(Mid Term: CC - 8)

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

Answer any three questions.

1.   Define transcendental equation and derive the formulain the
      Newton-Raphson process to solve thetranscendentalequation.   5.

2.   Define transcendental equation andderive the formula in
      theRegula-Falsi process to solvethe transcendental equation. 5.

3.   Derive Newton's forward Interpolation formula   5.

4.   Derive the formula in the Simpson's Rule for numerical integration. 5.

5.   Derive the formula in theRunge-Kuttaprocess to solve first
      order differential equation.   5.

(Mid Term: CC - 9)

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

Answer any three questions.

1.   Define Riemann Inerrability of a bounded real valued function.   5.

2.   Define $\beta(m, n)$ & $\gamma(n)$ and prove that $\gamma(n + 1) - n\gamma(n)$ 5.

3.   Define uniform convergence of a sequence of function and
      state Cauchy Criterion for uniform convergence.   5.

4.   Define limit superior and limit inferior as well as power series.   5.

5.   State Cauchy Hadamard theorem.   5.

Maths.(Hons)
(Mid Term: CC - 10)

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

Answer any three questions.

2.   Define ring and subring and prove that intersection of
      two subrings is a subring   5.

2.   Prove that finite integral domain is a field   5.

3.   Define Vector space and its basis.   5.

4.   Define linear independence of vectors and check whether the vectors
      $(1, 1, 0), (0, 1, 1)$ and $(0, 0, 1)$ are lineary independent.   5.

5.   Define linear transformation and its null & nullity.   5.

Generaic Elective (Maths.)
(Mid Term: GE - 4)

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

Answer any three questions.

1.   Define abelian group with an example with finite elements   5.

2.   Define addition modulo m and multiplication
      modulo p of integers   5.

3.   Define subgroup, coset and index of a subgroup.   5.

4.   State and prove Lagrange's theorem.   5.

5.   Define Normal subgroup and Quotient group.   5.