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|  | B.Sc. 5 th sem , Groups and rings |
| Week | Topics |
| 1 | Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria, Generation of groups, |
| 2 | Cosets, Left and right cosets, Index of a sub-group Coset decomposition |
| 3 | Largrage’s theorem and its consequences, Normal subgroups, Quotient groups, |
| 4 | Homoomorphisms, isomophisms, automorphisms and inner automorphisms of a group. |
| 5 | Automorphisms of cyclic groups, Permutations groups. Even and odd permutations. |
| 6 | Alternating groups, Cayley’s theorem, Center of a group and derived group of a group. |
| 7 | Introduction to rings, subrings, integral domains and fields, |
| 8 | Characteristics of a ring. Ring homomorphisms, ideals (principle, prime and Maximal) |
| 9 | Quotient rings, Field of quotients of an integral domain. |
| 10 | Euclidean rings, Polynomial rings, Polynomials over the rational field, |
| 11 | The Eisenstein’s criterion, Polynomial rings over commutative rings |
| 12 | R unique factorization domain implies so is R[X1 , X2……Xn] |