EXERCISE LEVEL –I

EL– I

Q.1 The equation of the circle that passes through the points (1, 2), (2, 1), and (3, 5) is
(a) $9(x^2 + y^2) - 87x - 29y + 100 = 0$ (b) $10(x^2 + y^2) - 87x - 29y + 100 = 0$
(c) $3(x^2 + y^2) - 87x - 29y + 10 = 0$ (d) (4) $5(x^2 + y^2) - 12x - 29y + 5 = 0$

Q.2 The equation of the circle, with its center on the line $x = 2y$ and passing through the points (-1, 2) and (3, -2), is
(a) $x^2 + y^2 - 12x - 6y - 5 = 0$ (b) $x^2 + y^2 - 4x - 2y + 5 = 0$
(c) $x^2 + v^2 - 4x - 2v - 5 = 0$ (d) $x^2 + v^2 - 8x - 4v - 5 = 0$

Q.3 The equation of the circle that touches the coordinate axes and passes through the point (2, 1) is
(a) $x^2 + y^2 + 8x + 8y - 29 = 0$ (b) $x^2 + y^2 - 10x - 10y + 25 = 0$
(c) $x^2 + y^2 + 10x + 10y - 35 = 0$ (d) $x^2 + y^2 - 20x - 20y + 55 = 0$

Q.4 The equation of the circle that touches the lines $x = 0$, $y = 0$, and $x = 4$ is
(a) $4(x^2 + y^2) - 16x - 16y + 16 = 0$ (b) $4(x^2 + y^2) - 12x - 12y + 12 = 0$
(c) $4(x^2 + y^2) - 8x - 8y + 4 = 0$ (d) $x^2 + y^2 - x - y - 1 = 0$

Q.5 The equation of a circle passing through the origin and intercepting 4 and 6 on the axes is
(a) $x^2 + y^2 = 24$ (b) $x^2 + y^2 - 4x - 6y = 0$
(c) $x^2 + y^2 = 10$ (d) $x^2 + y^2 - 8x - 12y = 0$

Q.6 The equation of a circle with two diameters represented by $3x + 4y - 7 = 0$ and $x - 3y + 2 = 0$, and having an area of 154 cm^2 is.
(a) $x^2 + y^2 - 4x - 4y - 41 = 0$ (b) $x^2 + y^2 + 2x + 2y - 47 = 0$
(c) $x^2 + y^2 - 6x - 6y - 31 = 0$ (d) $x^2 + y^2 - 2x - 2y - 47 = 0$

Q.7 A circle with a radius of 3 units and its center lying on the line $y = x - 1$, if passing through (7, 3), has the equation
(a) $x^2 + y^2 + 8x + 10y - 3 = 0$ (b) $x^2 + y^2 - 10x - 8y - 3 = 0$
(c) $x^2 + v^2 - 14x - 12v - 76 = 0$ (d) $x^2 + v^2 - 14x - 12v + 76 = 0$

Q.8 The equation of the circle passing through the center of the circle $x^2 + y^2 - 4x - 6y - 8 = 0$ and being concentric with the circle $x^2 + y^2 - 2x - 8y - 5 = 0$ is
(a) $x^2 + y^2 - 2x - 8y - 13 = 0$ (b) $x^2 + y^2 - 2x - 8y - 15 = 0$
(c) $x^2 + y^2 - 2x - 8y + 15 = 0$ (d) $x^2 + y^2 - 2x - 8y + 13 = 0$

Q.9 The point on the line $x - y + 1 = 0$, from which the tangents to the circle $x^2 + y^2 - 3x = 0$ have a length of 2 units, is
(a) $(\frac{-3}{2}, \frac{5}{2})$ (b) $(\frac{-3}{2}, \frac{-5}{2})$ (c) $(\frac{3}{2}, \frac{5}{2})$ (d) $(\frac{3}{2}, \frac{-5}{2})$

Q.10 The equation of the circle for which the lengths of the tangents from the points (1, 0), (0, 2), and (3, 2) are 1, $\sqrt{7}$, and $\sqrt{2}$, respectively, is.
(a) $6(x^2 + y^2) - 28x - 5y + 28 = 0$ (b) $9(x^2 + y^2) - 28x - 5y + 28 = 0$
(c) $3(x^2 + y^2) - 28x - 5y + 28 = 0$ (d) $x^2 + y^2 - 28x - 5y + 28 = 0$

Q.11 The point of contact of the line $y = x + 4\sqrt{2}$ with the circle $x^2 + y^2 = 16$ is
(a) $(2\sqrt{2}, -2\sqrt{2})$ (b) $(-2\sqrt{2}, -2\sqrt{2})$ (c) $(-2\sqrt{2}, 2\sqrt{2})$ (d) $(2\sqrt{2}, 2\sqrt{2})$

Q.12 The equation of the tangent to the circle $x^2 + y^2 - 6x + 4y - 120$, which is parallel to the line $4x + 3y + 5 = 0$, is
(a) $4x + 3y + 19 = 0$ (b) $4x + 3y + 31 = 0$ (c) $4x + 3y - 19 = 0$ (d) $4x + 3y + 29 = 0$

Q.13 The length of the tangent from any point on the circle $x^2 + y^2 - 8x + 5y - 4 = 0$ to the circle $x^2 + y^2 - 8x + 5y = 0$ is

(a) 1 (b) 2 (c) 4 (d) 6

Q.14 The line $7y - x - 5 = 0$ touches the circle $x^2 + y^2 - 5x + 5y = 0$. The equation of the other parallel tangent is

(a) $x - 7y + 10 = 0$ (b) $x - 7y - 20 = 0$ (c) $x - 7y - 45 = 0$ (d) $x - 7y - 36 = 0$

Q.15 If the line $px + qy + r = 0$ is tangent to the circle $x^2 + y^2 = a^2$, then

(a) $r^2 = a^2(p^2 + q^2)$ (b) $r^2 = a^2(p + q)$ (c) $a^2 = r^2(p^2 + q^2)$ (d) $p^2 + q^2 = r^2 + a^2$

Q.16 The equation of the normal drawn from the point (6, 8) to the circle $x^2 + y^2 - 4x - 6y + 3 = 0$ is

(a) $5x + 4y + 2 = 0$ (b) $5x - 4y + 2 = 0$ (c) $5x + 4y - 2 = 0$ (d) $5x - 4y - 2 = 0$

Q.17 The equation of the circle, with its center at (3, -1) and cutting off an intercept of length 6 units from the line $2x + 5y + 18 = 0$, is

(a) $x^2 + y^2 - 6x + 2y - 28 = 0$ (b) $x^2 + y^2 - 6x + 2y - 18 = 0$

(c) $x^2 + y^2 - 6x + 2y - 11 = 0$ (d) $x^2 + y^2 - 6x + 2y - 27 = 0$

Q.18 The area of the quadrilateral formed by a pair of tangents from the point (4, 5) to the circle $x^2 + y^2 - 4x - 2y - 11 = 0$ and a pair of its radii is.

(a) 12 sq-units (b) 4 sq-units (c) 6 sq-units (d) 8 sq-units

Q.19 The equation of the chord of the circle $x^2 + y^2 + 6x + 8y - 110$, with a midpoint at (1, -1), is

(a) $3x - 4y + 1 = 0$ (b) $4x - 3y - 1 = 0$ (c) $4x + 3y + 1 = 0$ (d) $4x + 3y - 1 = 0$

Q.20 If the chord of contact of tangents from a point on the circle $x^2 + y^2 = a^2$ to the circle $x^2 + y^2 = b^2$ touches the circle $x^2 + y^2 = c^2$, then the values of a, b, c are.

(a) Are in A.P (b) Are in G.P

(c) Are in H.P (d) Satisfy the relation $a + c = 3b$

Q.21 Tangents are drawn to the circle $x^2 + y^2 = 16$ at the points where it intersects the circle $x^2 + y^2 - 5x + 3y - 2 = 0$; the coordinates of the point where these tangents intersect are.

(a) (3,2) (b) $(\frac{40}{7}, \frac{-24}{7})$ (c) $(-6, \frac{18}{5})$ (d) $(3, -2)$

Q.22 A circle cutting the circle $x^2 + y^2 = 4$ orthogonally and having its centre on the line $2x - 2y + 9 = 0$, passes through two fixed points. These points are

(a) (4,0) and (0,4) (b) $(-4,4)$ and $(\frac{-1}{2}, \frac{1}{2})$

(c) $(-4,0)$ and (4,0) (d) $(4, -4)$ and $(\frac{1}{2}, \frac{-1}{2})$

Q.23 Consider three circles $x^2 + y^2 = 1$, $x^2 + y^2\ 8x + 15 = 0$, $x^2 + y^2 + 10y + 24 = 0$. The point from which tangents of equal length can be drawn to all these three circles is

(a) $(-2, \frac{5}{2})$ (b) $(2, \frac{-5}{2})$ (c) $(2, \frac{5}{2})$ (d) (0,0)

Q.24 Interval of r for which $x^2 + y^2 = r^2$ and $x^2 + y^2$-6x8y+9=0 cut at two distinct points is

(a) (2,12) (b) (2,10) (c) (1,8) (d) (1,9)

Q.25 Number of common real tangents that can be drawn to the circles $x^2 + y^2$-2x-2y = 0 and $x^2 + y^2 - 8x - 8y + 14 = 0$ is.

(a) 4 (b) 2 (c) 0 (d) 3

Q.26 26. The equation of a chord of the circle $x^2 + y^2 + 4x6y = 0$ is given by $x + 2y = 0$. The equation of the circle described on this chord as diameter is.

(a) $5(x^2 + y^2) + 28x + 14y = 0$ (b) $5(x^2 + y^2) + 28x - 14y = 0$

(c) $x^2 + y^2 + 28x - 14y = 0$ (d) $5(x^2 + y^2) - 28x - 14y = 0$

Q.27 A circle of radius 2 unit lies in the first quadrant and touches both the axes of coordinates, equation of circle with centre at (6, 5) and touching the above circle externally is.

(a) $x^2 + y^2 - 12x - 10y + 52 = 0$ (b) $x^2 + y^2 - 10x - 12y + 52 = 0$

(c) $x^2 + y^2 - 12x - 10y + 32 = 0$ (d) $x^2 + y^2 + 12x + 10y - 32 = 0$

Q.28 If the origin serves as the geometric center of a regular hexagon, and its area measures $6\sqrt{3}$ cm^2, then the equation of its circumscribed circle is_____.

(a) $x^2 + y^2 = 8$ (b) $x^2 + y^2 = 6$ (c) $x^2 + y^2 = 2$ (d) $x^2 + y^2 = 4$

Q.29 The equation of the circle with the diameter ($\overline{AB}$), where A (-2, 3) and B(-2, 11), is _____.
(a) $x^2 + y^2 + 4x - 14y + 53 = 0$ (b) $x^2 + y^2 + 4x - 14y + 37 = 0$
(c) $x^2 + y^2 - 4x + 14y + 37 = 0$ (d) $x^2 + y^2 - 14x + 4y + 37 = 0$

Q.30 If a circle M intersects the two circles $x^2+y^2+4x=28$ and $x^2+y^2=10$ at their points of intersection and has a center at (-4, 0), then the equation of circle M is _____.
(a) $(x + 4)^2 + y^2 = 52$ (b) $(x - 4)^2 + y^2 = 20$
(c) $(x + 4)^2 + y^2 = 2\sqrt{13}$ (d) $(x - 4)^2 + y^2 = 2\sqrt{5}$

Q.31 The equation of the diameter of a circle, given by $x^2 + y^2 + 2x - 4y = 4$, which is parallel to the line $3x + 5y = 4$, is
(a) $3x + 5y = 7$ (b) $3x - 5y = 7$ (c) $3x + 5y = -7$ (d) $3x - 5y = -7$

Q.32 The segment intercepted by the line $y = x$ on the circle $x^2 + y^2 - 2x = 0$ is denoted as AB. Find the equation of the circle with AB as its diameter.
(a) $x^2 + y^2 + x - y = 0$ (b) $x^2 + y^2 + x + y = 0$
(c) $x^2 + y^2 - x - y = 0$ (d) $x^2 + y^2 - x + y = 0$

Q.33 The distance, in units, from the point P(-7, 2) to the circle defined by $x^2 + y^2 - 10x - 14y + 15 = 0$ is
(a) 4 (b) 3 (c) 2 (d) 1

Q.34 The total count of potential tangents and normal from any point to a circle cannot be
(a) 0 (b) 1 (c) 2 (d) 3

Q.35 Find the length of the intercept on the line $3x + 4y - 10$ by the circle given by $x^2 + y^2 - 6x - 6y - 70$.
(a) $2\sqrt{2}$ (b) 6 (c) $4\sqrt{2}$ (d) $\sqrt{2}$

Q.36 Circles passing through the point (2, 0) and intercepting a length of 5 units on the x-axis have their centers in the first quadrant. Determine their equations.
(a) $x^2 + y^2 - 9x + 2ky + 14 = 0, k \in R^+$ (b) $3x^2 + 3y^2 + 27x - 2ky + 42 = 0, k \in R^+$
(c) $x^2 + y^2 - 9x - 2ky + 14 = 0, k \in R^+$ (d) $x^2 + y^2 - 2kx - 9y + 14 = 0, k \in R^+$

Q.37 The center of a circle that passes through the origin and has intercepts of length 3 and 4 on the x and y-axes is.
(a) $(2, \frac{3}{2})$ (b) $(\frac{3}{2}, \frac{3}{2})$ (c) $(\frac{3}{2}, 2)$ (d) (2,2)

Q.38 The count of points $(a + 1, a)$ for $a \in 1$, located inside the region enclosed by the circles $x^2 + y^2 - 2x - 1 = 0$ and $x^2 + y^2 - 2x - 15 = 0$ is.
(a) 2 (b) 3 (c) 4 (d) 6

Q.39 Calculate the area of the triangle formed by the positive x-axis, the normal, and the tangent to the circle $x^2 + y^2 = 4$ at the point $(1, \sqrt{3})$.
(a) $2\sqrt{3}$ (b) $\sqrt{3}$ (c) $\frac{1}{\sqrt{3}}$ (d) 1

Q.40 If the line $3x + y = 0$ is tangent to the circle with its center at the point (2, -1), then find the equation of the other tangent to the circle from the origin.
(a) $x + 3y = 0$ (b) $3x - y = 0$ (c) $x - 3y = 0$ (d) $x + 2y = 0$

Q.41 If x_1, x_2 are the roots of the equation $x^2 + bx + c = 0$ and y_1 and y_2 are the roots of $y^2 + qy + r = 0$ then the equation of the circle having (x_1, y_1) and(x_2, y_2) as ends of diameter is.
(a) $x^2 + y^2 + bx + qy + c - 2r = 0$ (b) $x^2 + y^2 + bx + qy + 2c + r = 0$
(c) $x^2 + y^2 + bx + qy + c + r = 0$ (d) $x^2 + y^2 - bx - qy - c - r = 0$

Q.42 Two vertical of an equilateral triangle are $(-1,0)$ and $(1,0)$ and its third vertex. Lies about the x – axis the equation of circumcircle is.
(a) $x^2 + y^2 - \frac{2y}{\sqrt{3}} - 1 = 0$ (b) $x^2 + y^2 - \frac{y}{\sqrt{3}} - 1 = 0$
(c) $x^2 + y^2 - \frac{2y}{3} - 1 = 0$ (d) $x^2 + y^2 + x + y = 0$

Q.43 The coordinates of a point P, situated on the circle $x^2 + y^2 - 4x - 4y + 7 = 0$ in such a manner that OP is minimized, are (O being the origin).
(a) $(2 + \frac{1}{\sqrt{2}}, -2 + \frac{1}{\sqrt{2}})$ (b) $(2 - \frac{1}{\sqrt{2}}, -2 + \frac{1}{\sqrt{2}})$
(c) $(-2, -2 + \frac{1}{\sqrt{2}})$ (d) $(\frac{1}{\sqrt{2}}, -2 + \frac{1}{\sqrt{2}})$

Q.44 For district point $\left(a, \frac{1}{a}\right), \left(b, \frac{1}{b}\right), \left(c, \frac{1}{c}\right)$ and $\left(d, \frac{1}{d}\right)$ are lie on a circle, where $a, b, c, d \neq 0$ then the value of abcd is.
(a) 2 (b) 1 (c) 3 (d) 4

Q.45 If from any point P on the circle $x^2 + y^2 + 2gx + 2fy + c = 0$ tangents are drawn to the circle $x^2 + y^2 + 2gx + 2fy + c\sin^2\theta + (g^2 + f^2)\cos^2\theta = 0$ then the angel between the tangents is.
(a) $\frac{\theta}{4}$ (b) $\frac{\theta}{2}$ (c) θ (d) 2θ

Q.46 The length of the tangent drawn from any point on the circle $x^2 + y^2 + 2gx + 2fy + a = 0$ to the circle, $x^2 + y^2 + 2gx + 2fy + b = 0$, where $b > a$, is
(a) $\sqrt{b-a}$ (b) $\sqrt{a-b}$ (c) $\sqrt{a+b}$ (d) $\sqrt{ab}$

Q.47 If the line $y = 3x + c$ is a tangent to $x^2 + y^2 = 4$ then the value of c is
(a) ± 4 (b) $\pm 2\sqrt{10}$ (c) $\pm 10\sqrt{2}$ (d) $\pm\sqrt{10}$

Q.48 Locus of middle point of intercept of any tangents to the circle $x^2 + y^2 = 4$ between the axis is.
(a) $x^2 + y^2 - x^2y^2 = 0$ (b) $x^2 + y^2 + x^2y^2 = 0$
(c) $x^2 + y^2 - 2x^2y^2 = 0$ (d) $x^2 + y^2 - 3x^2y^2 = 0$

Q.49 Two Perpendicular tangents to the circle $x^2 + y^2 = a^2$ meet at P. then the locus of P has the equation.
(a) $x^2 + y^2 = 2a^2$ (b) $x^2 + y^2 = 3a^2$
(c) $x^2 + y^2 = 4a^2$ (d) $x^2 + y^2 = 5a^2$

Q.50 The equation od common tangents to the circle $x^2 + y^2 = 1$ and $(x-1)^2 + (y-3)^2 = 4$ are
(a) $3x + 4y - 5 = 0, 4x - 3y + 5 = 0$ (b) $3x + 4y - 5 = 0, 4x - 3y - 5 = 0$
(c) $3x - 4y + 5 = 0, 4x + 3y - 5 = 0$ (d) $3x + 4y + 5 = 0, 4x + 3y + 5 = 0$

Q.51 The length of the common chord of the circle, $x^2 + y^2 + 2x + 3y + 1 = 0$ and $x^2 + y^2 + 4x + 3y + 2 = 0$ is.
(a) $\frac{9}{2}$ (b) $\frac{3}{2}$ (c) $3\sqrt{2}$ (d) $2\sqrt{2}$

Q.52 The distance between the chords of contact of the tangents to the circle$x^2 + y^2 + 2gx + 2fy + c = 0$ from the origin and from the point (g, f) is.
(a) $g^2 + f^2 - c$ (b) $\sqrt{g^2 + f^2 - c}$ (c) $\frac{g^2+f^2-c}{\sqrt{g^2+f^2}}$ (d) $\frac{1}{2}\frac{|g^2+f^2-c|}{\sqrt{g^2+f^2}}$

Q.53 Through a fixed point (h, k) secants are drawn to the circle, $x^2 + y^2 = a^2$. The locus of the mid point of the secants intercepted by the given circle is.
(a) $2(x^2 + y^2) = hx + ky$ (b) $x^2 + y^2 = hx + ky$
(c) $x^2 + y^2 + hx + ky = 0$ (d) $x^2 + y^2 - hx + ky + 13 = 0$

Q.54 The equation of circle passing through the point (1,1) and point of intersection of $x^2 + y^2 = 6$ and $x^2 + y^2 - 6x + 8 = 0$, is
(a) $x^2 + y^2 - 6x + 4 = 0$ (b) $x^2 + y^2 - 3x + 1 = 0$
(c) $x^2 + y^2 - 4y + 2 = 0$ (d) $x^2 + y^2 - 2x - 2y + 2 = 0$

Q.55 A variable chord is drawn through origin to the circle, $x^2 + y^2 - 2ax = 0$ locus of the center of the circle described on the chord as diameter is.
(a) $x^2 + y^2 - ax = 0$ (b) $x^2 + y^2 + ax = 0$
(c) $x^2 + y^2 - ay = 0$ (d) $x^2 + y^2 - ax - ay = 0$

Q.56 If the chord $y = mx + 1$ subtend an angel of measure of 45° at the major segment of the circle $x^2 + y^2 = 1$then the value of m is.
(a) $1 \pm \sqrt{2}$ (b) $-2 \pm \sqrt{2}$ (c) $-1 \pm \sqrt{2}$ (d) ± 1

Q.57 The line $3x - 4y = k$will cut the circle $x^2 + y^2 - 4x - 8y - 5 = 0$ at two distinct point if.
(a) $-35 < k < 35$ (b) $-35 < k < 15$ (c) $-15 < k < 15$ (d) $15 < k < 35$

Q.58 The equation of the circle orthogonal to both the circle $x^2 + y^2 + 3x - 5y + 6 = 0$ and $4x^2 + 4y^2 - 28x + 29 = 0$ and whose enter lies on the line $3x + 4y + 1 = 0$ is
(a) $4x^2 + 4y^2 + 2y - 29 = 0$ (b) $4x^2 + 4y^2 + 6y + 5 = 0$
(c) $2x^2 + 2y^2 + 3x + 7y = 0$ (d) $x^2 + y^2 + 3x - 7y + 3 = 0$

Q.59 The equation of a circle which touches the line $x + y = 5$ at the point $(-2,7)$ and cuts the circle. $x^2 + y^2 + 4x - 6y + 9 = 0$ Orthogonally is.
(a) $x^2 + y^2 + 7x - 11y + 38 = 0$ (b) $x^2 + y^2 + 7x + 11y + 38 = 0$
(c) $x^2 + y^2 + 7x - 11y - 38 = 0$ (d) $x^2 + y^2 - 7x - 11y + 39 = 0$

Q.60 The locus of the center of the circle which cut the circle $x^2 + y^2 + 4x - 6y + 9 = 0$ and $x^2 + y^2 - 4x + 6y + 4 = 0$ and orthogonally is.
(a) $8x - 12y + 5 = 0$ (b) $8x + 12y - 5 = 0$
(c) $12x - 8y + 5 = 0$ (d) $3x + 4y + 7 = 0$

Q.1 Compute both the distance and midpoint between the provided pair of points.

1) $(-1,-3)$ and $(5,-11)$

2) $(\sqrt{5},-\sqrt{3})$ and $(2\sqrt{5},\sqrt{3})$

3) $(\frac{1}{5},-\frac{9}{5})$ and $(\frac{3}{10},-\frac{5}{2})$

Q.2 Find the circle's area, given that its diameter is specified by the provided pair of points.

1) $(-8,12)$ and $(-6,8)$

2) $(7,-8)$ and $(5,-10)$

3) $(\sqrt{6},0)$ and $(0,2\sqrt{3})$

Q.3 Determine the value of 'a' such that the distance between the points is equal to the specified quantity.

1) $(1,2)$ and $(4,a)$; $d = 5$ units **2)** $(3,1)$ and $(a,0)$; $d = \sqrt{2}$ units

Q.4 Determine the center and radius of the circle given by the equation $(x + 1)^2 + (y + 3)^2 = 16$.

Q.5 A circle with radius r touches both axes, and the abscissa of its center is 2. Determine the radius of the circle and the ordinate of its center.

Q.6 Determine the equation of the circle with a center at (2, 3) and a diameter of 8 units.

Q.7 Determine the center and radius of the circle given by the equation $(x - 1)^2 + (y + 2)^2 = 4$.

Q.8 Determine the equation of the circle that touches the y-axis and has its center at (1, 3).

Q.9 Determine the equation of the circle that touches the y-axis and has its center at (-2, -3).

Q.10 Determine the equation of the circle that shares the same center as the circle $x^2 + y^2 - 8x + 14y + 1 = 0$ and has half of its area.

Q.11 If the line $\sqrt{2}x + k = 0$ is a tangent to the circle $x^2 + y^2 = 9$, then determine the value of k.

Q.12 If the lines $2x - y = 0$ and $2x - y = 5$ are tangents to the circle, determine the diameter of the circle.

Q.13 If the lines $2x + y - 6 = 0$ and $4x - 5y + 16 = 0$ serve as diameters of a circle with an area of 154 square units, then determine the equation of the circle.

Q.14 Determine the equation of the circle that passes through the points (2, 3), (-6, -3), and (-2, 1).

ANSWER KEY – LEVEL – I

Q.	1	2	3	4	5	6	7	8	9	10
Ans.	a	c	b	a	b	d	d	c	c	a
Q.	11	12	13	14	15	16	17	18	19	20
Ans.	c	a	b	c	a	b	a	d	d	b
Q.	21	22	23	24	25	26	27	28	29	30
Ans.	b	b	b	d	b	b	a	d	b	a
Q.	31	32	33	34	35	36	37	38	39	40
Ans.	a	c	c	a	b	c	c	a	a	c
Q.	41	42	43	44	45	46	47	48	49	50
Ans.	c	a	b	b	a	a	b	a	a	b
Q.	51	52	53	54	55	56	57	58	59	60
Ans.	d	d	b	b	a	d	b	a	a	a

ANSWER KEY – LEVEL – II

1. **1)** Distance $= 10$ units, midpoint $= (2, -7)$

2) Distance $= \sqrt{5}$ units, midpoint $= (\frac{3\sqrt{5}}{2}, -\sqrt{3})$

3) Distance $= \frac{\sqrt{2}}{2}$ units, midpoint $= (\frac{1}{4}, -\frac{43}{20})$

2. **1)** 5π Square units

2) 2π Square units

3) $\frac{9}{2}\pi$ Square units

3. **1)** $a = -2, a = 6$

2) $a = 2, a = 4$