

MATHEMATICS (Honours)

Paper: DC-2

Full MARK: 18

Time:- 1 hours

Answer all the questions.

4x2=8

1. (a). Find the Remainder when x^3+5x^2+1 is divided by $x+3$.

(b) The locus of the points z satisfying the condition

$\arg\left(\frac{z-1}{z+1}\right) = \frac{\pi}{3}$ is a (i) parabola (ii) circle

(iii) Pair of straight line (iv) none of these.

(c). Give an example of a relation on a set which is reflexive and transitive but not symmetric.

(d). Find the eigen values of the matrix $\begin{bmatrix} 4 & -2 \\ -2 & 1 \end{bmatrix}$.

2. (a) Prove that the sum of the 99th powers of the roots of the equation $x^7-1=0$ is zero. 2x5=10

(b) Find the range of values of k for which the equation $x^4-26x^2+48x-k=0$ has four unequal roots.