

# CHOITHRAM SCHOOL

Class : XI

Subject : Mathematics

Assignment no. 3

Date of Assignment: 03.11.17

Date of Submission: 08.11.17

Q No.	Question	Weightage	Level
Q1	Find the equation of a parabola with vertex at the origin and the directrix $y = 2$ .	1 mark	Knowledge
Q2	Write the eccentricity of the hyperbola $9x^2 - 16y^2 = 144$ .	1 mark	Understanding
Q3	Find the centre and radius of the circle $2x^2 + 2y^2 - x = 0$	1 mark	H.O.T.
Q4	Find the equation of the ellipse whose centre is at the origin, foci are $(1, 0)$ and $(-1, 0)$ and eccentricity is $\frac{1}{2}$ .	2 marks	Knowledge
Q5	The foci of a hyperbola coincide with the foci of the ellipse $9x^2 + 25y^2 - 225 = 0$ . Find the equation of the hyperbola if its eccentricity is 2.	2 marks	Understanding
Q6	If $y = 2x$ is a chord of the circle $x^2 + y^2 - 10x = 0$ , find the equation of a circle with this chord as diameter.	2 marks	H.O.T.
Q7	The focal distance of a point on $y^2 = 12x$ is 4. Find the abscissa of this point.	2 marks	Logical Reasoning
Q8	In the morning a man walking a racecourse notes that the sum of the distances from the two flag posts from him is always 10 m and the distance between the flag posts is 8 m. Find the equation of the path traced by him. <b>Comment on "morning walk leads to healthier life"</b> .	3 marks	Value Based
Q9	An equilateral triangle is inscribed in the parabola $y^2 = 4ax$ whose one vertex is at the vertex of the parabola. Find the length of its side. Also find the area of triangle.	3 marks	Multi Conceptual
Q10	A rod AB of length 15 cm rests in between two coordinate axes in such a way that the end point A lies on x-axis and point B lies on y-axis. A point is taken on the rod in such a way that $AP = 6$ cm. show that the locus of point P is an ellipse. Also, find its eccentricity.	3 marks	Understanding
Q11	Find the eccentricity, centre, vertices, foci, minor axis, major axis, Directrices and latus rectum of the ellipse $25x^2 + 16y^2 - 1600 = 0$ .	5 marks	H.O.T.
Q12	Show that the points $(3, -2)$ , $(1, 0)$ , $(-1, -2)$ and $(1, -4)$ are concyclic.	5 marks	Logical Reasoning