Quality Checkers Only way to fulfill your dreams	XI-SCI : Maths Circle,	**DATE:** **TIME: 1 Hours 30 Minutes** **MARKS: 25** SEAT NO:

Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1. Select and write the correct answer. **(4)**

1. 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) $x^2 + y^2 = a^2$

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

   A) $x^2 - y^2 + 8x + 8y - 16 = 0$ B) $x^2 + y^2 + 8x + 8y + 32 = 0$

   C) $x^2 - y^2 - 8x + 8y + 16 = 0$ D) $x^2 + y^2 + 8x + 8y + 16 = 0$

Q.2. Answer the following. **(3)**

1. Find the equation of a circle with centre (2, –3) and radius 5.
2. Find the equation of a circle with centre at (–3, –2) and radius 6.
3. Write equation of diameter form of circle.

Section B
Attempt any Four

Q.3 Find the centre and radius of the circle x = 3 – 4 sin θ, y = 2 – 4 cos θ **(2)**

Q.4 Find the lengths of the intercepts made on the co-ordinate axes, by the circle. **(2)**

$x^2 + y^2 - 5x + 13y - 14 = 0$

Q.5 Write the parametric equation of the circle $(x - 3)^2 + (y + 4)^2 = 25$ **(2)**

Q.6 Find the equation of tangent to the circle $x^2 + y^2 - 4x + 3y + 2 = 0$ at the point (4, – 2) **(2)**

Q.7 Write the parametric equation of the circle $x^2 + y^2 + 2x - 4y - 4 = 0$ **(2)**

Q.8 Find the centre and radius of each of the following circle. **(2)**

$(x - 5)^2 + (y - 3)^2 = 20$

Section C
Attempt any Two

Q.9 Find the equation of locus of the point of intersection of perpendicular tangents drawn to the circle x = 5cosθ and y = 5sinθ. **(3)**

Q.10 Find the equation of the circle concentric with $x^2 + y^2 - 4x + 6y = 1$ and having radius 4 units. **(3)**

Q.11 Find the equations of the tangents to the circle $x^2 + y^2 = 36$ which are perpendicular to the line $5x + y = 2$. **(3)**

Section D
Attempt any One

Q.12 If $y = 2x$ is a chord of circle $x^2 + y^2 - 10x = 0$, find the equation of circle with this chord as diameter. **(4)**

Q.13 Find the equation of a circle passing through the points (1, –4) and (5, 2) and having its centre on the line
$x - 2y + 9 = 0$ **(4)**