ST. XAVIER'S SENIOR SECONDARY SCHOOL, DELHI – 110054

Class 11 Time : 1½ hrs.

18-12-2017 Pre-Annual Test in MATHEMATICS M. Marks : 40

GENERAL INSTRUCTIONS:

i) Attempt all the questions.
ii) Section - A consists of 4 questions of 1 mark each.
iii) Section - B consists of 4 questions of 2 marks each.
iv) Section - C consists of 4 questions of 4 marks each.
v) Section - D consists of 2 questions of 6 marks each.

SECTION - A (1 x 4 = 4 marks)

1. A line through (-2, 6) and (4, 8) is perpendicular to the line through the points (8, 120) and (x, 24). Find the value of x.

2. Write the equation of hyperbola whose foci is $(\pm 5, 0)$ and length of transverse axis is 8 units.

3. Name the octant in which point (-4, 2, -5) lies.

4. Find the centre and radius of the circle $x^2 + y^2 + z^2 + 8x + 10y - 8 = 0$.

SECTION - B (2 x 4 = 8 marks)

5. Find the coordinates of focus , axis , the equation of directrix, length of latus rectum of the parabola $x^2 = -9y$.

6. Reduce the equation $\sqrt{3}x - y + 12 = 0$ into normal form.

7. Find the equation of the line passing through the point (2, 2) and cutting off intercepts on coordinate axes whose sum is 9.

8. Find the ratio in which the line segment joining the points (4, 8, 10) and (6, 10, –8) is divided by YZ plane.

SECTION - C (4 x 4 = 16 marks)

9. Find the equation of ellipse whose major axis is x-axis and passes through the points (4, 3) and (-1, 4).

10. Find the coordinates of foot of perpendicular from the point (-1, 3) to the line $3x - 4y - 16 = 0$.

11. Find the equation of the line passing through the point of intersection of $2x + 3y + 1 = 0$ and $3x - 5y - 5 = 0$ and cuts off equal intercepts on coordinate axes.

12. Find the equation of the set of points P, the sum of whose distance from A(4, 0, 0) and B(-4, 0, 0) is equal to 10.

SECTION - D (6 x 2 = 12 marks)

13. Prove that the points (3, -2), (1, 0), (-1, -2) and (1, -4) are concyclic.

14. If p and q are the lengths of perpendiculars from $(\pm 4, 0)$ to the line $\frac{x}{5}\sin\theta + \frac{y}{3}\cos\theta = 1$, then prove that pq = 9.

-x-x-x-x-x-x-x-