BITT POLYTECHNIC

GETLATU, RANCHI

MATHEMATICS

SEMESTER – 1, BRANCH – ME

ASSIGNMENT NO – 3

(25 QUESTIONS)

VERY SHORT ANSWERS:

1. **FIND THE DISTANCE BETWEEN THE POINTS (2,-3) AND (-6,3).**
2. **USING DISTANCE FORMULA, PROVE THAT THE POINTS (-2,3), (1,2) AND (7,0) ARE COLLINEAR.**
3. **FIND THE COORDINATES OF THE MIDPOINT OF THE LINE SEGMENT JOINING THE POINTS (-2,-5) AND (3,-1).**
4. **FIND THE DISTANCE OF THE POINT (6,-6) FROM THE ORIGIN.**
5. **FIND THE EQUATION OF CIRCLE WITH CENTRE (3,-2) AND RADIUS 5.**
6. **FIND THE EQUATION OF CIRCLE WHOSE CENTRE IS (2,-1) AND WHICH PASSES THROUGH THE POINTS (3,6).**
7. **FIND THE CENTRE AND RADIUS OF THE GIVEN CIRCLE $(x-3)^2 + (y-1)^2 = 9$.**
8. **FIND THE EQUATION OF CIRCLE PASSING THROUGH THE POINTS (0,0), (5,0) AND (3,3).**
9. **WRITE THE GENERAL EQUATION OF CIRCLE, ITS CENTRE AND RADIUS.**
10. **FIND THE AREA OF TRIANGLE WHOSE VERTICES ARE (4,4), (3,-16) AND (3,-2).**

SHORT ANSWERS:

1. **SHOW THAT THE POINTS (-5,1), (5,5) AND (10,7) ARE COLLINEAR.**
2. **FIND THE EQUATION OF A CIRCLE, THE END POINTS OF ONE OF WHOSE DIAMETERS ARE (2,-3) AND (-3,5).**
3. **SHOW THAT THE EQUATION x2 + y2 -6x +4y - 36= 0 REPRESENTS A CIRCLE. ALSO, FIND ITS CENTRE AND RADIUS.**
4. **SHOW THAT THE EQUATION $3x^2 + 3y^2 + 12x - 18y - 11 = 0$ REPRESENTS A CIRCLE. ALSO, FIND ITS CENTRE AND RADIUS.**
5. **FIND THE EQUATION OF CIRCLE PASSING THROUGH THE POINTS (5,7), (6,6) AND (2,-2). FIND ITS CENTRE AND RADIUS.**
6. **FIND THE COORDINATES OF THE POINT WHICH DIVIDES THE LINE SEGMENT JOINING THE POINTS (5,-2) AND (9,6) IN THE RATIO 3:1.**
7. **SHOW THAT (3,2), (0,5), (-3,2) AND (0,-1) ARE THE VERTICES OF SQUARE.**
8. **FIND THE EQUATION OF A CIRCLE OF RADIUS 5 UNITS, WHOSE CENTRE LIES ON THE X- AXIS AND WHICH PASSES THROUGH THE POINT (2,3).**
9. **SHOW THAT $x^2 + y^2 - 3x + 3y + 10 = 0$ DOES NOT REPRESENT A CIRCLE.**
10. **FIND THE EQUATION OF THE CIRCLE WHICH PASSES THROUGH THE POINTS (1,3) AND (2,-1), AND HAS ITS CENTRE ON THE LINE 2x +y -4 =0.**

LONG ANSWERS:

1. **FIND THE VALUE OF "K" FOR WHICH THE POINTS (-2,3), (1,2) AND (K,0) ARE COLLINEAR.**
2. **SHOW THAT THE POINTS (7,10), (-2,5) AND (3,-4) ARE THE VERTICES OF RIGHT-ANGLED TRIANGLE.**
3. **FIND THE EQUATION OF THE CIRCLE PASSING THROUGH THE POINTS (2,4) AND HAVING ITS CENTRE AT THE INTERSECTION OF THE LINES x-y=4 AND 2x+3Y+7=0.**
4. **FIND THE EQUATION OF THE CIRCLE WHICH PASSES THROUGH THE CENTRE OF THE CIRCLE $x^2 + y^2 + 8x + 10y - 7 = 0$ AND IS CONCETRIC WITH THE CIRCLE $2x^2 + 2y^2 - 8x - 12y - 9 = 0$.**
5. **FIND THE EQUATION OF THE CIRCLE WHOSE CENTRE LIES ON THE LINE x -4y = 1 AND WHICH PASSES THROUGH THE POINTS (3,7) AND (5,5).**

THE END