Paper – 6 (Parabola)

1. If the tangents to the parabola $y^2 = 4ax$ at (x_1, y_1) and (x_2, y_2) meet at (x_3, y_3), then
   (a) x_1, x_2, x_3 are in G.P. and y_1, y_2, y_3 are in A.P.
   (b) x_1, x_2, x_3 are in A.P.
   (c) y_1, y_2, y_3 are in G.P.
   (d) y_1, y_2, y_3 are in A.P.
2. If the line $3x - 4y + 5 = 0$ is a tangent to the parabola $y^2 = 4ax$, then a is equal to
   (a) $\frac{15}{16}$ (b) $\frac{4}{5}$ (c) $-\frac{4}{3}$ (d) $-\frac{5}{4}$
3. The equation of the parabola with focus at (0, 3) and the directorix y + 3 = 0 is
   (a) $y^2 = 12\,x$ (b) $y^2 = -12\,x$
   (c) $x^2 = 12\,y$ (d) $x^2 = -12\,y$
4. The point on the parabola $y^2 = 8x$ whose distance from the focus is 8, has x co-ordinate as
   (a) 0 (b) 2 (c) 4 (d) 6.
5. A line touches the circle $x^2 + y^2 = 2a^2$ and also the parabola $y^2 = 8ax$. Its equation is
   (a) $y = \pm x$ (b) $y = \pm(x + c)$
   (c) $y = \pm(x + 2a)$ (d) $y = \pm(x - 2a)$
6. The parabola $y^2 = 4ax$ passes thro' the point (2, -6), then the lenght of its latus rectum is
   (a) 18 (b) 9 (c) 6 (d) 16.
7. The line $y = 2x + c$ is a tangent to the parabola $y^2 = 16x$, if c equals
   (a) – 2 (b) – 1 (c) 0 (d) 2.
8. The tangents at the points $(at_1^2, 2at_1)$ $(at_2^2, 2at_2)$ on the parabola $y^2 = 4ax$ are at right angles if
   (a) $t_1 t_2 = -1$ (b) $t_1 t_2 = 1$
   (c) $t_1 t_2 = 2$ (d) $t_1 t_2 = -2$.
9. If $(at^2, 2at)$ are the co-ordinates of one end of a focal chord of the parabola $y^2 = 4ax$, then the co-ordinates of the other end are
   (a) $(at^2, -2at)$ (b)$-(at^2, -2at)$
   (c) $\left(\frac{a}{t^2}, \frac{2a}{t}\right)$ (b) $\left(\frac{a}{t^2}, -\frac{2a}{t}\right)$
10. The co-ordinates of a point on the parabola $y^2 = 8x$, whose focal distance is 4, are
    (a) $\left(\frac{1}{2}, \pm 2\right)$ (b) $(1, \pm 2\sqrt{2})$
    (c) (2, $\pm$4) (d) N.O.T.

Answer Key Paper 5 (Cirlce)

01.C	02.B	03.C	04.A	05.B
06.B	07.D	08.C	09.A	10.C