



# Centre for Excellence

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ALL INDIA

## MATHS SCIENCE TALENT EXAMINATION

### CLASS X

Total Marks: 25

Time Allowed: 30 Minutes

- If L stands for +, M stands for −, N stands for ×, P stands for ÷ then  
**14N10L42P2M8=**  
(A) 248 (B) 153  
(C) 352 (D) 218
- If the position of the third and the tenth letters of the word DOCUMENTATION are interchanged, and likewise the position of the fourth and seventh letters, the second and the sixth letters is interchanged, which of the following will be eleventh from the right end?  
(A) C (B) O  
(C) U (D) T
- A person climbs up a pole of 88 m high. In every minute, he climbs 12 m but slips down 8 m. How much time he will take to reach at the top?  
(A) 20 minutes (B) 22 minutes  
(C) 19 minutes (D) none of these
- \_ a b a a a b a \_ a \_ a  
(A) a b a (B) a a b  
(C) a b b (D) none of these
- What was the day of the week on 15 August, 1947?  
(A) Tuesday (B) Wednesday  
(C) Thursday (D) Friday
- If  $S = \frac{n(n+1)}{2} = 78$ , find the value of  $n$ .  
(A) 32 (B) 12  
(C) 13 (D) 6
- A vertical stick 6 cm long casts a shadow 4 cm long on the ground. At the same time, a tower casts the shadow 20 m long on the ground. Find the height of the tower.  
(A) 15 m (B) 20 m  
(C) 25 m (D) 30 m
- If  $\tan A = \frac{4}{3}$ , then  $\cos A = ?$   
(A)  $\frac{3}{4}$  (B)  $\frac{2}{3}$  (C)  $\frac{3}{5}$  (D) none
- Which term of the sequence 4, 9, 14, 19, ..... is 124?

- (A) 35<sup>th</sup>                      (B) 20<sup>th</sup>  
(C) 25<sup>th</sup>                      (D) none of these
10. If (0, -1), (6, 7), (-2, 3) and (8, 3) are the vertices of a rectangle, find its area.  
(A) 20 sq. unit              (B) 30 sq. unit  
(C) 40 sq. unit              (D) none of these
11. A point P is 13 cm from the centre of a circle. The length of the tangent drawn from P to the circle is 12 cm. Find the radius of the circle.  
(A) 11 cm                      (B) 15 cm  
(C) 5 cm                        (D) none of these
12. In  $\Delta ABC$ , AD is the bisector of  $\angle A$ , meeting side BC at D. If AD = 5.6 cm; BC = 6 cm; BD = 3.2 cm, find AC.  
(A) 4.5 cm                      (B) 4.9 cm  
(C) 5.4 cm                      (D) none of these
13. How many times will the wheel of a bus rotate in a distance of 88 km if diameter of the wheel is 56 cm. ( $\pi = 22/7$ )  
(A) 25,000                      (B) 50,000  
(C) 2,500                        (D) none of these
14. If  $\cos \theta = \frac{1}{2}$ , find value of  
$$\frac{2 \sec \theta}{1 + \tan^2 \theta}$$
  
(A) 1                              (B) 2  
(C) 0                              (D) none of these
15. Find the sum of 30 terms of AP 1, 4, 7, 10, . . . .  
(A) 1020                        (B) 1805  
(C) 1335                        (D) none of these
16. A certain mass of water at 70°C is poured into an equal mass of water at 28°C. What will be the resulting temperature of the mixture?  
(A) 19°C                        (B) 98°C  
(C) 32°C                        (D) 49°C
17. Two bulbs have power 60 W and 40 W respectively. Which bulb has greater resistance?  
(A) 40 W                        (B) 60 W  
(C) Both have same  
(D) None of these
18. An object 2 cm in size is placed 24 cm in front of a concave mirror of focal length 15 cm. Find the size of the image.  
(A) 1 cm                        (B) 3.5 cm  
(C) 2 cm                        (D) 3.2 cm
19. Calculate the pH of a solution containing Hydrogen ion concentration of  $1.0 \times 10^{-8}$ .  
(A) 8                              (B) 4  
(C) 2                              (D) none of these

20. Which element is more reactive in :  

$$\text{Zn} + \text{CuSO}_4 \longrightarrow \text{ZnSO}_4 + \text{Cu}$$
 (A) Zinc (B) Copper  
 (C) Sulphur (D) Oxygen
21. Alcohols react with sodium metal to form sodium alkoxide and \_\_\_ gas is liberated.  
 (A) H<sub>2</sub> (B) O<sub>2</sub>  
 (C) CO<sub>2</sub> (D) none of these
22. Trypsin helps in digestion of \_\_\_\_\_.  
 (A) Proteins (B) Carbohydrates  
 (C) Fats (D) All of these
23. In photosynthesis, photolysis of water is used in \_\_\_\_\_.  
 (A) oxidation of NAD  
 (B) reduction of NADP  
 (C) Oxidation of FAD  
 (D) none of these
24. The breakdown of pyruvate to give CO<sub>2</sub>, water and energy takes place in \_\_\_\_\_.  
 (A) nucleus (B) mitochondria  
 (C) chloroplast (D) cytoplasm
25. Mendelian laws apply only when \_\_\_\_\_.  
 (A) the characters are linked  
 (B) the parents are pure breeding  
 (C) one pair of contrasting character depend on the other pair  
 (D) none of these

### ANSWERS

1	B	6	B	11	C	16	D	21	A
2	D	7	D	12	B	17	A	22	A
3	A	8	C	13	B	18	D	23	B
4	B	9	C	14	A	19	A	24	B
5	D	10	C	15	C	20	A	25	B