DOON UNIVERSITY, DEHRADUN
Semester Final Examination, 2012
School of Social Sciences
MSc Economics, Semester I
Course: SSE 149 : Co ordinate Geometry

Time Allowed:3 hours   *Maximum Marks: 50*

Note: Attempt Questions from Sections A, B, C.

Section A: Answer all of the following questions   [10X1=10]

1.The chord of the ellipse passing through its focus is called a_____.

2.The locus of a point which moves in a plane such that the ratio of its distance from a fixed point and a fixed line is constant is called _____.

3.If Cartesian coordinate is (2,-2), find polar co ordinates.

4.P divides A(2,3) and B(5,10) internally in the ratio 2:3.Find the coordinate of P if A, P and B lie in the same line segment.

5.Prove that the distance of a point $(a\cos\alpha , a\sin\alpha)$ from the origin is independent of α.

6.Write the general equation of a circle in second degree in x and y .

7.What is a point circle?

8.If eccentricity is greater than unity in a conic ,it is known as _____.

9.Using diagram point out the basic difference between a double ordinate and a latus rectum in an ellipse.

10.Three points $A(x_1,y_1)$, $B(x_2,y_2)$ and $C(x_3,y_3)$ are collinear iff_____.

Section B: Answer <u>any four</u> questions   [4X5=20]

1.Illustrate with an example how the distance between two points in a two dimensional plane can help to calculate the deprivation in the society.You have flexibility to use any arbitrary data for the illustration and discussion.

2. (a) Find the radius and centre of a circle with equation $x^2+y^2+2x-6y+7=0$.

(b)Find the equation of circle that has points P(1,8) and Q(5,-4) as the end points of the diameter.

3. Find the equation of a parabola whose focus is (3,-4) and directrix x-y+5=0

4. A and B are two fixed points where the co ordinate of A is (-a,0) and B(a,0).Find the locus of a point P such that angle APB is 90°.

5. A line segment AB of length (m +n) moves such that these extreme points A and B always remain on the axes x and y respectively. Find the locus of the point P on AB such that PA=m and PB=n.Use suitable diagrams.

Section C: Answer all the questions   **[2X10=20]**

1. Derieve the standard equation $\dfrac{x^2}{a^2} + \dfrac{y^2}{b^2} = 1$ of an ellipse.

2 Define the following with suitable diagrams in the context of a hyperbola:conjugate axis, latus rectum, vertical axis and transverse axis. Find the length of latus rectum and semi latus rectum for a hyperbola.