

**BAL BHARATI PUBLIC SCHOOL**  
**Ganga Ram Hospital Marg, New Delhi-60**

**CLASS –XI**  
**ASSIGNMENT- 13**

**SUBJECT – MATHEMATICS**  
**TOPIC – CONIC SECTION**

- Q1. Find the equation of circle passing through pt (2, 4) and centre at the intersection of the line  $x - y = 4$  and  $2x + 3y = -7$ .
- Q2. Find the centre and radius of each of the following circle:-  
 (a)  $x^2 + y^2 + 8x + 10y - 8 = 0$   
 (b)  $x^2 + y^2 - x + 2y - 3 = 0$   
 (c)  $3x^2 + 3y^2 + 12x - 18y - 11 = 0$
- Q3. Find the equation of the circle passing through the points (2, 3) and (-1, 1) and whose centre is on the line  $x - 3y - 11 = 0$ .
- Q4. Find the equation of the circle concentric with the circle  $x^2 + y^2 + 4x + 6y + 11 = 0$  and passing through the point (5, 4).
- Q5. If a parabolic reflector is 18 cm in diameter and 56 cm deep, find the latus rectum. Find the depth when diameter is 12 cm. Also find the diameter when depth is 2 cm. (13.5 cm,  $\frac{8}{3}$  cm  $6\sqrt{3}$  cm)
- Q6. Find the equation of parabola which is symmetric about the y axis and passes through the point (-2, -3).
- Q7. For each of the following parabolas, find the co-ordinates of the focus, axis, the equation of the directrix and the length of latus rectum (i)  $2y^2 = 7x$  (ii)  $x^2 = -12y$  (iii)  $y^2 + 2x = 0$
- Q8. For each of the following ellipses, find the coordinator of the foci, the vertices the length of major axis, the minor axis the eccentricity and the length of the latus rectum :-  
 (i)  $16x^2 + 25y^2 = 400$  (ii)  $\frac{x^2}{4} + \frac{y^2}{25} = 1$  (iii)  $4x^2 + 9y^2 = 1$
- Q9. Find the equation of ellipse whose foci are  $(\pm 4, 0)$  and the eccentricity is  $\frac{1}{3}$
- Q10. In each of the following hyperbolas, find the coordinates of the vertices and the foci, the eccentricity, the lengths of the axes and the latus rectum: - (i)  $x^2 - 4y^2 = 4$  (ii)  $49y^2 - 16x^2 = 784$   
 (iii)  $\frac{y^2}{9} - \frac{x^2}{27} = 1$
- Q11. Prove that eccentricity of the hyperbola  $x^2 - 4y^2 = 100$  is  $\frac{\sqrt{5}}{2}$
- Q12. Find the equation of hyperbola whose foci are  $(\pm 4, 0)$  and length of latus rectum is 12.