Lesson - Plan

2023 - 24

Name – Mr. Ankit Kumar

Subject – Mathematics

Paper – Ordinary Differential Equations

Class – B.A./B.Sc. 2nd sem

Week	Topic
01/01/2024 to 06/01/2024	Introduction, Order, degree, solution of differential equations, solution of exact differential equations.
08/01/2024 to 13/01/2024	Integrating factor, Number of Integrating factors, Integrating factor by Inspection, Rules for finding I.F.
15/01/2024 to 20/01/2024	Equations of first order but not of first degree, Equations solvable for p, equations solvable for y
22/01/2024 to 27/01/2024	Equations solvable for x, Lagrange's equation, Clairaut's equation, equations reducible to clairaut's form, singular solution.
29/01/2024 to 03/02/2024	Orthogonal trajectories (in cartesian co-ordinates and polar co-ordinates), Linear Differential Equations with constant coefficients.
05/02/2024 to 10/02/2024	Auxiliary equation, complementary function, particular Integral in special cases, complete solution.
12/02/2024 to 17/02/2024	Homogeneous Linear Equations, method of solution, Equations reducible to homogeneous linear form.
19/02/2024 to 24/02/2024	Linear differential equations of second order, Solution by changing dependent variable when Integral included C.F. is known

26/02/2024 to 02/03/2024	Solution by removing the first derivative and changing the dependent variable. By changing the independent variable
04/03/2024 to 09/03/2024	• Method of variation of parameters. • Method of undetermined coefficients.
11/03/2024 to 16/03/2024	Ordinary simultaneous differential Equations Method of solving simultaneous L.D. equations with constant coefficients.
18/03/2024 to 22/03/2024	Simultaneous Eqns of the form $P_1\,dx + Q_1\,dy + R_1\,dz = 0$ $P_2\,dx + Q_2\,dy + R_2\,dz = 0$
01/04/2024 to 06/04/2024	Discussion of Related problems $\left(\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}\right)$
08/04/2024 to 13/04/2024	• Total differential equations • Method of solving Total differential equations
15/04/2024 to 20/04/2024	• Previous year question papers discussion
22/04/2024 to 30/04/2024	• Revision

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Lesson - Plan

2023 - 24

Name - Mr. Ankit kumar

Subject - Mathematics

Paper - Programming in C and Numerical methods

Class - B.A./ B.Sc. 4th Sem

Week	Topic
01/01/2024 to 06/01/2024	Introduction to solution of algebraic and transcendental eqns. Descarte's rule of signs.
08/01/2024 to 13/01/2024	Bolzano or Bisection method Regula falsi or false position method
15/01/2024 to 20/01/2024	Order of convergence Secant method Newton Raphson method
22/01/2024 to 27/01/2024	Simultaneous linear algebraic eqns. Gauss elimination method Gauss Jordan's method
29/01/2024 to 03/02/2024	LU Decomposition method Crout's method Do little's method, Cholesky's method
05/02/2024 to 10/02/2024	Gauss Jacobi's method Gauss seidel method Relaxation method
12/02/2024 to 17/02/2024	Computer's basic (General Introduction) Introduction to C language
19/02/2024 to 24/02/2024	Data types Operators and expressions

26/02/2024 to 02/03/2024	Decision control structures If statement, if ---- else statement switch statements
04/03/2024 to 09/03/2024	Loops, Types of loops Nested Control structures
11/03/2024 to 16/03/2024	functions; Introduction, advantages functions: definition, call, declaration Local & global variables
18/03/2024 to 22/03/2024	C preprocessor Arrays; Types, declaration, initialization
01/04/2024 to 06/04/2024	Strings; character data type, standard string handling functions, Arithmetic operations on characters.
08/04/2024 to 13/04/2024	• Structures: Definition, use of structures in arrays.
15/04/2024 to 20/04/2024	• Pointers • Revision of previsions years Question Papers
22/04/2024 to 30/04/2024	• Revision

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Lesson - Plan
2023 - 24

Name - Mr. Ankit Kumar
Subject - Mathematics
Paper - Real and complex Analysis
Class - B.A./ B.Sc. 6th Sem.

Week	Topic
01/01/2024 to 06/01/2024	• Introduction • Jacobians, Chain Rule • functional dependence
08/01/2024 to 13/01/2024	• Beta function, properties of Beta function • Gamma function
15/01/2024 to 20/01/2024	Relation between Beta and gamma functions Duplication formula Double and Triple Integral
22/01/2024 to 27/01/2024	Applications of Double and triple Integral Dirichlet's Integral
29/01/2024 to 03/02/2024	Change of order of Integration Introduction to fourier series expansion
05/02/2024 to 10/02/2024	fourier series for even and odd functions. fourier series expansion for functions having pt. of discontinuity.
12/02/2024 to 17/02/2024	change of Interval Half range series
19/02/2024 to 24/02/2024	Parseval's Identity Calculus of complex functions, Stereographic projection.

26/02/2024 to 02/03/2024	Limits, continuity, differentiability of complex function Analytic function, CR equations
04/03/2024 to 09/03/2024	Harmonic functions Construction of an analytic function
11/03/2024 to 16/03/2024	Elementary functions conformal mapping Mobius Transformation
18/03/2024 to 22/03/2024	• Critical points, fixed points, inverse points of mobius transformation • Related problems
01/04/2024 to 06/04/2024	• Critical mappings • $w=e^z$, $\log z$, $\sin z$, $\cos z$ or $\tan z$ etc
08/04/2024 to 13/04/2024	• Particular cases (of critical mappings) • Related problems
15/04/2024 to 20/04/2024	Revision of previous year question papers.
22/04/2024 to 30/04/2024	Revision

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Lesson - Plan

2023 - 24

Name - Mr. Ankit Kumar

Subject - Mathematics

Paper - Dynamics

Class - B.A./ B.Sc. 6th Sem

Week	Topic
01/01/2024 to 06/01/2024	• Introduction to Dynamics • Preliminaries
08/01/2024 to 13/01/2024	Motion along a plane curve Velocities and acceleration
15/01/2024 to 20/01/2024	Relative motion Simple Harmonic motion
22/01/2024 to 27/01/2024	Elastic strings Hooke's law Horizontal and Vertical elastic strings
29/01/2024 to 03/02/2024	Newton's laws of motion Motion of two bodies connected by a string.
05/02/2024 to 10/02/2024	Motion on a smooth horizontal plane Motion on a rough horizontal plane
12/02/2024 to 17/02/2024	Work, power, energy Principle of work and energy
19/02/2024 to 24/02/2024	Motion of a particle on smooth and rough plane curves

26/02/2024 to 02/03/2024	Projectile motion Time of flight, Horizontal Range, Greatest height
04/03/2024 to 09/03/2024	Velocity at any point of the trajectory Directions of projection for a particle to hit given point.
11/03/2024 to 16/03/2024	Projectile motion on an inclined plane Central Orbits, Differential Equation of central orbit
18/03/2024 to 22/03/2024	To determine orbit when Law of central force is given. • apse and apsidal distances
01/04/2024 to 06/04/2024	Kepler's Laws of planetary motion Related problems
08/04/2024 to 13/04/2024	Motion of a particle in three dimensions
15/04/2024 to 20/04/2024	Revision of previous year Question papers. • Assignment.
22/04/2024 to 30/04/2024	• Revision

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