

IMPORTANT INSTRUCTIONS

GENERAL INSTRUCTIONS

1. This booklet is your Question Paper.
2. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form are not allowed to be used.
3. Write your **Name** in the space provided in the first page of this booklet.
4. No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.
5. No query related to question paper of any type is to be put to the invigilator.

INSTRUCTIONS FOR OPTICAL RESPONSE SHEET (ORS)

- Darken the appropriate bubbles on the original by applying sufficient pressure.
- The original is machine-gradable and will be collected by the invigilator at the end of the examination.
- Do not tamper with or mutilate the ORS.
- Before answering the paper, fill up the required details in the blank space provided in the Objective Response Sheet (ORS).
- Do not forget to mention your paper code and **Application Form Number** neatly and clearly in the blank space provided in the Objective Response Sheet (ORS) / Answer Sheet.
- Use a **BLACK BALL POINT** to darken the bubbles in the upper sheet.
- Darken the bubble **COMPLETELY**.
- Darken the bubble **ONLY** if you are sure of the answer.
- The correct way of darkening a bubble is as shown here :
- There is **NO** way to erase or "un-darkened bubble.
- The marking scheme given at the beginning of each section gives details of how darkened and **not darkened** bubbles are evaluated.

Marks distribution of questions is as follows.

V-SAT - 2025						
S.No.	Subject	Nature of Questions	Marks to be awarded			
			No. of Questions	Correct	Wrong	Total
1 to 15	PART-I (Mental Ability)	Single Choice Questions (SCQ)	15	4	0	60
16 to 30	PART-II (Maths)	Single Choice Questions (SCQ)	15	4	0	60
31 to 35	PART-III (Physics)	Single Choice Questions (SCQ)	05	4	0	20
36 to 40	PART-V (Chemistry)	Single Choice Questions (SCQ)	05	4	0	20
41 to 45	PART-IV (Biology)	Single Choice Questions (SCQ)	05	4	0	20
Total			45			180

Zero marks '0' If none of the options is chosen (i.e. the question is unanswered).

MENTAL ABILITY

This section contains 15 Multiple Choice Questions. Each question has four choices (a) (b) (c) and (d) out of which ONLY ONE is correct.

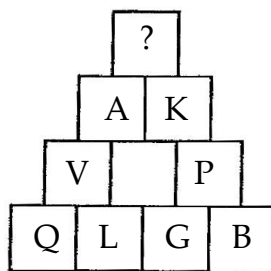
1. Which group of letter is different from others?
 (a) LAZO (b) HCXS (c) GHJJ (d) FEVU
2. If in a certain code language 'POEM' is written as 'OQNPDFLN', how would 'WIND' be written as same code?
 (a) VXHJMOCE (b) ECDFGJLA (c) LMNOPABC (d) ECOMJHXV
3. Some words are translated from an artificial language below
 'goh rat pee' is 'my school bag'.
 'nie jee goh' is 'black colour bag'
 'pee jee goh' is 'my black bag'
 Which word could possibly mean 'colour'?
 (a) Pee (b) Nie (c) Jee (d) Goh
4. Find out the number in the position of 'question mark'.

A ₂	C ₄	E ₆
G ₃	I ₅	?
M ₅	O ₉	Q ₁₄

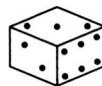
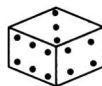
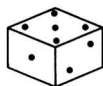
- (a) K₅ (b) K₁₂ (c) K₇ (d) K₈
5. Find the next number in the series.
 1, 2, 6, 15, 31, 56, 92, ?
 (a) 49 (b) 56 (c) 92 (d) 141

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6. Which number will replace the question mark?



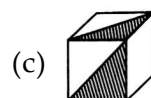
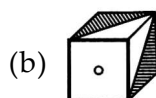
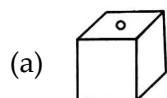
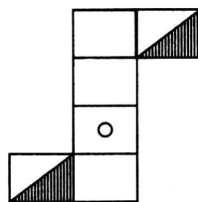
- (a) G (b) H (c) F (d) E
7. Sara lives in a large city on the East coast. Her younger cousin Marlee lives in the mid-West in a small town with fewer than 1000 residents. Marlee has visited Sara several times during the past 5 yrs. In the same period of time, Sara has visited Marlee only once. Find the correct statement from given alternatives, according to the passage.
- (a) Marlee likes Sara better than Sara likes Marlee
 (b) Sara thinks small towns are boring
 (c) Sara is older than Marlee
 (d) Marlee wants to move to the East coast
8. On the basis of the three positions of a dice, which number will appear on the face opposite the four dots?



- (a) 1 (b) 5 (c) 3 (d) 2

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9. Choose the box that is similar to the box formed from the given figure of paper.

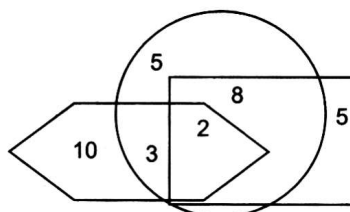


10. 1. B5D means B is the father of D.
 2. B9D means B is the sister of D.
 3. B4D means B is the brother of D.
 4. B3D means B is the wife of D.

Which of the following means F is the mother of K?

- (a) F3M5K (b) F5M3K (c) F9M4N3K (d) F3M5N3K

11. In the given figure, the circle represents jobs, the square represents candidates and hexagon represents company. How many candidates are doing job but not in a company?



- (a) 2 (b) 10 (c) 5 (d) 8

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12. The age of Tushar is less than Vishal but more than Suraj. Suraj is younger than Saroj but elder than only Sandeep. Vishal is younger than Saroj. Among them who is eldest?

(a) Sandeep (b) Suraj (c) Saroj (d) Vishal

Directions (Q. Nos. 13– 14) Study the following information carefully and answer the questions given below.

There are six friends named as D, E, F, G, H and I sitting around a circular table in a canteen but not necessary in the same order.

'I' sits between H and F but third to the left E. H is second to the right of E but third to the left of D. G sits between H and E.

13. What is the position of G with respect to D?
- (a) Second to the left (b) Second to the right
(c) Fourth to the right (d) Third to the left

14. Who sits between F and E?
- (a) D (b) G (c) I (d) H

Directions Read the statements and mark the appropriate conclusion as per the given options.

15. Statements

All trees are green.

Some green are yellow.

All yellow are mango.

Conclusions

I. Some trees are yellow.

II. Some mangoes are trees,

III. No yellow is tree

- (a) I and II follow (b) II and III follow (c) Only III follows (d) None follow

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MATHEMATICS

This section contains 15 Multiple Choice Questions. Each question has four choices (a) (b) (c) and (d) out of which ONLY ONE is correct.

16. The correct ascending order of $\sqrt{3}, \sqrt[3]{6}, \sqrt[4]{7}$ is :

- (a) $\sqrt[3]{6}, \sqrt[4]{7}, \sqrt{3}$ (b) $\sqrt[4]{7}, \sqrt{3}, \sqrt[3]{6}$ (c) $\sqrt{3}, \sqrt[4]{7}, \sqrt[3]{6}$ (d) $\sqrt[3]{6}, \sqrt{3}, \sqrt[4]{7}$

17. If $a+b+c=0$, then $\frac{(a+b)^2}{ab} + \frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ac}$ is equal to :

- (a) 0 (b) 1 (c) 3 (d) abc

18. If $y + \frac{1}{y} = 2$, then $y^5 + \frac{1}{y^5} =$

- (a) 5 (b) 3 (c) 2 (d) 1

19. If $\left(x + \frac{1}{x}\right)^2 = 3$, then $\left(x^3 + \frac{1}{x^3}\right) =$

- (a) 9 (b) 3 (c) 2 (d) 0

20. $\sqrt{3}x^2 + 11x + 6\sqrt{3} =$

- (a) $(\sqrt{3}x + 2)(x - 3\sqrt{3})$ (b) $(\sqrt{3}x + 2)(x + 3\sqrt{3})$
 (c) $(\sqrt{3}x - 2)(x - 3\sqrt{3})$ (d) $(x - 2)(x + 3\sqrt{3})$

21. If $x = \frac{a+b+c}{3}$ then $(x-a)^3 + (x-b)^3 + (x-c)^3$ can be factorised as :

- (a) $(x-a)(x-b)(x-c)$ (b) $\frac{(x-a)(x-b)(x-c)}{3}$
 (c) $3(x-a)(x-b)(x-c)$ (d) none of these

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22. If $l^x = m^y = n^z$ and $lmn = 1$, then $yz + zx + xy =$

(a) 0

(b) 1

(c) -1

(d) $\frac{1}{2}$

23. On simplifying $\left[5 \left(8^{\frac{1}{3}} + 27^{\frac{1}{3}}\right)^3\right]^{\frac{1}{4}}$ we get:

(a) 5

(b) $\sqrt{5}$

(c) 10

(d) 1

24. P is a point on x-axis at a distance of 3 units from y-axis to its right. The coordinates of P are :

(a) (3, 0)

(b) (0, 3)

(c) (3, 3)

(d) (-3, 3)

25. If $\sqrt{13 - a\sqrt{10}} = \sqrt{8} + \sqrt{5}$, then a =

(a) -5

(b) -6

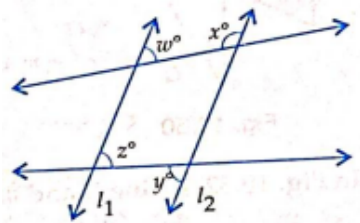
(c) -4

(d) -2

26. If $(x + 1)$ and $(x - 1)$ are factors of $f(x) = ax^3 + bx^2 + cx + d$, then

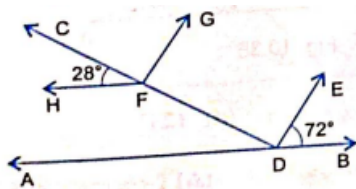
(a) $a + b = 0$ (b) $b + c = 0$ (c) $b + d = 0$ (d) $a + d = 0$

27. In Fig. if $l_1 \parallel l_2$, what is $x + y$ in terms of w and z ?

(a) $180^\circ - w + z$ (b) $180^\circ + w - z$ (c) $180^\circ - w - z$ (d) $180^\circ + w + z$

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28. $\angle C = 28^\circ$ and $\angle E = 72^\circ$. Find $\angle F$.



- (a) 108° (b) 80° (c) 100° (d) 90°

29. The area of the triangle the coordinates of whose vertices are $O(0,0)$, $A(6,0)$ and $B(0,8)$ is

- (a) 48 sq. units (b) 24 sq. units (c) 14 sq. units (d) 12 sq. units

30. $x = 2$, $y = -1$ is a solution of the linear equation:

- (a) $x + 2y = 0$ (b) $x + 2y = 4$ (c) $2x + y = 0$ (d) $2x + y = 5$

SPACE FOR ROUGH WORK

PHYSICS

This section contains 05 Multiple Choice Questions. Each question has four choices (a) (b) (c) and (d) out of which ONLY ONE is correct.

31. A car travels 10m in 5 seconds, 20m in next 10 seconds and 30m in the last 10 seconds. The average speed of the motion is:
- (a) 2.0ms^{-1} (b) 2.2ms^{-1} (c) 30ms^{-1} (d) 2.4ms^{-1}
32. Which of the following statements is correct for a particle travelling with a constant speed in linear path:
- (a) Its position remains constant as time passes.
 (b) It covers equal distances in unequal time intervals.
 (c) Its acceleration is zero.
 (d) It does not change its direction of motion.
33. Two persons are applying forces on two opposite sides of a moving cart. The cart still moves with the same speed in the same direction. What do you infer about the magnitudes and direction of the forces applied.
- (a) Force in the direction opposite to the motion is zero
 (b) Force in the direction opposite to the motion is greater
 (c) Both are Pushing with equal and opposite force
 (d) Force in the direction of motion is greater.
34. An apple falls from a tree because of the gravitational attraction between the earth and the apple. If F_1 is the magnitude of the force exerted by the earth on the apple and F_2 is the magnitude of the force exerted by the apple on the earth, then:
- (a) F_1 is very much greater than F_2
 (b) F_2 is very much greater than F_1
 (c) F_1 and F_2 are equal
 (d) F_1 is only a little greater than F_2
35. A body is brought from the earth to the moon its ____?
- (a) Mass will change
 (b) Weight will change
 (c) Mass and weight will change
 (d) Both mass and weight will change

CHEMISTRY

This section contains 05 Multiple Choice Questions. Each question has four choices (a) (b) (c) and (d) out of which ONLY ONE is correct.

36. A gas can be best liquefied
(a) By increasing the temperature
(b) By lowering the temperature
(c) By increasing the pressure and reducing the temperature
(d) None of these
37. The force of attraction between the particles of the matter are maximum in
(a) Iron rod
(b) Kerosene oil
(c) Glycerin
(d) Dry Air
38. Which of the following is a homogeneous mixture
(a) Solution of sugar in the water
(b) Chalk powder in the water
(c) Kerosene oil in the water
(d) None of these
39. Chemical formula of ferric oxide
(a) FeO
(b) Fe_2O_3
(c) Fe_3O_4
(d) None of these
40. Molecules of phosphorus and ammonia are respectively.
(a) Monatomic and triatomic
(b) Monoatomic and diatomic
(c) Tetratomic and triatomic
(d) Tetratomic and tetratomic

BIOLOGY

This section contains 05 Multiple Choice Questions. Each question has four choices (a) (b) (c) and (d) out of which ONLY ONE is correct.

41. Which among the following organelles are present in a bacterial cell?
- (a) Mitochondria
 - (b) Ribosome
 - (c) Lysosome
 - (d) Endoplasmic reticulum
42. Which organelle performs detoxification in liver cells?
- (a) Mitochondria
 - (b) Ribosome
 - (c) Rough Endoplasmic reticulum
 - (d) Smooth Endoplasmic reticulum
43. Which among the following are the protective tissue in plants?
- (a) Cork and Epidermis
 - (b) Epidermis and cortex
 - (c) Cork and vascular tissue
 - (d) Epidermis and vascular tissue
44. Which of the following is known as packaging tissue in plants
- (a) Collenchyma
 - (b) Parenchyma
 - (c) Areolar
 - (d) Aerenchyma
45. Which cell division is essential for formation of gametes?
- (a) Mitosis
 - (b) Binary fission
 - (c) Meiosis
 - (d) Both a and c

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