**ASSIGNMENT NO.-12(INTRODUCTION TO 3D-GEOMETRY)**

**(MATHEMATICS)**

1. Find the distance between the points $L(a\cos(α,a sinα))$ and $M(a\cos(β,a\sin(β).))$

2. Prove that the area of the triangle whose vertices are $\left(t,t-2\right),(t+2,t+2)$ and $(t+3,t)$

 is independent of $t.$

3. For what value of $k$ are the points $\left(k,2-2k\right).(-k+1,2k)$ and $(-4-k,6-2k)$ are collinear?

4. Two vertices of a triangle are $(3,-5)$ and $\left(-7,4\right).$If its centroid is $\left(2,-1\right),$find the third vertex.

5. If the coordinates of the mid-points of the sides of a triangle are $\left(1,2\right),(0,-1)$ and $\left(2,-1\right).$Find

 the coordinates of its vertices.

6. Find the equation to the locus of a point equidistant from the points $A(1,3)$ and $B\left(-2,1\right).$

7. Find the locus of a point such that the sum of its distances from the points $(0,2)$ and $(0,-2)$ is 6.

8. Find the coordinates of the circumcentre of a triangle whose vertices are $\left(8,6\right),(8,-2)$ and

 $\left(2,-2\right).$Also,find its circum-radius.

9. Find the area of the quadrilateral ABCD whose vertices are respectively

 $A\left(1,1\right) , B\left(7,-3\right) , C\left(12,2\right)$ and $D\left(7,21\right).$

 10. Determine the point in XY-plane which is equidistant from three points $A\left(2,0,3\right),B(0,3,2)$ and

 $C\left(0,0,1\right).$

11. Find the ratio in which the join of $A(2,1,5)$ and $B(3,4,3)$ is divided by the plane

 $2x+2y-2z=0.$Also,find the coordinates of the point of division.

12. Using section formula ,prove that the three points A(-2,3,5) ,B(1,2,3) and C(7,0,-1) are collinear.