

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

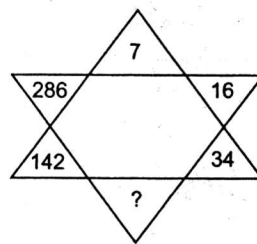
This section contains 15 Multiple Choice Questions. Each question has four choices (a) (b) (c) and (d) out of which ONLY ONE is correct.

In the following question, there is a relationship between the number/letter/figures on the left of the sign (: :). The same relationship exists to the right of the sign (: :) of which one is missing. Find the missing term from the alternatives.

1. TAME : OVHZ : : LUDO :

(a) QZIT (b) GQAM (c) GPYJ (d) GOYJ

2. Look at the following figure. Find the pattern for writing a number in the small triangles and find the missing number?



(a) 38 (b) 66 (c) 68 (d) 70

3. Find from the alternatives, the number which will replace the question mark?

1	2	3
11	7	5
120	45	?

(a) 15 (b) 16 (c) 17 (d) 18

Directions : *In the following questions, find the correct alternative which bears the same relationship given along with it.*

4. 42 : 56 : : 110 : ?

(a) 132 (b) 136 (c) 140 (d) 18

5. A postman was returning to the post-office which was in front of him to the North. When the post-office was 100 m away from him, he turned to the left and moved 50 m to deliver the last letter at the Shanti Villa. He then moved in the same direction for 40 m, turned to his right and moved 100 m. How many metres was he away from the post-office?

(a) 40 m (b) 150 m (c) 90 m (d) 100 m

SPACE FOR ROUGH WORK

6. In the following number series, how many times an odd number is followed by two consecutive even numbers?

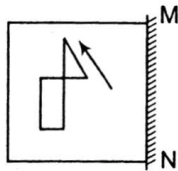
4 2 3 2 5 4 2 5 3 2 6 4 3 5 7 2 8 6 7 9 4 5 4 2 9 6 1 3 2

- (a) 4 (b) More than 4 (c) 2 (d) 3
7. If following alphabets are arranged in the reverse order, which letter will be the 8th letter to the left of the 7th letter counting from the right end?

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

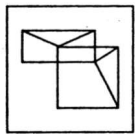
- (a) P (b) O (c) Q (d) N

8.



- (a) (b) (c) (d)

9. **Directions :** In the following questions, choose the correct water image from amongst the four alternatives a, b, c and d given along with it.



- (a) (b) (c) (d)

10. A person walks 10 m towards East and then 10 m to his right. Then, every time turning to his left, he walks 5, 15 and 15 m, respectively. How far is he now from his starting point?
- (a) 5 m (b) 10 m (c) 15 m (d) 20 m

SPACE FOR ROUGH WORK

11. Poonam said to her friend, 'Yesterday I attended the birthday party of the son of the only son-in-law of my mother's mother.' How is Poonam related to the man, whose birthday party she attended?

(a) Niece (b) Daughter (c) Sister (d) Mother

Directions (12 to 13) : Study the following information carefully and answer the questions given below it.

Shalu, Charu, Lata, Tom and Sandy help themselves to take some from bowl. Four of the each take a gulab jamun. Charu and Tom do not take a burfi as all the other do. Infact Charu takes only one sweet, which is a laddu. Apart from Charu, only Shalu and Sandy do not take peda.

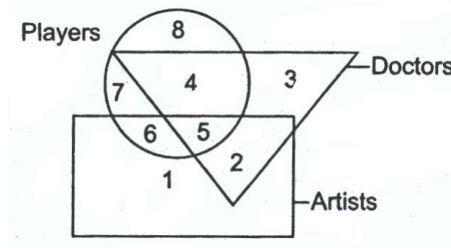
12. Who only had peda and gulab Jamun?

(a) Charu (b) Sandy (c) Shalu (d) Tom

13. In total how many pieces sweets were taken by the group?

(a) 11 (b) 12 (c) 9 (d) 10

Directions (14 to 15) : Study the following information carefully and answer the questions given below it. In the following questions answers are based on the diagram given below, where the triangle represents doctors, the circle represents players and rectangle represents the artists.



14. Which numbered space in the diagram represents artists, who are neither players nor doctors?

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

15. Which numbered space represents players, who are neither artists nor doctors?

(a) 1, 2 (b) 3, 4 (c) 6, 7 (d) 7, 8

SPACE FOR ROUGH WORK

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 number which should be added to twice the rational number $-\frac{7}{9}$ to get $\frac{3}{7}$ is
- (a) $\frac{105}{21}$ (b) $\frac{100}{21}$ (c) $\frac{125}{63}$ (d) $-\frac{89}{21}$
17. What should be subtracted from the half of $-\frac{1}{3}$ is obtain double of $\frac{5}{6}$?
- (a) $-\frac{11}{6}$ (b) $\frac{11}{6}$ (c) $\frac{5}{4}$ (d) $-\frac{5}{2}$
18. Solve for x: $\frac{(2x-7)}{4} - \frac{(1-x)}{6} = 17$.
- (a) $\frac{8}{227}$ (b) $\frac{227}{8}$ (c) 227 (d) 8
19. Find the smallest number by which we divide 37845 so as to get a perfect square number.
- (a) 5 (b) 3 (c) 15 (d) 29
20. There are 500 children in a school. For a P.T. drill they have to stand in such a manner that the number of rows is equal to number of columns. How many children would be left out in this arrangements.
- (a) 16 (b) 18 (c) 10 (d) 30
21. If $\sqrt[3]{1331} = 11$ then find the value of $\sqrt[3]{1331} + \sqrt[3]{0.001331}$.
- (a) 1.21 (b) 11.20 (c) 11.11 (d) 12.1

SPACE FOR ROUGH WORK

22. Half of a herd of deer are grazing in the field and three fourths of the remaining are playing nearby. The rest 9 are drinking water from the pond. Write the correct order in which we can find No. of deers?

P. Dear playing nearby = $\frac{x}{2} \times \frac{3}{4} = \frac{3x}{8}$

Q. According to question, $x - \frac{x}{2} - \frac{3x}{8} = 9$

R. Let number of deer = x, deer grazing the field $\frac{x}{2}$ remaining deer $x - \frac{x}{2} = \frac{x}{2}$

S. $\frac{8x - 4x - 3x}{8} = 9$, hence x = 72.

- (a) P,Q,R,S (b) Q,P,R,S (c) R,P,Q,S (d) R,Q,P,S

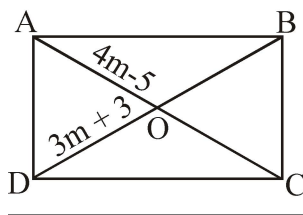
23. Find the number whose fifth part increased by 5 is equal to its fourth part diminished by 5.

- (a) 200 (b) 300 (c) 400 (d) 100

24. Solve for y: $\frac{y+6}{4} + \frac{y-3}{5} = \frac{5y-4}{8}$

- (a) 7 (b) 8 (c) 6 (d) 5

25. ABCD is a rectangle. Its diagonals meet at O. Find 'm', if AO = 4m - 5 and DO = 3m + 3.



- (a) 3 (b) 5 (c) 8 (d) 4

SPACE FOR ROUGH WORK

26. The value of $\sqrt{41 + \sqrt{54 + \sqrt{88 + \sqrt{128 + \sqrt{256}}}}}$ is:
 (a) 7 (b) 6 (c) 8 (d) 10
27. Match **Column - I** with **Column - II** and select the correct answer using the codes given below.
- | Column-I | Column-II |
|---------------------------------|---|
| P. Diagonals of a rectangle | 1. Bisect each other at right angle |
| Q. Diagonals of a square | 2. Bisect each other |
| R. Diagonals of rhombus | 3. Equal and bisect each other |
| S. Diagonals of a parallelogram | 4. Equal and bisect each other at right angle |
- P Q R S**
- (a) 1 2 3 4
 (b) 4 3 2 1
 (c) 3 4 1 2
 (d) 2 1 4 3
28. The side of a cube is doubled. By what factor does its volume increased?
 (a) 6
 (b) 4
 (c) 3
 (d) 8
29. What must be subtracted from $3a^2 - 6ab - 3b^2$ to get $4a^2 - 7ab - 4b^2 + 1$
 (a) $-a^2 - ab - b^2 + 1$ (b) $a^2 + ab + b^2 + 1$
 (c) $a^2 - ab - b^2 + 1$ (d) $-a^2 + ab + b^2 - 1$
30. If $x^2 + y^2 = 47$ and $xy = 19/2$, then the value of $2(x + y)^2 + (x - y)^2$ is
 (a) 160 (b) 270 (c) 226 (d) 86

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 book is kept on a horizontal flat table. The friction force acting on the book are.
 - (a) Equal to weight
 - (b) Equal to normal
 - (c) Zero
 - (d) Not sure

32. A girl throws a stone into river which creates a transverse ripples on the surface of water which propagates at a speed of 10 m/s and the distance between the consecutive crests and trough formed on the surface of water is 0.25m then find out the time period of transverse oscillation.
 - (a) 0.065s
 - (b) 0.025s
 - (c) 0.02s
 - (d) 0.05s

33. A smart traffic system uses a sound sensor to detect a speeding bike by measuring the time it takes for the horn's sound to reflect back from a nearby wall. If the system records the reflected sound after 0.04 seconds, and the speed of sound in air is 340 m/s, how far is the bike from the wall?
 - (a) 0.85m
 - (b) 1.65m
 - (c) 4.68m
 - (d) 6.8m

34. A cuboidal block having dimensions of 0.8cm x 0.4cm x 0.3cm and mass of 0.6kg. it is resting on the ground with length 0.4cm and height 0.3cm. find out the pressure applied by the block on the ground and the normal force from ground. (Take $g = 10 \text{ m/s}^2$), (there is no any external force acting on the block)
 - (a) $5 \times 10^5 \text{ pa}$ and 6N
 - (b) $2.5 \times 10^6 \text{ pa}$ and 6N
 - (c) $5 \times 10^6 \text{ pa}$ and 6N
 - (d) $25 \times 10^5 \text{ pa}$ and 6N

35. The necessary and sufficient condition for the friction force to act is:
 - (a) must be the tendency of motion
 - (b) must be the relative motion
 - (c) contact surfaces
 - (d) irregularity

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. The zone of a flame used by goldsmith for melting gold and silver is:
(a) innermost zone
(b) middle zone
(c) outermost zone
(d) all of these
37. Producer gas contains.
(a) nitrogen and carbon monoxide
(b) hydrogen and nitrogen
(c) nitrogen and carbon dioxide
(d) hydrogen and carbon dioxide
38. Which poisonous gas is formed as a result of incomplete combustion?
(a) Carbon monoxide
(b) Coal gas
(c) Carbon dioxide
(d) Nitrogen oxide
39. LPG is mostly liquified
(a) hydrogen.
(b) oxygen.
(c) butane.
(d) methane.
40. Crude petroleum is also called
(a) black gold
(b) yellow gold
(c) brown gold
(d) white gold.

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. Read the following statements and mark the correct one.
- (a) Streptomycin, tetracycline and erythromycin are antibiotics as they kill the same microorganism from which these are produced.
 - (b) Antibiotics are also used in poultry farms.
 - (c) Antibiotics are very effective against viral diseases like flu and cold.
 - (d) Antibiotics cause disease.
42. Rani's mother boiled milk and left it overnight after adding a small spoonful of curd. Next morning, the milk turned into curd. Rani asked her teacher how this happened. The teacher explained that microorganisms play an important role in this process. Which vitamin is increased in curd by the activity of microorganisms?
- (a) Vitamin A
 - (b) Vitamin B₁₂
 - (c) Vitamin D
 - (d) Vitamin K
43. Neem leaves are used in grain storage because:
- (a) They enrich grains with nutrients
 - (b) They kill insects due to their natural pesticidal properties
 - (c) They reduce grain moisture
 - (d) They make grains soft
44. Identify the incorrect pair:
- (a) Legumes – Nitrogen fixation
 - (b) Drip irrigation – Water conservation
 - (c) Combine – Performs sowing and irrigation
 - (d) Weedicides – Chemicals to kill weeds
45. In a food chain, plants → deer → tiger. If deer population drastically reduces due to hunting, which outcome is most likely?
- (a) Plant population decreases
 - (b) Tiger population decreases
 - (c) Plant population remains stable
 - (d) Both (a) and (b)

SPACE FOR ROUGH WORK

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