



**Santosh Academia Talent Examination  
(2024-25)  
CLASS-X (STUDYING)  
SAMPLE PAPER**

**Max. Marks: 120**

**Time: 1 Hour**

***IMPORTANT INSTRUCTIONS:***

***GENERAL***

1. This booklet is your Question Paper. Ensure that question paper belongs to the Class in which you are currently studying. If not, contact the invigilator for change of question paper.
2. The Test ID is printed on the left-hand top corner of this sheet. If not, contact the invigilator for change of question paper.
3. Use the Optical Mark Recognition (OMR) sheet provided separately for answering the questions. DO NOT FILL till you are told to do so.
4. The test paper SET CODE is printed on the Right-hand top corner of the question paper. Ensure that you fill this in OMR as that on the question paper booklet.
5. Blank spaces are provided within this booklet for rough work. No additional rough sheet will be provided.
6. You are ALLOWED to take away the Question Paper at the end of the examination.

***QUESTION PAPER FORMAT***

7. This Paper contains **30** questions in total.  
*Section-I: Question Number 1 to 3 belongs to **Physics**.*  
*Section-II: Question Number 4 to 6 belongs to **Chemistry**.*  
*Section-III: Question Number 7 to 10 belongs to **Biology**.*  
*Section-IV: Question Number 11 to 20 belongs to **Mathematics**.*  
*Section-V: Question Number 21 to 30 belongs to **Mental Ability**.*

***MARKING SCHEME:***

8. Each question carries 4 marks. For each correct response, the candidate will get 4 marks.
9. There is no negative marking for incorrect response or unmarked questions.



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### SECTION-I PHYSICS

- An observer moves in a perpendicular direction to the normal of a stationary plane mirror at a speed of  $4 \text{ m s}^{-1}$ . The speed of image with respect to mirror is
  - $0 \text{ m s}^{-1}$  with respect to the mirror
  - $4 \text{ m s}^{-1}$  towards the mirror
  - $4 \text{ m s}^{-1}$  away from the mirror
  - $4 \text{ m s}^{-1}$  parallel to the mirror
- The refractive index of diamond is 2.4. If the velocity of light in air or vacuum is  $3 \times 10^8 \text{ m s}^{-1}$ , then the velocity of light in diamond is  $5A \times 10^8 \text{ m s}^{-1}$ . The value of A is ?
  - 1.25
  - 0.25
  - 0.16
  - 0.8
- A convex mirror is used
  - by a dentist
  - for shaving
  - as a rear view mirror in vehicles
  - as a light reflector for obtaining a parallel beam of light

### SECTION-II CHEMISTRY

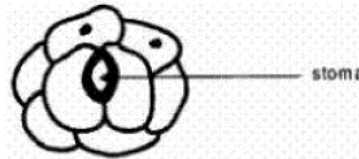
- $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \longrightarrow \text{BaSO}_4 + 2\text{HCl}$  is
  - Combination reaction
  - Decomposition reaction
  - Displacement reaction
  - Double displacement reaction
- Zinc can displace copper from copper sulphate solution because zinc is
  - More reactive than copper
  - Less reactive than copper
  - More stable than copper
  - Less stable than copper
- Which of the following statement is incorrect?
  - Metals like Cu, Ag, Au cannot displace 'H' from acids
  - In reactivity series metals are arranged in order of increasing reactivity
  - Silver cannot displace 'Cu' from  $\text{Cu}(\text{NO}_3)_2$
  - Zinc displaces 'Cu' from  $\text{CuSO}_4$

### SECTION-III BIOLOGY

- The contraction and expansion movement of the walls of the food pipe is called
  - Translocation
  - Digestion
  - Peristalsis
  - Imbibition
- In vegetative reproduction, the new individuals are genetically
  - Better than the original
  - Dissimilar
  - Similar
  - Abnormal



9. A student had drawn the diagram of stomata as shown below in a hurry. He could not be given full marks as he



- (a) Did not draw nucleoli, in guard cells and other  
(b) Did not label the stoma in its correct position cells  
(c) Should have drawn nucleoli and chloroplasts  
(d) Forgot to draw nucleoli in guard cells and also in guard cells and nucleoli in all epidermal to label the diagram cells
10. Master Gland of the body is  
(a) Pituitary (b) Thalamus (c) Gonads (d) Thyroid

### SECTION-IV MATHEMATICS

11. The roots of the equation  $x^2 - 2\sqrt{2}x + 1 = 0$  are  
(a) Real and distinct (b) Not real (c) Real and equal (d) None of these
12. For what values of  $k$ , the equation  $2x^2 + kx + 8 = 0$  has real and equal roots?  
(a)  $-8, 1$  (b)  $8, -8$  (c)  $-2\sqrt{2}, -8$  (d) None of these
13. If  $\alpha, \beta$  are roots of the equation  $x^2 - 5x + 6 = 0$ , find the value of  $\alpha^2 - \beta^2$   
(a)  $\pm 5$  (b)  $\pm 13$  (c)  $\pm 6$  (d)  $\pm 7$
14. Two numbers differ by 3 and their product is 504. The numbers are  
(a) 21, 24 (b) 24, -21 (c) -24, 21 (d) None of these
15. Find the value of  $k$  for which the roots of the equation  $kx(3x - 4) + 4 = 0$ , are equal.  
(a) 1 (b) 2 (c) 3 (d) 4
16. If the diagonal of a rectangle is 50 m and its perimeter is 124 m, then the length and breadth of the rectangle (in metre) respectively are  
(a) 46, 10 (b) 48, 14 (c) 34, 6 (d) 22, 5
17. How many natural numbers between 1 and 1000 are divisible by 5?  
(a) 197 (b) 198 (c) 199 (d) 200
18. If the sum of the  $p$  terms of an A.P. is the same as the sum of its  $q$  terms (where  $p \neq q$ ), then sum of its first  $(p + q)$  terms is  
(a) 0 (b) 1 (c) 2 (d) None of these
19. The sum of first  $n$  odd natural numbers is  
(a)  $n^2$  (b)  $n + 1$  (c)  $2n + 1$  (d)  $n$
20. In an A.P., if common difference  $d = 3$ , then  $a_5 - a_7$  is equal to  
(a) 2 (b) -2 (c) 6 (d) -6

### SECTION-V MENTAL ABILITY

21. If in a certain language 'CLOCK' is written as 'MDNKD', then how 'PRESENT' will be coded in that language  
(a) FOSQRU (b) FSQRUOF (c) FSQRUMF (d) FSQRUMF





22. Find the missing character in the following figure

150	7
157	23
180	- 38
?	0

- (a) 190                      (b) 152                      (c) 142                      (d) 228

23. In the given question, choose the correct alternate to complete the series

r \_ t \_ v \_ s \_ u \_ rs \_ u \_

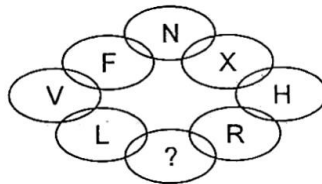
- (a) stvtvru                      (b) surtvvtv                      (c) rutvstu                      (d) sturvvtv

24. Find the next number in the series

1, 8, 9, 64, 25, 216, 49, ?

- (a) 265                      (b) 512                      (c) 343                      (d) 215

25. Insert the missing letter in the diagram below



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

26. In a question,  $55 + 10 = 20$  and  $45 + 40 = 49$ , then how  $95 + 70 = ?$

- (a) 165                      (b) 84                      (c) 155                      (d) 48

27. Which letter will replace the question mark from given alternatives?

D		H
K	M	X
G		P

M		J
R	B	P
E		F

L		C
S	G	L
G		I

N		U
O	?	W
A		B

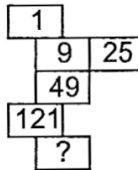
- (a) H                      (b) I                      (c) J                      (d) K





*Direction (28-29) : Find the statement which is true according to the given information below.*

28. On weekends, Mr Sanchez spends many hours working in his vegetable and flower gardens. Mrs Sanchez spends her free time reading and listening to classical music. Both Mr Sanchez and Mrs Sanchez like to cook
- (a) Mr Sanchez enjoys planting and growing vegetables
  - (b) Mr Sanchez does not like classical music
  - (c) Mrs Sanchez cooks the vegetables that Mr Sanchez grows
  - (d) Mrs Sanchez enjoys reading nineteenth century novels
29. Georgia is older than her cousin Marsha. Marsha's brother bart is older than Georgia. When Marsha and bart are visiting with Georgia, all three like to play a game of Monopoly. Marsha wins more often than Georgia does
- (a) When he plays Monopoly with Marsha and Georgia, Bart often loses
  - (b) Of the three, Georgia is the oldest
  - (c) Georgia hates to lose at Monopoly
  - (d) Of the three, Marsha is the youngest
30. Identify which alternate can replace the question mark?



- (a) 165                      (b) 169                      (c) 167                      (d) 144





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## ROUGH WORK

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