S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher – Dr. Neha Mittal
Paper – Differential Equations
Class – B.A/B.Sc. 3rd Sem(Major)

Subject - Mathematics
Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Unit- 1 Basic concepts and genesis of ordinary differential equations
29/07/2024 to 03/08/2024	Order and degree of a differential equation, Solutions of differential equations of first order and first degree, Exact differential equations, Integrating factor
05/08/2024 to 10/08/2024	First order higher degree equations solvable for x, y and p, Lagrange's equations, Clairaut's form and singular solutions, Orthogonal trajectories of one-parameter families of curves in a plane
12/08/2024 to 17/08/2024	Unit – 2 Solutions of linear ordinary differential equations with constant coefficients, linear non-homogeneous differential equations. Linear differential equation of second order with variable coefficients.
19/08/2024 to 24/08/2024	Method of reduction of order, Method of undetermined coefficients , Method of variation of parameters. Cauchy-Euler equation.
26/08/2024 to 31/08/2024	Unit – 3 Solution of simultaneous differential equations, total differential equations. Genesis of Partial differential equations (PDE)
02/09/2024 to 07/09/2024	Concept of linear and nonlinear PDEs. Complete solution
09/09/2024 to 14/09/2024	general solution and singular solution of a PDE
16/09/2024 to 21/09/2024	Linear PDE of first order.
23/09/2024 to 28/09/2024	Lagrange's method for PDEs of the form: $P(x ,y, z) p + Q(x, y, z) q = R(x, y, z)$, where $p=\partial z/\partial x$ and $q=\partial z/\partial y$
30/09/2024 to 05/10/2024	Unit – 4 Integral surfaces passing through a given curve. Surfaces orthogonal to a given system of surfaces.
7/10/2024 to 12/10/2024	Compatible systems of first order equations
14/10/2024 to 19/10/2024	Charpit's method, Special types of first order PDEs,
21/10/2024 to 26/10/2024	Jacobi's method
04/11/2024 to 09/11/2024	Second Order Partial Differential Equations with Constant Coefficients
11/11/2024 to 16/11/2024	Revision
18/11/2024 to 22/11/2024	Revision

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher – Dr. Neha Mittal
Paper – Mathematics for All
Class – B.A/B.Sc. 3rd Sem(MDC)

Subject - Mathematics
Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Unit- 1 The concept of a set, Types of sets, Operations on sets, Venn Diagram
29/07/2024 to 03/08/2024	De-Morgan's laws. The concept of a function, Elementary functions and their graphical representation.
05/08/2024 to 10/08/2024	Solution of simple quadratic and cubic equations, Solution of simultaneous linear equations up to three variables. Arithmetic Progression, Geometric progression.
12/08/2024 to 17/08/2024	The concept of differentiation, differentiation of simple functions, second order differentiation
19/08/2024 to 24/08/2024	Maxima and minima of a function, Use of differentiation for solving problems related to real-life situations
26/08/2024 to 31/08/2024	Integration of simple algebraic, trigonometric and exponential function
02/09/2024 to 07/09/2024	Unit – 3 Presentation of data: Frequency distribution and cumulative frequency distribution, Diagrammatic and graphical presentation of data
09/09/2024 to 14/09/2024	Construction of bar, Pie diagrams, Histograms, Frequency polygon, Frequency curve and Ogives.
16/09/2024 to 21/09/2024	Measures of central tendency: Arithmetic mean, Median, Mode, Geometric mean and Harmonic mean for ungrouped and grouped data
23/09/2024 to 28/09/2024	Measures of dispersion: Concept of dispersion, Mean deviation and its coefficient, Range, Variance and its coefficient, Standard deviation
30/09/2024 to 05/10/2024	Unit – 4 Correlation: Concept and types of correlation, Methods of finding correlation: Scatter diagram
7/10/2024 to 12/10/2024	Karl Pearson's coefficients of correlation, Rank correlation
14/10/2024 to 19/10/2024	Linear regression: Principle of least square, Fitting of straight line, Two lines of regression
21/10/2024 to 26/10/2024	Regression coefficients
04/11/2024 to 09/11/2024	Solution of differential equations of first order and degree one with variable separable
11/11/2024 to 16/11/2024	Revision
18/11/2024 to 22/11/2024	Revision

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher – Dr. Neha Mittal
Paper – Buisness Mathematics
Class – B.Com 1st Sem(Minor)

Subject - Mathematics
Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Basics
29/07/2024 to 03/08/2024	Set Theory: Representation of sets
05/08/2024 to 10/08/2024	Equivalent sets, power set, complement of a set
12/08/2024 to 17/08/2024	Venn Diagrams: Union and intersection of 8 sets,
19/08/2024 to 24/08/2024	De-Morgan's laws; Logical statements and truth tables
26/08/2024 to 31/08/2024	Logarithms: Laws of operation, log tables;
02/09/2024 to 07/09/2024	Arithmetic progression.
09/09/2024 to 14/09/2024	Geometric progression.
16/09/2024 to 21/09/2024	Matrices and Determinants: Definition of a matrix, order, equality, types of matrices;
23/09/2024 to 28/09/2024	Operations on matrices: Addition, multiplication and multiplication with a scalar and their simple properties.
30/09/2024 to 05/10/2024	Determinant of a square matrix (upto 3x 3 order): Properties of determinants, minors, co-factors
7/10/2024 to 12/10/2024	Applications of determinants in finding the area of triangle,
14/10/2024 to 19/10/2024	Adjoint and inverse of a square matrix, solutions of a system of linear equations by examples.
21/10/2024 to 26/10/2024	Compound interest and annuities: Different types of interest rates, ,
04/11/2024 to 09/11/2024	Types of annuities, present value and amount of an annuity (including the case of continuous compounding),
11/11/2024 to 16/11/2024	Valuation of simple loans and debentures, Problems related to sinking funds
18/11/2024 to 22/11/2024	Revision

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher – Dr. Neha Mittal
Paper – Groups and Rings   **Subject - Mathematics**
Class – B.A/B.Sc. 5th Sem   **Session :- 2024-2025 (Odd Sem.)**

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Basics, Unit- 1, Definition of group with example
29/07/2024 to 03/08/2024	Simple properties of group
05/08/2024 to 10/08/2024	Subgroup and subgroup criteria, Generation of Groups
12/08/2024 to 17/08/2024	Cyclic Groups, Cosets
19/08/2024 to 24/08/2024	Left and Right Cosets, Index of a subgroup
26/08/2024 to 31/08/2024	Coset decomposition, lagrange's theorem
02/09/2024 to 07/09/2024	Normal subgroup and Quotient group
09/09/2024 to 14/09/2024	Assignment-1, Unit-2 Homomorphism, isomorphism
16/09/2024 to 21/09/2024	Automorphism and Inner automorphism
23/09/2024 to 28/09/2024	Automorphism of a cyclic group, Permutation group
30/09/2024 to 05/10/2024	Even and Odd permutation, Alternating group
7/10/2024 to 12/10/2024	Cayley's theorem, Centre of a group and derived group of a group
14/10/2024 to 19/10/2024	Assignment- 2, Unit -3 Introduction to rings, Subrings
21/10/2024 to 26/10/2024	Integral domain and field, Characterstic of a ring
04/11/2024 to 09/11/2024	Ring Homomorphism, ideals and Quotient rings, Field of quotients of an integral domain
11/11/2024 to 16/11/2024	Test, Unit-4, Elclidean ring, Polynomail ring, Polynomial over the rational field, Eienstein criteria,
18/11/2024 to 22/11/2024	Polynomial ring over commutative rings, UFD Revision

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher – Dr. Neha Mittal
Paper – Numerical Analysis
Class – B.A/B.Sc. 5ᵗʰ Sem

Subject - Mathematics
Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Basics, Unit- 1 Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values, Interpolation with equal intervals .
29/07/2024 to 03/08/2024	Newton's forward and Newton's backward interpolation formulae. Interpolation with unequal intervals: Newton's divided difference
05/08/2024 to 10/08/2024	Lagrange's Interpolation formulae, Hermite Formula
12/08/2024 to 17/08/2024	Unit – 2 Central Differences: Gauss forward and Gauss's backward interpolation formulae
19/08/2024 to 24/08/2024	Sterling, Bessel Formulam, Probability distribution of random variables,
26/08/2024 to 31/08/2024	Binomial distribution, Poisson's distribution, Normal distribution: Mean, Variance and Fitting
02/09/2024 to 07/09/2024	Unit – 3 Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections – I & II.
09/09/2024 to 14/09/2024	Eigen Value Problems: Power method, Jacobi's method
16/09/2024 to 21/09/2024	Given's method, House- Holder's method, QR method, Lanczos method
23/09/2024 to 28/09/2024	Unit – 4 Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's one- third and three-eighth rule
30/09/2024 to 05/10/2024	Chebychev formula, Gauss Quadrature formula.
7/10/2024 to 12/10/2024	Numerical solution of ordinary differential equations
14/10/2024 to 19/10/2024	Numerical solution of ordinary differential equations
21/10/2024 to 26/10/2024	Single step methods- Picard's method. Taylor's series method
04/11/2024 to 09/11/2024	Milne-Simpson's method
11/11/2024 to 16/11/2024	Revision
18/11/2024 to 22/11/2024	Revision

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher –Dr. Nishu Gupta
Paper – Calculus
Class – B.A 1st Sem

Subject-Mathematics
Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Unit-1, Limit and continuity
29/07/2024 to 03/08/2024	Types of discontinuity and differentiablity
05/08/2024 to 10/08/2024	Successive differentiation of functions
12/08/2024 to 17/08/2024	Leibnitz theorem, General theorems on differentiable functions and expansions
19/08/2024 to 24/08/2024	Taylor's theorem with Lagrange's form and Cauchy's form of remainder after n terms
26/08/2024 to 31/08/2024	Maclaurin's form and infinite series
02/09/2024 to 07/09/2024	Assignemnt-1, Unit-2 Asymptotes parallel to coordinates axix and oblique asymptotes,
09/09/2024 to 14/09/2024	Singular points and point of inflexion, Multiple points
16/09/2024 to 21/09/2024	Cusps, node and conjugate points
23/09/2024 to 28/09/2024	Tracing of curves
30/09/2024 to 05/10/2024	Curvature, Parametric curve, Polar curve and pedal curve
7/10/2024 to 12/10/2024	Assignment- 2, Unit -3 Reduction formaulae
14/10/2024 to 19/10/2024	Rectification, Length of curve
21/10/2024 to 26/10/2024	Intrinsic equation of curve
04/11/2024 to 09/11/2024	Test, Unit-4 Quadrature, Sectorial area
11/11/2024 to 16/11/2024	Area bounded by closed curve in Cartesian, parametric and polar form
18/11/2024 to 22/11/2024	Volumes and surfaces of solids of revolution Revision

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher –Dr. Nishu Gupta

Paper – MDC (Indrotuctory Mathematics)

Class – B.A 1st Sem MDC

Subject-Mathematics

Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Sets and their representations, Empty set, Finite and infinite sets, Subsets, Equal sets, Power sets, Universal set
29/07/2024 to 03/08/2024	Union and intersection of sets, Difference of two sets, Complement of a set, Venn diagram, De-Morgan's laws and their applications.
05/08/2024 to 10/08/2024	An introduction to matrices and their types, Operations on matrices, Symmetric and skew-symmetric matrices, Minors, Co-factors
12/08/2024 to 17/08/2024	Determinant of a square matrix, Adjoint and inverse of a square matrix, Solutions of a system of linear equations up to order 3.
19/08/2024 to 24/08/2024	Complex numbers, Operations on complex numbers
26/08/2024 to 31/08/2024	Modulus and argument of a complex number
02/09/2024 to 07/09/2024	Linear inequalities, Algebraic solutions of linear inequalities in two variables and their graphical representation.
09/09/2024 to 14/09/2024	Quadratic equations, Solution of quadratic equations
16/09/2024 to 21/09/2024	Arithmetic progression, Geometric progression
23/09/2024 to 28/09/2024	Harmonic progression, Arithmetic mean (A.M.)
30/09/2024 to 05/10/2024	Geometric mean (G.M.), Harmonic mean (H.M.)
7/10/2024 to 12/10/2024	Relation between A.M., G.M. and H.M
14/10/2024 to 19/10/2024	Straight lines: Slope of a line and angle between two lines, Different forms of equation of a line
21/10/2024 to 26/10/2024	Parallel to co-ordinate axes, Point-slope form, Slope-intercept form
04/11/2024 to 09/11/2024	Two-point form, General form; Distance of a point from a straight line
11/11/2024 to 16/11/2024	Standard form of a circle and its properties
18/11/2024 to 22/11/2024	Revision and Test

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher –Dr. Nishu Gupta
Paper – SEC (Quantitative Aptitude)
Class – B.A./B.Sc./B.Com 3rd Sem

Subject-Mathematics
Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Linear Equations, Quadratic equations
29/07/2024 to 03/08/2024	System of algebraic equations in two variables and their applications in simple problems
05/08/2024 to 10/08/2024	System of algebraic equations in two variables and their applications in simple problems
12/08/2024 to 17/08/2024	Problems on ages, Clocks
19/08/2024 to 24/08/2024	Time and distance
26/08/2024 to 31/08/2024	Problems based on trains, Boats and Streams
02/09/2024 to 07/09/2024	Pipes and Cistern. Work and time:
09/09/2024 to 14/09/2024	Problems on work and time, Work and wages
16/09/2024 to 21/09/2024	Simple interest, Compound Interest
23/09/2024 to 28/09/2024	Partnership. Basic idea of set theory to solve practical problems
30/09/2024 to 05/10/2024	Trigonometric ratios and identities
7/10/2024 to 12/10/2024	Height and distance
14/10/2024 to 19/10/2024	Basic idea of Permutations and Combinations.
21/10/2024 to 26/10/2024	Events and sample space, Probability.
04/11/2024 to 09/11/2024	Data interpretation: Raw and grouped data
11/11/2024 to 16/11/2024	Bar Graph, Pie Chart, Mean, Median and Mode
18/11/2024 to 22/11/2024	Revision and Test

S.M.S.L. Govt. College Julana(Jind)
Lesson Plan (July to November 2024)

Name of Teacher –Dr. Nishu Gupta
Paper – Real Analysis
Class – B.A. 5th Sem

Subject-Mathematics
Session :- 2024-2025 (Odd Sem.)

Weeks With Months	Contents
22/07/2024 to 27/07/2024	Riemann integral
29/07/2024 to 03/08/2024	Riemann integral
05/08/2024 to 10/08/2024	Integrabililty of continuous and monotonic functions, The Fundamental theorem of integral calculus. Mean value theorems of integral calculus.
12/08/2024 to 17/08/2024	Improper integrals and their convergence, Comparison tests, assignment -1
19/08/2024 to 24/08/2024	Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter. Continuity
26/08/2024 to 31/08/2024	Differentiability andintegrability of an integral of a function of a parameter.
02/09/2024 to 07/09/2024	Definition and examples of metric spaces, neighborhoods, limit points
09/09/2024 to 14/09/2024	interior points,open and closed sets, closure and interior, boundary points, subspace of a metric space, Assignment - 2
16/09/2024 to 21/09/2024	equivalent metrics, Cauchy sequences
23/09/2024 to 28/09/2024	completeness, Cantor's intersection theorem
30/09/2024 to 05/10/2024	Baire's category theorem, contraction Principle
7/10/2024 to 12/10/2024	Continuous functions, uniform continuity, compactness for metric spaces
14/10/2024 to 19/10/2024	sequential compactness, Bolzano-Weierstrass property, total boundedness, Test
21/10/2024 to 26/10/2024	Finiteintersection property, continuity in relation with compactness, connectedness
04/11/2024 to 09/11/2024	components, continuity in relation with connectedness
11/11/2024 to 16/11/2024	Revision
18/11/2024 to 22/11/2024	Revision