Maths.(Hons)
(Mid Term: CC - 5)

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

Answer any three questions.

7.   Define limit, continuity & differentiability of a function
     at a point in terms of ε & δ.   5.
2.   Define uniform continuity of a function with an example.   5.
3.   State and prove Rolle's theorem.   5.
4.   State Cauchy's mean value theorem and Darboux's theorem.   5.
5.   State Taylor's and Maclaurin's series expansion of a function. 5.

Maths.(Hons)
(Mid Term: CC - 6)

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

Answer any three questions.

1.   Define permutation and permutation group with an
     example on three symbols.   5.
2.   State and prove Lagrange's theorem.   5.
3.   Define cyclic group, Normal Subgroup and Normalize of a group.   5.
4.   Prove that in a group G, $(ab)^n = a^n b^n$ if, G is abelian   5.
5.   Define factor group and state Cauchy's theorem for finite
     abelian group.   5.

Maths.(Hons)
(Mid Term: CC - 7)

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

Answer any three questions.

1.   Find the general solution of Lagrange Linear
     differential equation $p\tan x + q\tan y = \tan z$ 5.
2.   Solve $p^2 + q^2 = 16$ 5.
3.   Write down the auxiliary equation of Charpit's Method   5.
4.   Find the complete solution of the partial differential
     equation $px + qy = pq$ 5.
5.   Write down the working rule for solving the differential
     equation $f_1(x,p) = f_2(y,q)$ 5.

Generic Elective (Maths.)
(Mid Term: GE - 3)

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

Answer three questions.

1.   Define sequence of real numbers and its convergence with
     example.   5.
2.   Define bounds of a sequence, Cauchy sequence and
     prove that convergence sequence has unique limit.   5.
3.   Define a series of real numbers and its convergence .   5.
4.   Prove that the series $\sum \frac{1}{n^p}$ is convergent for $p > 1$ 5.
5.   State and prove Comparison test of convergence of an
     infinite series   5.