SPECTRA

PATH TO SUCCESS

NEET | JEE | FOUNDATIONS

CLASS X	STAARS MODEL PAPER	TIME : 01:00HR

PART A – SCIENCE (40 Marks)

1. The focal length of a concave mirror is 20 cm. Where should an object be placed to get a magnified real image?
   a) Between focus and pole   b) Between focus and center   c) Beyond center   d) At focus

2. The phenomenon responsible for the blue color of the sky is:
   a) Reflection   b) Refraction   c) Scattering   d) Dispersion

3. Which of the following converts AC to DC?
   a) Transformer   b) Rectifier   c) Dynamo   d) Motor

4. When a ray of light passes from air into glass, which of the following remains unchanged?
   a) Speed   b) Frequency   c) Wavelength   d) Direction

5. The reaction between acid and base to form salt and water is called:
   a) Displacement   b) Neutralization   c) Oxidation   d) Precipitation

6. Which of the following gases is released during the reaction of acid with metal?
   a) CO_2 b) H_2 c) O_2 d) N_2

7. Which of the following is a double displacement reaction?
   a) $Zn + HCl \rightarrow ZnCl_2 + H_2$ b) $NaOH + HCl \rightarrow NaCl + H_2O$

   c) $2Mg + O_2 \rightarrow 2MgO$ d) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

8. In a parallel circuit, if one branch is broken:
   a) The whole circuit stops   b) Current flows in other branches

   c) Current stops everywhere   d) Resistance doubles

9. The power of a lens is +2 D. The focal length of the lens is:
   a) 2 m   b) 1 m   c) 0.5 m   d) 0.2 m

10. The process of breaking down glucose to release energy is known as:
    a) Photosynthesis   b) Respiration   c) Transpiration   d) Combustion

PART B – MATHEMATICS (40 Marks)

11. If $x^2 + 7x + 10 = 0$, then the roots are:
    a) 2, 5   b) -2, -5   c) 2, -5   d) -2, 5

12. The value of $\sin^2 A + \cos^2 A$ is:
    a) 0   b) 1   c) 2   d) None

13. The zeros of the polynomial $x^2 - 5x + 6$ are:

   a) 2 and 3   b) -2 and -3   c) 5 and 6   d) 1 and 6

14. The distance between the points (2,3) and (5,7) is:

   a) 4   b) 5   c) 6   d) $\sqrt{41}$

15. The coordinates of the midpoint of the line joining (4, -2) and (10, 6) are:

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

16. If a line intersects y-axis at 3 and has slope 2, its equation is:

   a) y = 2x + 3   b) y = 3x + 2   c) y = 2x – 3   d) y = 3x – 2

17. The sum of the first 10 natural numbers is:

   a) 45   b) 55   c) 65   d) 100

18. The roots of the quadratic equation $x^2 - 6x + 9 = 0$ are:

   a) Real and equal   b) Real and distinct   c) Imaginary   d) None

19. The area of a triangle formed by points (0,0), (4,0), (0,3) is:

   a) 6   b) 8   c) 12   d) 10

20. The distance between two parallel lines y = 3x + 4 and y = 3x – 8 is:

   a) 4   b) 6   c) $12/\sqrt{10}$ d) 12

PART C – MENTAL ABILITY (20 Marks)

21. 2, 6, 12, 20, 30, ?

   a) 36   b) 40   c) 42   d) 48

22. If TABLE = 60 and CHAIR = 45, then BOARD = ?

   a) 54   b) 55   c) 56   d) 60

23. Which one is different?

   a) 64   b) 125   c) 216   d) 144

24. A man walks 3 km east, then 4 km north. How far is he from the starting point?

   a) 5 km   b) 6 km   c) 7 km   d) 4 km

25. Find the missing term: A, C, F, J, O, ?

   a) R   b) S   c) T   d) U

26. If 8 × 3 = 66, 6 × 2 = 24, then 4 × 3 = ?

   a) 12   b) 18   c) 24   d) 30

27. In a certain code, SPECTRA is written as RDBDSQB. Then ACADEMY is written as:

   a) ZBZCDLX   b) ZBZDCLX   c) ZBZCDMX   d) YBZCDLX

28. Which number replaces the question mark?
    8, 27, 64, ?, 216
    a) 100   b) 121   c) 125   d) 144

29. Choose the odd one out:
    a) Rose   b) Lotus   c) Sunflower   d) Cotton

30. Find the next number: 5, 10, 20, 40, ?
    a) 60   b) 70   c) 80   d) 90

Note to Parents and Students:

This is a model paper designed to give an idea about the **pattern and level** of the STAARS Scholarship Test. The actual paper's **difficulty and distribution may vary** slightly in the final exam.