



**Santosh Academia Talent Examination**  
**(2024-25)**  
**CLASS-IX (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

1. A field gun of mass 1.5 tonne fires a shell of mass 15 kg with a velocity of  $150 \text{ m s}^{-1}$ . Calculate the velocity of the recoil of the gun. (1 tonne = 1000 kg)  
(a)  $1 \text{ m s}^{-1}$                       (b)  $1.5 \text{ m s}^{-1}$                       (c)  $3 \text{ m s}^{-1}$                       (d)  $5 \text{ m s}^{-1}$
2. Choose the wrong statement.  
(a) Unit of force is newton.                      (b) Force changes shape of body.  
(c) Force is always conserved.                      (d) Force is vector quantity.
3. A car starting from rest has a speed of 30 km/hr at any one instant. Two seconds later, its speed is 36 km/hr and 2 seconds after that it is 42 km/hr. What is the acceleration in  $\text{m/s}^2$ ?  
(a)  $\frac{5}{6} \text{ m/s}^2$                       (b)  $3 \text{ m/s}^2$                       (c)  $10 \text{ m/s}^2$                       (d)  $6 \text{ m/s}^2$

### SECTION-II CHEMISTRY

4. Which of the following particles is largely responsible for the chemical behaviour of elements?  
(a) Proton                      (b) Electron                      (c) Neutron                      (d) Positron
5.  $^{14}_6\text{C}$  and  $^{15}_7\text{N}$  represent  
(a) Isotones                      (b) Isobars                      (c) Isotopes                      (d) Isosteres
6. The isotope with zero neutron is  
(a) Protium                      (b) Deuterium                      (c) Tritium                      (d) None of these

### SECTION-III BIOLOGY

7. If you are provided with root-tips of onion in your class and are asked to count the chromosomes, which of the following stages can you most conveniently look into?  
(a) Metaphase                      (b) Telophase                      (c) Anaphase                      (d) Prophase
8. Autonomic genome system is present in  
(a) Golgi body and Mitochondria                      (b) Mitochondria and Chloroplast  
(c) Mitochondria and Ribosome                      (d) Ribosomes and Chloroplast
9. The sedimentation constant of ribosome in prokaryotes is generally 70S. It breaks up into two subunits whose sedimentation constants are  
(a) 50S and 20S                      (b) 40S and 30S                      (c) 60S and 10S                      (d) 50S and 30S
10. The fingers of a human embryo are at first webbed but later free from one another. Which organelle helps in this?  
(a) Endoplasmic reticulum                      (b) Golgi Apparatus  
(c) Mitochondria                      (d) Lysosome



**SECTION-IV MATHEMATICS**

11. Arrange in ascending order  $\sqrt[6]{7}, \sqrt[4]{3}, \sqrt[12]{48}$   
 (a)  $\sqrt[4]{3}, \sqrt[12]{48}, \sqrt[6]{7}$  (b)  $\sqrt[12]{48}, \sqrt[4]{3}, \sqrt[6]{7}$  (c)  $\sqrt[4]{7}, \sqrt[12]{48}, \sqrt[4]{3}$  (d) None of these
12. If  $pqr = 1$ , then  $\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}}$  is equal to  
 (a) 0 (b)  $\frac{1}{pq}$  (c)  $pq$  (d) 1
13. The arithmetical fraction that exceeds its square by the greatest quantity is :  
 (a)  $\frac{1}{4}$  (b)  $\frac{1}{2}$  (c)  $\frac{3}{4}$  (d)  $\frac{2}{5}$
14. The total number of divisors of 10500 except 1 and itself is  
 (a) 48 (b) 50 (c) 46 (d) 56
15. If  $\left(x + \frac{1}{x}\right) = 4$ , then  $\left(x^4 + \frac{1}{x^4}\right)$  is equal to  
 (a) 196 (b) 194 (c) 192 (d) 190
16. If  $2^x - 2^{x-1} = 16$ , then the value of  $x^2$  is  
 (a) 4 (b) 9 (c) 16 (d) 25
17. If  $f$  and  $g$  are two polynomials of degrees 3 and 4 respectively, then what is the degree of  $f - g$ ?  
 (a) 1 (b) 3  
 (c) 4 (d) Cannot be determined
18. The remainders obtained when the polynomial  $x^3 + x^2 - 9x - 9$  divided by  $x, x + 1$  and  $x + 2$  respectively are  
 (a)  $-9, 0, -15$  (b)  $-9, -16, 5$  (c)  $0, 0, 5$  (d)  $-9, 0, 5$
19. Find the quadrant in which the lines  $2x + 3y - 1 = 0$  and  $3x + y - 5 = 0$  intersect each other.  
 (a) 1st quadrant (b) 2nd quadrant (c) 3rd quadrant (d) 4th quadrant
20. The equation of the diagonal AC of a square ABCD is  $3x + 4y + 12 = 0$ . Find the equation of BD, where D is  $(2, -3)$   
 (a)  $4x - 3y - 8 = 0$  (b)  $4x - 3y - 17 = 0$   
 (c)  $4x - 3y + 17 = 0$  (d)  $4x + 3y - 17 = 0$

**SECTION-V MENTAL ABILITY**

21. Which group of letter is different from others?  
 (a) LAZO (b) HCXS (c) GHIJ (d) FEVU





22. Some words are translated from an artificial language below

'goh rat pee' is 'my school bag'.

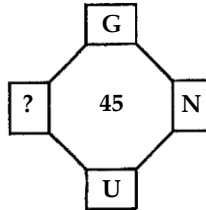
'nie jee goh' is 'black colour bag'

'pee jee goh' is 'my black bag'

Which word could possibly mean 'colour'?

- (a) Pee (b) Nie (c) Jee (d) Goh

23. Find the missing character in the following figure.



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

24. Find the next number in the given sequence.

1000, 100, 729, 81, 512, 64, 343, ?

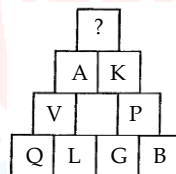
- (a) 25 (b) 49 (c) 64 (d) 36

25. Find out the number in the position of 'question mark'.

A <sub>2</sub>	C <sub>4</sub>	E <sub>6</sub>
G <sub>3</sub>	I <sub>5</sub>	?
M <sub>5</sub>	O <sub>9</sub>	Q <sub>14</sub>

- (a) K<sub>5</sub> (b) K<sub>12</sub> (c) K<sub>7</sub> (d) K<sub>8</sub>

26. Which number will replace the question mark?

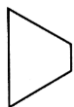


- (a) G (b) H (c) F (d) E

27. In the question, if  $5 + 3 + 2 = 30$  and  $4 + 7 + 5 = 140$ , then how  $13 + 5 + 2 = ?$

- (a) 130 (b) 140 (c) 135 (d) 125

28. Identify which among the pieces given below will not be required to complete the square.



(p)

(a) p



(q)

(b) q



(r)

(c) r



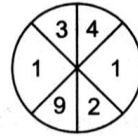
(s)

(d) s





29. Sara lives in a large city on the East coast. Her younger cousin Marlee lives in the midwest 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 Sari 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
30. Identify which alternate replace the question mark?



(a) 5

(b) 3

(c) 6

(d) 4





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ROUGH WORK

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