

GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024-25

Name of Assistant/Associate Professor: Nisha Rani

Class: B.Sc I

Subject: Maths (functions & Algebra)

Semester: I

Months	Topics/Chapters to be Covered
July 2024	Relations, functions along with domain & Range, Compositions of functions, Invertibility & inverse of functions, One-to-one correspondence & the Cardinality of a Set.
August 2024	Relations between the roots & coefficients of general polynomial equation in one variable. Solutions of polynomial equations having conditions on roots. Common roots and multiple roots. Transformation of equations. Nature of the roots of an equation, Descartes's Rule of Signs, Solution of Cubic equation (Cardan's Method), Biquadratic equations & their solutions. Tetra-
September 2024	Matrix & its types: Symmetric, skew-symmetric, Hermitian & skew-Hermitian matrices, Unitary & orthogonal matrices, Idempotent, Involutory & Nilpotent Matrices. Rank of a Matrix & its applications: Rank of a Matrix, Row rank & Column rank of a Matrix, Elementary operations on Matrices, Inverse of a Matrix, Normal form, PAQ form, Linear Dependence & independence of rows & columns of Matrices. Applications of Matrices to a system of linear (both homogeneous & nonhomogeneous) equations, Theorems on consistency of a system of linear equations

October
2024

Cayley Hamilton Theorem: Eigen values, Eigen vectors & the characteristics equation of a Matrix. Minimal polynomial of a Matrix. Cayley-Hamilton theorem & its use in finding the inverse of a Matrix.

Diagonalization of Matrix. Assignment
Test.

November
2024

Revision

Signature of Asst/Asso. Professor

GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024-25

Name of Assistant/Associate Professor: Nisha Rani

Class: B.Sc III

Subject: Mathematics (Groups & Rings)

Semester: 05

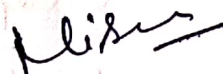
Months	Topics/Chapters to be Covered
July 2024	Definition of Group with example & simple properties of Groups.
August 2024	Subgroup & subgroup criteria, Generation of Groups, cyclic groups, Cosets, left & right Cosets, Index of a subgroup, Coset decomposition Lagrange's Theorem & its consequences, Normal subgroups. Quotient Groups. Test
September 2024	Homomorphisms, isomorphisms, automorphisms & inner automorphisms of a group. Automorphisms of cyclic groups. Permutation groups. Even & odd permutations. Alternating groups. Cayley's theorem, Centre of a group & derived group of a group. Introduction to rings, Assignment

October
2024

Subrings, integral domains & fields, char
of a ring. Ring homomorphisms, ideal
(Principle, prime & maximal) & Quotient
rings. field of quotients of an integral
domain. Euclidean rings, polynomial
rings, polynomial over the rational
field. Test.

November
2024

The Eisenstein's criterion of irreducibility
polynomial rings over commutative rings
Unique factorization domain. R unique
factorization domain implies so is
 $R[x_1, x_2, \dots, x_n]$. Assignment.


Signature of Asst/Asso. Professor

GOVERNMENT COLLEGE BIROHAR (JHAJJAR)

Summary of Lesson Plans of College Faculty for Academic Session 2024-25

Name of Assistant/Associate Professor: Nisha Kani

Class: B.Sc I

Subject: Mathematics (MDC)

Semester: I

Months	Topics/Chapters to be Covered
July 2024	Numbers, H.C.F and L.C.M of Numbers
August 2024	Decimals & fractions, simplification, Square roots & cube roots, Surds & Indices, Problem on Numbers. Test
September 2024	Average, Percentage, Profit and Loss Ratio & proportion, Problem on ages Partnership, Assignment.

<p>October 2024</p>	<p>Time & work, Time and distance Problems on trains, Mixture Problems Problems based on Calender and Clock, Test.</p>
<p>November 2024</p>	<p>Revision</p>

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Signature of Asst/Asso. Professor