MMA-C114
ABSTRACT ALGEBRA

MM : 100   Sessional : 30
Time : 3 hrs   ESE : 70
L T P   Pass Marks : 40
5 2 0

NOTE: The question paper shall consist of two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer type questions of six marks each and student shall be required to attempt any five questions. Sec.-B shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

Normal subgroups, Simple groups Conjugacy, Normalization, Centre of a group, Class-equation of a group and its consequences, Theorems for finite groups, Cauchy's theorem, Sylow's theorem.

Homomorphisms, Endomorphisms, Automorphisms, Inner automorphisms, Group of automorphisms and Inner automorphisms, Maximal subgroups, Composition series, Jordan-Holder theorem, Normal series, Solvable groups, Direct-Products.

Rings, Sub-rings, Integral domain, Euclidean Rings, Ideal, Principal Ideal, Maximal and Prime ideals, Vector spaces, Subspaces, Linear span, Basis and dimension.

Extension fields, Transitivity of finite extensions, Algebraic element, Algebraic field extensions, Minimal polynomials, Roots of polynomials, Multiple roots, Splitting field, Existence of SF of a polynomial.

Automorphism of a field, Fixed field, Group of Automorphism of a field K relative by a subfield F of K, Galois group of a Polynomial over a field, Construction with straight edge and Compass.

Text /Reference Books
1.I.N. Herstein, Topics in Algebra, Wiley Eastern Ltd.
2.J. Fraleigh, A First Course in Abstract Algebra, Pearson Education.
3.Mac-Donald , Theory of Groups and Fields, Clarendon Press
4. Khanna and Bhambari , A Course in Abstract Algebra(Vikash Pub.,III Edition.)