is 0.1 to 0.5 micrometre in fungi
 - (b) The size of the cell is related to its function
 - (c) The size of the cells has direct relation with the size of the body of the animal or plant
 - (d) Tissues are made up of organs which in turn, are made up of cells
54. The chemical substance with waterproof quality on the leaves of some desert plants is:
- (a) Keratin (b) Cuticle
 - (c) Cutin (d) Lignin
55. What is true for Echinodermata?
- (a) These are exclusively free-living marine animals
 - (b) These are scaly skinned organisms
 - (c) They are diploblastic and have a coelomic cavity
 - (d) Both a and c are true
56. Coloured bodies called plastids are found in:
- (a) animal cells only
 - (b) plant cells only
 - (c) fungi only
 - (d) animal and plant cells
57. The region of megadiversity is:
- (a) tundra regions
 - (b) equatorial regions
 - (c) tropical regions
 - (d) both b and c
58. Information for inheritance of features from parents to next generation occurs in the form of:
- (a) Chromosomes (b) RNA
 - (c) Nucleosomes (d) DNA
59. Ability of plants to produce their own food is called
- (a) Autotrophism
 - (b) Phototrophism
 - (c) Both of these
 - (d) Saprotrophism
60. Hormone producing cells of the body are
- (a) Chromaffin cells (b) Chief cells
 - (c) Oxyntic cells (d) None of these

