



SHIKSHA CLASSES

Subject : Maths - I

Question Paper

Total Marks :25

Class : XI

6 : Circle

Time : 1 Hour

SECTION - A

Q1 : Choose the correct option : 4

i) The equation of a circle with origin as centre and passing through the vertices of an equilateral triangle whose median is of length $3a$ is

a) $x^2 + y^2 = 9a^2$ b) $x^2 + y^2 = 16a^2$ c) $x^2 + y^2 = 4a^2$ d) $x^2 + y^2 = a^2$

ii) If the lines $3x - 4y + 4 = 0$ and $6x - 8y - 7 = 0$ are tangents to a circle, then find the radius of the circle

a) $\frac{3}{4}$ b) $\frac{4}{3}$

c) $\frac{1}{4}$ d) $\frac{7}{4}$

Q.2 : Solve the following questions: 2

i) Find the equation of a circle with centre at origin and radius 3.

ii) Find the parametric equation of the circle $x^2 + y^2 - 6x + 4y - 3 = 0$

SECTION B

: Solve the following : (ANY 3) 6

Q.3 : Find the equation of a circle with centre at $(-3, -3)$ passing through point $(-3, -6)$.

Q.4 : Find the equation of a circle with radius 4 units and touching both the co-ordinate axes having centre in third quadrant.

Q.5 : Find the equation of a tangent to the circle $x^2 + y^2 - 3x + 2y = 0$ at the origin.

Q.6 : Show that the line $7x - 3y - 1 = 0$ touches the circle $x^2 + y^2 + 5x - 7y + 4 = 0$ at point

$(1, 2)$

Q.7 Show that $x = -1$ is a tangent to circle $x^2 + y^2 - 4x - 2y - 4 = 0$ at $(-1, 1)$

SECTION C

: Solve the following : (ANY 3) 9

Q.8 : Find the equation of the circle with centre at $(3, 1)$ and touching the line $8x - 15y + 25 = 0$

Q.9 : Find the equation of the circle, if the equations of two diameters are $2x + y = 6$ and $3x + 2y = 4$ and radius is 9.

Q.10 : Show that the points $(3, -2)$, $(1, 0)$, $(-1, -2)$ and $(1, -4)$ are concyclic.

Q.11 : Find the equations of the tangents to the circle $x^2 + y^2 = 4$ which are parallel to $3x + 2y + 1 = 0$

Q.12 : Find the equations of the tangents to the circle $x^2 + y^2 - 2x + 8y - 23 = 0$ having slope 3.

SECTION D

: Answer the following : (ANY 1) 4

Q.13 : Show that the circles touch each other internally. Find their point of contact and the equation of their common tangent.

$$x^2 + y^2 + 4x - 12y + 4 = 0$$

$$x^2 + y^2 - 2x - 4y + 4 = 0$$

Q.14 : Find the equation of a circle passing through the points $(1, -4)$, $(5, 2)$ and having its centre on the line $x - 2y + 9 = 0$

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