MATHEMATICS

SEM - II

Q1. Find the nature of the conic $15/r = 3 - 4\cos\theta$

Q 2.Show that the three points (2, -1 ,3) , (3, 1 0) and (3,1,2)

Q3.Find inverse of matrix $\begin{bmatrix}1 & 2 & 1\\3 & 2 & 3\\1 & 1 & 2\end{bmatrix}$

Q4 Solve the D E $\frac{dy}{dx} = XY + X + Y + 1$

Q 5 .Find Eigen value and Eigen vector of $\begin{bmatrix}1 & 2 & 2\\1 & 2 & -1\\-1 & 1 & 4\end{bmatrix}$

Q6 Find the co-ordinate of the Centre of cone whose equation

$32x^2 + 52xy - 7y^2 - 64x\ 52y - 148 = 0$ hence the equation of the conic referred to the centre as origen.

Q7 A = $\begin{bmatrix}1 & 2 & 3\\2 & 4 & 5\\3 & 5 & 6\end{bmatrix}$ is a symmetric matrix or not .

Q8. If A = $\begin{bmatrix}CosA & -Sin\,A\\Sin\,A & CosA\end{bmatrix}$ B = $\begin{bmatrix}CosB & -SinB\\SinB & CosB\end{bmatrix}$ Then show that AB = BA

Q9. A = $\begin{bmatrix}1 & 2 & 3\\2 & 1 & 0\\0 & 1 & 2\end{bmatrix}$ find the rank of matrix.

Q10. A = $\begin{bmatrix}1 & 2\\2 & -1\end{bmatrix}$ Find the inverse of matrix A.

Q11 Define Hermitian matrix with exp.

Q12 Define Singular and non singular matrix .

Q13. A = $\begin{bmatrix}1 & 2 & -1\\3 & 8 & 2\\4 & 9 & -1\end{bmatrix}$ FIND INVERSE OF MATRIX A .

Q14Find the rank of matrix A = $\begin{bmatrix}4 & 0 & 2\\3 & 1 & 0\\5 & 2 & 0\end{bmatrix}$

Q15. Find the inverse of A = $\begin{bmatrix}1 & 2\\2 & -1\end{bmatrix}$

Q16 Find eigenvalue and eigenvector A = $\begin{bmatrix}5 & 4\\1 & 2\end{bmatrix}$

Q17. Solve the linear equation x+2y+3z = 0, 3x+4y+4z = 0 , 7x +10y +12 z = 0

Q18. Define skew symmetric matrix.