Maths.(Hons)
(Mid Term : CC - 13)

Full Marks: 15. **Time : $1\frac{1}{2}$ *hrs.***

Answer all questions.

1. Define metric space and prove that the set of real numbers R is a metric space with metric $d(x,y) = |x-y|$. 5.
2. Prove that the n'hood is an open set. 5.
3. Define analytic function of complex variable, state the condition for Cauchy-Riemann equations and derive the equ^{n}. 5.

Maths.(Hons)
(Mid Term : DSE - III)

Full Marks: 15. **Time : $1\frac{1}{2}$ *hrs.***

Answer all questions.

1. Find the condition that the roots of equ^{n}. $x^3 - px^2 + qx - r = 0$ Are in A. P. 5.
2. For the cubic equ^{n}. $x^3 + px^2 + qx + r = 0$, whose roots are α, β, γ. *find* $\sum \alpha^2$. 5.
3. Solve the equation $x^3 - 9x + 28 = 0$ by Cardon's method. 5.

Maths.(Hons)
(Mid Term : CC - 14)

Full Marks: 15. **Time : $1\frac{1}{2}$ *hrs.***

Answer all questions.

1. Define limit, Polynomial Ring and prove that the set of all Polynomials is a ring with respect to addition & scalar multiplication. 5.
2. Define Inner Product space and prove that every Inner Product space is a metric space. 5.
3. Define Dual space, Double dual and Dual basis. 5.

Maths.(Hons)
(Mid Term : DSE - IV)

Full Marks: 15. **Time : $1\frac{1}{2}$ *hrs.***

Answer all questions.

1. Define SHM and discuss the motion. 5.
2. Find the radial acceleration of a moving particle in a plane. 5.
3. Derive the intrinsic equation of the common catenary. 5.