**GOVT. COLLEGE BAROTA**

**LESSON PLAN OF MATHEMATICS(2023-24)(ODD SEM.)**

**B.A./B.SC. (5th SEM.)**

**GROUPS AND RINGS**

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| **MONTH** | **WEEK** | **SYLLABUS** |
| JULY | WEEK 1 | Definition of a group with example and simple properties of groups. |
| AUGUST | WEEK 1 | Subgroups and Subgroup criteria, Generation of groups, cyclic groups. |
| WEEK 2 | Cosets, Left and right cosets, Index of a sub-group Coset decomposition, Largrage’s theorem and its consequences. |
| WEEK 3 | Normal subgroups, Quotient groups, Test. |
| WEEK 4 | Homomorphisms, isomorphisms, automorphisms. |
| WEEK 5 | Inner automorphisms of a group, Automorphisms of cyclic groups. |
| SEPTEMBER | WEEK 1 | Center of a group and derived group of a group, Permutations groups. |
| WEEK 2 | Assignment, Test, Introduction to rings, subrings. |
| WEEK 3 | Integral domains and fields, Characteristics of a ring. |
| WEEK 4 | Ring homomorphisms. |
| OCTOBER | WEEK 1 | Ring homomorphisms ctd., Ideals (principle, prime and Maximal). |
| WEEK 2 | Quotient rings, Field of quotients of an integral domain. |
| WEEK 3 | Test, Euclidean rings. |
| WEEK 4 | Polynomial rings, Polynomials over the rational field, The Eisenstein’s criterion, Assignment. |
| NOVEMBER | WEEK 1 | Polynomial rings over commutative rings, Unique factorization domain, R unique factorization domain implies so is R[X1 , X2……Xn] |
| WEEK 2 | Test, Revision |
| WEEK 3 | Revision |