A.V.P TRUST MATRIC HR. SEC. SCHOOL GANDHI NAGAR TIRUPUR

X MATHEMATICS UNIT TEST – 5 MARKS: 50

I) Choose the correct answer **5 × 1 = 5**

1. A man walks near a wall, such that the distance between him and the wall is 10 units. Consider the wall to be the Y axis. The path travelled by the man is
   (1) $x = 10$ (2) $y = 10$ (3) $x = 0$ (4) $y = 0$
2. The point of intersection of $3x - y = 4$ and $x + y = 8$ is
   (1) (5, 3) (2) (2, 4) (3) (3, 5) (4) (4, 4)
3. The equation of a line passing through the origin and perpendicular to the line $7x - 3y + 4 = 0$ is
   (1) $7x - 3y + 4 = 0$ (2) $3x - 7y + 4 = 0$ (3) $3x + 7y = 0$ (4) $7x - 3y = 0$
4. A straight line has equation $8y = 4x + 21$. Which of the following is true
   (1) The slope is 0.5 and the y intercept is 2.6
   (2) The slope is 5 and the y intercept is 1.6
   (3) The slope is 0.5 and the y intercept is 1.6
   (4) The slope is 5 and the y intercept is 2.6
5. The slope of the line which is perpendicular to a line joining the points (0,0) and (–8,8) is
   (1) –1 (2) 1 (3) $\frac{1}{3}$ (4) -8

II) Answer any 10 questions **10 × 2 = 20**

6. Find the area of the triangle whose vertices are (– 3, 5) , (5, 6) and (5, – 2)
7. Find the value of 'a' for which the given points are collinear.
   (2, 3), (4, a) and (6, –3)
8. Find the slope of a line joining the given points (–6, 1) and (–3, 2)
9. Show that the given points are collinear using the concept of slope
   (– 3, – 4), (7, 2) and (12, 5)
10. Calculate the slope and y intercept of the straight line $8x - 7y + 6 = 0$.
11. Find the equation of a line whose intercepts on the x and y axes are 4, –6
12. Find the intercepts made by the following lines on the coordinate axes
    $3x - 2y - 6 = 0$.
13. Find the equation of a line through the given pair of points (2, 3) and (–7, –1)
14. Show that the straight lines $x - 2y + 3 = 0$ and $6x + 3y + 8 = 0$ are perpendicular
15. Find the equation of a straight line which is parallel to the line $3x - 7y = 12$ and passing through the point (6, 4)
16. What is the angle inclination of a line whose slope is (i) 0 (ii) $\frac{1}{\sqrt{3}}$
17. Check whether the given lines are parallel or perpendicular
    $3x + 2y - 12 = 0$ and $6x + 4y + 8 = 0$
18. The hill in the form of a right triangle has its foot at (19, 3). The inclination of the hill to the ground is 45°. Find the equation of the hill joining the foot and top.

III) Answer any 3 questions **3 × 5 = 15**

19. Find the equation of the perpendicular bisector of the line joining the points $A(-4,2)$ and $B(6,-4)$
20. Show that the given points form a parallelogram :
    A (2.5, 3.5), B (10, – 4), C (2.5, – 2.5) and D (– 5, 5)
21. Find the area of the quadrilateral whose vertices are
    (–9, –2), (–8, –4), (2, 2) and (1, –3)
22. A line makes positive intercepts on coordinate axes whose sum is 7 and it passes through (– 3, 8). Find its equation.
23. Find the equation of the median of ΔABC through A where the vertices $A(6, 2)$, $B(-5, -1)$, and $C(1, 9)$

IV) Answer the following **1 × 10 = 10**

24. (a) Draw a circle of radius 4 cm. At a point L on it draw a tangent to the circle using the alternate segment.

    (OR)

    (b) Draw a circle of radius 4.5 cm. Take a point on the circle. Draw the tangent at that point using the alternate segment theorem.