LESSON PLAN

Name of Assistant Professor: Ms. Mamtesh Rani
Class: B.A. 1st (Semester- 2nd)
Subject: Mathematics
Paper : Algebra and number theory
Session: 2024-25

Week 1	Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices, Elementary operations on matrices, Practical
Week 2	Rank of a matrix, Inverse of a matrix, Linear dependence and independence of rows and columns of matrix, Row rank and column rank of a matrix, Practical
Week 3	Eigen values, Eigen vectors and characteristic equation of a matrix, Practical, test
Week 4	Minimal polynomial of a matrix, Cayley-Hamilton theorem and its use in finding the inverse of a matrix, Practical
Week 5	Unitary and orthogonal matrices, Practical, assignment
Week 6	Relations between the roots and coefficients of general polynomial equation in one variable, Practical
Week 7	Solutions of polynomial equations having conditions on roots, Common roots and multiple roots, Practical
Week 8	Transformation of equations, Nature of the roots of an equation, Descarte's rule of signs Practical, test
Week 9	Solutions of cubic equations (Cardon's method), Practical
Week 10	Biquadratic equations and their solutions, Practical, Divisibility, Greatest common divisor (gcd)
Week 11 **Week 12**	Least common multiple (lcm), Prime numbers, Practical Fundamental theorem of arithmetic, Linear congruences, Practical
Week 13	Fermat's theorem, Euler's theorem, Practical, assignment
Week 14	Wilson's theorem and its converse, Chinese Remainder theorem , Practical, test
Week 15	Linear Diophantine equations in two variables, Revision
EXAMINATIONS	

Mamtesh

LESSON PLAN

Name of Assistant Professor: Ms. Mamtesh Rani
Class: B.Com. 1st (Semester- 2nd)
Subject: Mathematics
Paper : Business Mathematics-II
Session: 2024-25

Week 1	Linear programming: Formulation of linear programming problems (LPP)
Week 2	solution by graphical method.
Week 3	Solution by simplex method.
Week 4	Applications of linear programming in solving problems related to business and commerce
Week 5	Binomial Theorem, test
Week 6	Permutations
Week 7	Combinations , assignment
Week 8	Differentiation; derivative of simple functions
Week 9	Maxima and minima of Revenue, Cost
Week 10	Maxima and minima of Demand , Production, assignment
Week 11	Maxima and minima of Profit functions and other functions related to business and commerce.
Week 12	Integration
Week 13	Definite integration, basic rules of integration, assignment
Week 14	Indefinite integration, test
Week 15	basic rules of integration, Revision
EXAMINATIONS	

Mamtesh

LESSON PLAN

Name of Assistant Professor: Ms. Mamtesh Rani
Class: B.A. 2nd (Semester- 4th)
Subject: Mathematics
Paper : Analytical Geometry & Vector Calculus
Session: 2024-25

Week 1	Scalar and Vector product of three vectors, four vectors , Practical
Week 2	Reciprocal vectors, vector differentiation and derivative along a curve, directional derivatives, Practical
Week 3	Gradient of a scalar point function, divergence and curl of vector point functions their geometrical meanings and vector identities, Practical
Week 4	Vector integration: line integral, surface integral and volume integral, Practical
Week 5	Theorem of Gauss, Green, Stoke and problems based on these. , Practical, test
Week 6	General equation of second degree: Classification of conic sections; centre , asymptotes, axes, eccentricity, foci and directrices of conics, Practical
Week 7	Tangent at any point to a conic, chord of contact, pole of line to a conic, Practical
Week 8	Director circle of a conic. Polar equation of a conic, Practical
Week 9	Tangent and normal to a conic, confocal conics, Sphere: General form, Plane section of a sphere. Sphere through a given circle Practical, assignment
Week 10	Intersection of two spheres, tangent plane and line , Intersection of two spheres, tangent plane and line , Practical
Week 11 **Week 12**	Cone: Equation of a cone, right circular cone, quadric cone, enveloping cone , Practical Tangent plane and condition of tangency , Practical, test, assignment
Week 13	Cylinder: Right circular cylinder and enveloping cylinder. Central Conicoids: Equation of tangent plane , Director sphere. Normal to the conicoids. Polar plane of a point Practical
Week 14	Enveloping cone of a Conicoid, Enveloping cylinder of a conicoid, confocal conicoid
Week 15	reduction of second degree equations. , Revision
EXAMINATIONS	

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LESSON PLAN

Name of Assistant Professor: Ms. Mamtesh Rani
Class: B.A. 3rd(Semester- 6th)
Subject: Mathematics
Paper : Linear Algebra
Session: 2024-25

Week 1	Vector spaces, subspaces, Sum and Direct sum of subspaces
Week 2	Linear span, Linearly Independent and dependent subsets of a vector space
Week 3	Finitely generated vector space, Existence theorem for basis of a finitely generated vactor space
Week 4	Finite dimensional vector spaces, Invariance of the number of elements of bases sets.
Week 5	Dimensions, Quotient space and its dimension , test
Week 6	Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vactor spaces
Week 7	Vactor space of all the linear transformations Dual Spaces, assignment
Week 8	Bidual spaces, annihilator of subspaces of finite dimentionalvactor spaces
Week 9	Null Space, Range space of a linear transformation, Rank and Nullity Theorem
Week 10	Algebra of Liner Transformation, Minimal Polynomial of a linear transformation
Week 11	Singular and non-singular linear transformations
Week 12	Matrix of a linear Transformation
Week 13	Change of basis, Eigen values and Eigen vectors of linear transformations
Week 14	Inner product spaces, Cauchy-Schwarz inequality, test
Week 15	Orthogonal vectors, Orthogonalcomplements, Orthogonal sets and Basis, assignment
Week 16	Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt
Week 17	Orthogonalization process, Adjoint of a linear transformation
Week 18	Unitary linear transformations, Revision
EXAMINATIONS	

Mamtesh

LESSON PLAN

Name of Assistant Professor: Ms. Mamtesh Rani
Class: B.A. 3rd(Semester- 6th)
Subject: Mathematics
Paper : Dynamics
Session: 2024-25

Week 1	Velocity and acceleration along radial, transverse, tangential and normal directions
Week 2	Relative velocity and acceleration
Week 3	Simple harmonic motion
Week 4	Elastic strings, test
Week 5	Mass, Momentum and Force
Week 6	Newton's laws of motion
Week 7	Work, Power and Energy, assignment
Week 8	Definitions of Conservative forces
Week 9	Impulsive forces
Week 10	Motion on smooth and rough plane curves
Week 11	Projectile motion of a particle in a plane
Week 12	Vector angular velocity.
Week 13	General motion of a rigid body, test
Week 14	Central Orbits
Week 15	Kepler laws of motion, assignment
Week 16	Motion of a particle in three dimensions
Week 17	Acceleration in terms of different co-ordinate systems
Week 18	Revision
EXAMINATIONS	

Mamtesh

LESSON PLAN

Name of Assistant Professor: Ms. Mamtesh Rani
Class: B.A. 3rd(Semester- 6th)
Subject: Mathematics
Paper : Real and complex analysis
Session: 2024-25

Week 1	Jacobians, Beta and Gama functions
Week 2	Double and Triple integrals
Week 3	Dirichlets integrals
Week 4	Change of order of integration in double integrals
Week 5	Fourier's series, test
Week 6	Fourier expansion of piecewise monotonic functions
Week 7	Properties of Fourier Co-efficients, assignment
Week 8	Dirichlet's conditions, Parseval's identity for Fourier series
Week 9	Fourier series for even and odd functions, Half range series, Change of Intervals.
Week 10	Extended Complex Plane, Stereographic projection of complex numbers, continuity.
Week 11	Differentiability of complex functions
Week 12	Analytic functions
Week 13	Cauchy-Riemann equations, test
Week 14	Harmonic functions
Week 15	Mappings by elementary functions: Translation, rotation, assignment
Week 16	Magnification and Inversion, Conformal Mappings, Mobius transformations
Week 17	Fixed pints, Cross ratio, Inverse Points and critical mappings.
Week 18	Revision
EXAMINATIONS	

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LESSON PLAN

Name of Assistant Professor: Ms. Mamtesh Rani
Class: B.A. 2nd(Semester- 4th)
Subject: Mathematics
Paper : Numerical ability enhancement skill (SEC)
Session: 2024-25

Week 1	Real number system, Operations on numbers
Week 2	Tests for divisibility of natural numbers, Decimals, Fractions
Week 3	Square roots, Cube roots, Surds and indices
Week 4	Use of BODMAS, test
Week 5	HCF, LCM of integers, Ratio and Proportion
Week 6	Progressions: Arithmetic Progression, Geometric Progression, Harmonic Progression
Week 7	Number series completion, Percentage, Profit & Loss , assignment
Week 8	Alligation or mixture Average, test
Week 9	Average speed problems
Week 10	Calendar, Logarithms , assignment
Week 11 **Week 12**	Area of Quadrilaterals- Parallelogram, Square, Rectangle, Rhombus, Trapezium)
Week 13	Volume and surface area ofCube, Cuboid
Week 14	Volume and surface area ofCylinder, Cone, Sphere and Hemisphere
Week 15	Revision
EXAMINATIONS	

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