ST. JOSEPH STUDY CENTRE

9th STD: Mid Term Test - 1 **MATHS** **Time: 1 Hr 30 mins / Total Marks: 50**

I. Choose The correct answer: [10 x 1 = 10]

1. The point whose ordinate is 4 and which lies on the y-axis is _____
   (1)(4, 0) (2) (0, 4) (3) (1, 4) (4) (4, 2)
2. The distance between the two points (2, 3) and (1, 4) is _____
   (1) 2 (2) $\sqrt{56}$ (3) $\sqrt{10}$ (4) $\sqrt{2}$
3. If (x + 2, 4) = (5, y – 2), then the coordinates (x,y) are _____
   (1) (7, 12) (2) (6, 3) (3) (3, 6) (4) (2, 1)
4. If $\sin 30^0 = x$ and $\cos 60^0 = y$, then $x^2 + y^2$ is
   (1) $\frac{1}{2}$ (2) 0 (3) $\sin 90^0$ (4) $\cos 90^0$
5. The value of $\frac{2\tan 30^0}{1-tan^2\ 30^0}$ is equal to
   (1) cos60° (2) sin60° (3) tan60° (4) sin30°
6. If $2\sin 2\theta = \sqrt{3}$, then the value of θ is
   (1) 90° (2) 30° (3) 45° (4) 60°
7. The value of $\frac{1-tan^2\ 45^o}{1+\ tan^2\ 45^o}$ is
   (1) 2 (2) 1 (3) 0 (4) $\frac{1}{2}$
8. The lateral surface area of a cube of side 12 cm is
   (1) 144 cm^2 (2) 196 cm^2 (3) 576 cm^2 (4) 664 cm^2
9. If the lateral surface area of a cube is 600 cm2, then the total surface area is
   (1) 150 cm^2 (2) 400 cm^2 (3) 900 cm^2 (4) 1350 cm^2
10. The total surface area of a cuboid with dimension 10 cm × 6 cm × 5 cm is
    (1) 280 cm^2 (2) 300 cm^2 (3) 360 cm^2 (4) 600 cm^2

II. Answer any 10 of the following questions: [5 x 2 = 10]

11. Represent the following sets in Roster form.
    (i) A = The set of all even natural numbers less than 20.
    (ii) B = $\{y : y = \frac{1}{2n}, n \in \mathbb{N}, n \leq 5\}$
    (iii) C = {x : x is perfect cube, 27 < x < 216}
    (iv) D = $\{x : x \in \mathbb{Z}, -5 < x \leq 2\}$
12. Plot the following points in the coordinate plane. Join them in order. What type of geometrical shape is formed?
    (–3,3) (2,3) (–6,–1) (5,–1) [Rough graph is enough].
13. Determine whether the given set of points in each case are collinear or not (a,–2), (a,3), (a,0).
14. If $2\cos\theta = \sqrt{3}$, then find all the trigonometric ratios of angle θ.
15. Verify the following equalities: $\sin 30^0 \cos 60^0 + \cos 30^0 \sin 60^0 = \sin 90^0$.
16. Find the TSA and LSA of the cube whose side is 21 cm.

17. If the total surface area of a cube is 2400 cm^2 then, find its lateral surface area.

III. Answer any 6 of the following questions: **[6 x 5 = 30]**

18. Express the rational number $\frac{1}{33}$ in recurring decimal form by using the recurring decimal expansion of $\frac{1}{11}$. Hence write $\frac{71}{33}$ in recurring decimal form.
19. Let A(2, 3) and B(2,–4) be two points. If P lies on the x-axis, such that AP = $\frac{3}{7}$ AB, find the coordinates of P.
20. Show that the following points taken in order form the vertices of a parallelogram.
    (–7, –3), B(5,10), C(15,8), D(3, –5)
21. If cosθ : sinθ =1: 2, then find the value of $\frac{8\cos\theta-2\sin\theta}{4\cos\theta+2\sin\theta}$.
22. Find the value of 8sin2x cos 4x sin6x, when x = 15^o.
23. The dimensions of a hall is 10 m × 9 m × 8 m. Find the cost of white washing the walls and ceiling at the rate of ₹8.50 per m^2.
24. Three identical cubes of side 4 cm are joined end to end. Find the total surface area and lateral surface area of the new resulting cuboid.
25. Draw and locate the centroid of the triangle ABC where right angle at A, AB = 4cm and AC = 3cm.

----------ALL THE BEST----------