

MA-307: GROUP THEORY

Groups: Historical background, Definition of a Group with some examples, Order of an element of a group, subgroup, Generators and relations, Free Groups, Cyclic Groups, Finite groups.

Group of permutations: Cayley's Theorem on permutation groups, Cosets and Lagrange's theorem, Normal subgroups, Simplicity, Normalizers, Direct Products.

Homomorphism: Factor Groups, Isomorphisms, Automorphism, Isomorphism Theorems.

Group Actions: Stabilizers, Conjugacy classes, Sylow theorems and their applications.

Books Recommended:

- a) M. Hall Jr., The Theory of Groups, Chelsea Publishing Company, 1959).
- b) J. B. Fraleigh, A Course in Algebra, Addison-Wesley 1982.
- c) I.N. Henstein, Topics in Algebra, Wiley & Sons, (ISBN: 9780471010906)