**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **Subject Name:-BM-111 ALGEBRA**

**Class:- B.Sc 1st sem Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices |
| 2 | 29 july-3 August | Elementary Operations on matrices. Rank of a matrices |
| 3 | 5 August-10 August | Inverse of a matrix. Linear dependence and independence of rows and columns of matrices |
| 4 | 12 August-17 August | Row rank and column rank of a matrix. Eigenvalues, eigenvectors |
| 5 | 19 August-24 August | the characteristic equation of a matrix. Minimal polynomial of a matrix. |
| 6 | 26 August-31- August | Cayley Hamilton theorem and its use in finding the inverse of a matrix. |
| 7 | 2 September – 7 September | Applications of matrices to a system of linear both homogeneous and non–homogeneous equations |
| 8 | 9 September -14 September |  Theorems on consistency of a system of linear equations. Unitary and Orthogonal Matrices |
| 9 | 16 September – 21 September | Bilinear and Quadratic forms |
| 10 | 23 September- 28 September | Relations between the roots and coefficients of general polynomial equation in one variable |
|  11 | 30 September-5 October | Solutions of polynomial equations having conditions on roots. Common roots and multiple roots. |
| 12 | 7 October-12 October |  Transformation of equations |
| 13 | 14 October-19 October | Nature of the roots of an equation Descarte’s rule of signs |
| 14 | 21 October- 23 October | Solutions of cubic equations by cardon method |
| 15 | 31 October- 2 November | Biquadratic equations and their solutions |
| 16 | 4 November- 9 November | Revision |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **SUBJECT NAME:- BM-112 CALCULUS**

**CLASS:- B.SC. 1st sem SESSION:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | definition of the limit of a function. Basic properties of limits |
| 2 | 29 july-3 August |  Continuous functions and classification of discontinuities. |
| 3 | 5 August-10 August | Differentiability. Successive differentiation. Leibnitz theorem |
| 4 | 12 August-17 August |  Maclaurin and Taylor series expansions. |
| 5 | 19 August-24 August | Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes |
| 6 | 26 August-31- August | asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves |
| 7 | 2 September – 7 September | Newton’s method. Radius of curvature for pedal curves. Tangential polar equations. |
| 8 | 9 September -14 September | Centre of curvature. Circle of curvature. Chord of curvature, evolutes. |
| 9 | 16 September – 21 September | Tests for concavity and convexity. Points of inflexion. Multiple points. |
| 10 | 23 September- 28 September | Cusps, nodes & conjugate points. Type of cusps. |
| 11 | 30 September-5 October | Tracing of curves in Cartesian co-ordinates |
| 12 | 7 October-12 October | Tracing of curves in parametric and polar co-ordinates. |
| 13 | 14 October-19 October | Reduction formulae. Rectification, intrinsic equations of curve |
| 14 | 21 October- 23 October | Quardrature (area)Sectorial area. Area bounded by closed curves. |
| 15 | 31 October- 2 November | Volumes and surfaces of solids of revolution. |
| 16 | 4 November- 9 November | Theorems of Pappu’s and Guilden, .Revision |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **SUBJECT NAME:-BM-113 SOLID GEOMETRY**

 **Class:- B.Sc. 1st sem Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | General equation of second degree. Tracing of conics |
| 2 | 29 july-3 August | Tangent at any point to the conic, chord of contact |
| 3 | 5 August-10 August | pole of line to the conic, director circle of conic. System of conics. Confocal conics. |
| 4 | 12 August-17 August | Polar equation of a conic, tangent and normal to the conic |
| 5 | 19 August-17 August | Sphere: Plane section of a sphere. Sphere through a given circle |
| 6 | 26 August-31- August | Intersection of two spheres, radical plane of two spheres.  |
| 7 | 2 September – 7 September | Co-oxal system of spheres, Right circular cone.  |
| 8 | 9 September -14 September | enveloping cone and reciprocal cone. |
| 9 | 16 September – 21 September | Right circular cylinder and enveloping cylinder |
| 10 | 23 September- 28 September | Central Conicoids: Equation of tangent plane |
|  11 | 30 September-5 October | Director sphere. Normal to the conicoids |
| 12 | 7 October-12 October | Polar plane of a point. Enveloping cone of a coincoid |
| 13 | 14 October-19 October | Enveloping cylinder of a coincoid |
| 14 | 21 October- 23 October | Paraboloids: Circular section, Plane sections of conicoids.  |
| 15 | 31 October- 2 November | Generating lines. Confocal conicoid |
| 16 | 4 November- 9 November | Reduction of second degree equation, Revision  |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **Subject Name:- BM-231 Advanced Calculus**

**Class:- B.Sc 3rd sem Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Continuity, Sequential Continuity, properties of continuous functions. |
| 2 | 29 july-3 August | Uniform continuity, chain rule of differentiability. Mean value theorems; Rolle’s Theorem. |
| 3 | 5 August-10 August | Lagrange’s mean value theorem and their geometrical interpretations. Taylor’s Theorem with various forms of remainders |
| 4 | 12 August-17 August | Darboux intermediate value theorem for derivatives, Indeterminate forms. |
| 5 | 19 August-24 August | Limit and continuity of real valued functions of two variables. Partial differentiation. Total Differentials |
| 6 | 26 August-31- August | Composite functions & implicit functions. Change of variables. |
| 7 | 2 September – 7 September | Homogenous functions & Euler’s theorem on homogeneous functions. |
| 8 | 9 September -14 September | Taylor’s theorem for functions of two variables.  |
| 9 | 16 September – 21 September | Differentiability of real valued functions of two variables. |
| 10 | 23 September- 28 September | Schwarz and Young’s theorem. Implicit function theorem. |
| 11 | 30 September-5 October | Maxima, Minima and saddle points of two variables. Lagrange’s method of multipliers.  |
| 12 | 7 October-12 October | Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae. |
| 13 | 14 October-19 October | Locus of the centre of curvature, Spherical curvature, |
| 14 | 21 October- 24 October | Locus of centre of Spherical curvature, Involutes, evolutes, Bertrand Curves.  |
| 15 | 1 November- 2 November | Surfaces: Tangent planes, one parameter family of surfaces, Envelopes. |
| 16 | 4 November- 9 November | Revision |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **Subject Name:- BM-232 Partial Differential Equations**

**Class:-B.Sc.(3rd sem.) Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Partial differential equations: Formation, order and degree, Linear and Non-Linear Partial differential equations of the first order: |
| 2 | 29 july-3 August | Complete solution, singular solution, Generalsolution, Solution of Lagrange’s linear equations |
| 3 | 5 August-10 August | Charpit’s general method of solution |
| 4 | 12 August-17 August | Compatible systems of first order equations, Jacobi’s method. |
| 5 | 19 August-24August | Linear partial differential equations of second and higher orders, Linear and non-linearhomogenious and non-homogenious equations with constant co-efficients,  |
| 6 | 26 August-31- August | Partialdifferential eqution with variable co-efficients reducible to equations with constantcoefficients, |
| 7 | 2 September – 7 September | their complimentary functions and particular Integrals, Equations reducibleto linear equations with constant co-efficients. |
| 8 | 9 September -14 September | Classification of linear partial differential equations of second order, Hyperbolic,parabolic and elliptic types |
| 9 | 16 September – 21 September | Reduction of second order linear partial differential equationsto Canonical (Normal) forms and their solutions |
| 10 | 23 September- 28 September | Solution of linear hyperbolic equations,Monge’s method for partial differential equations of second order. |
|  11 | 30 September-5 October | Cauchy’ s problem for second order partial differential equations, Characteristicequations |
| 12 | 7 October-12 October | characteristic curves of second order partial differential equation, Methodof separation of variables: |
| 13 | 14 October-19 October | Solution of Laplace’s equation |
| 14 | 21 October- 23 October | Solutions of Wave equation (one and twodimensions) |
| 15 | 31 October- 2 November | Solutions of Diffusion(Heat)equation(oneandtwodimension)inCartesianco-ordinate system |
| 16 | 4 November- 9 November | Revision |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **Subject Name:-BM-233 Statics**

 **Class:- B.Sc.3rd sem Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Basic difference between statics and dynamics  |
| 2 | 29 july-3 August | Composition and resolution of forces. |
| 3 | 5 August-10 August | Parallel forces |
| 4 | 12 August-17 August | Moments and Couples. |
| 5 | 19 August-24 August | Analytical conditions of equilibrium of coplanar forces. |
| 6 | 26 August-31- August | Friction. |
| 7 | 2 September – 7 September | Centre of Gravity. |
| 8 | 9 September -14 September | Virtual work. |
| 9 | 16 September – 21 September | Revision |
| 10 | 23 September- 28 September | Forces in three dimensions. |
| 11 | 30 September-5 October | Poinsots central axis |
| 12 | 7 October-12 October | Wrenches |
| 13 | 14 October-19 October | Null lines  |
| 14 | 21 October- 24 October | Null planes. |
| 15 | 1 November- 2 November | Stable and unstable equilibrium. |
| 16 | 4 November- 9 November | Revision |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **Subject Name:-BM-351 REAL ANALYSIS**

 **Class:- B.Sc. 5th sem Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Riemann Integral |
| 2 | 29 july-3 August |  Integrabililty of continuous and monotonic functions |
| 3 | 5 August-10 August | The Fundamental theorem of integral calculus |
| 4 | 12 August-17 August |  Mean value theorems of integral calculus |
| 5 | 19 August-17 August | Improper integrals and their convergence, Comparison tests |
| 6 | 26 August-31- August | Abel’s and Dirichlet’s tests, Frullani’s integral |
| 7 | 2 September – 7 September | Integral as a function of a parameter. Continuity |
| 8 | 9 September -14 September |  Differentiability and integrability of an integral of a function of a parameter |
| 9 | 16 September – 21 September | Definition and examples of metric spaces, neighborhoods, limit points, interior points |
| 10 | 23 September- 28 September |  open and closed sets |
|  11 | 30 September-5 October | closure and interior, boundary points, subspace of a metric space, equivalent metrics, Cauchy sequences, completeness |
| 12 | 7 October-12 October | Cantor’s intersection theorem, Baire’s category theorem, contraction Principle |
| 13 | 14 October-19 October | Continuous functions, uniform continuity, compactness for metric spaces |
| 14 | 21 October- 23 October | sequential compactness, Bolzano-Weierstrass property, total boundedness |
| 15 | 31 October- 2 November | finite intersection property, continuity in relation with compactness, connectedness , components, continuity in relation with connectedness |
| 16 | 4 November- 9 November | Revision |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **Subject Name:- GROUP AND RING**

**Class:- B.SC 5th sem Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Definition of a group with example and simple properties of groups, Subgroups |
| 2 | 29 july-3 August | Subgroup criteria, Generation of groups, cyclic groups, Cosets, Left and right cosets, |
| 3 | 5 August-10 August | Index of a sub-group Coset decomposition, Largrage’s theorem and its consequences |
| 4 | 12 August-17 August | Normal subgroups, Quotient groups, |
| 5 | 19 August-24 August | Homoomorphisms, isomophisms, automorphisms and inner automorphisms of a group. Automorphisms of cyclic groups, |
| 6 | 26 August-31- August | Permutations groups. Even and odd permutations. Alternating groups |
| 7 | 2 September – 7 September | Cayley’s theorem, Center of a group and derived group of a group |
| 8 | 9 September -14 September | Introduction to rings, subrings, integral domains and fields |
| 9 | 16 September – 21 September | Characteristics of a ring. Ring homomorphisms |
| 10 | 23 September- 28 September | ideals (principle, prime and Maximal) and Quotient rings |
| 11 | 30 September-5 October | Field of quotients of an integral domain |
| 12 | 7 October-12 October | Euclidean rings, Polynomial rings, Polynomials over the rational field |
| 13 | 14 October-19 October | The Eisenstein’s criterion, |
| 14 | 21 October- 24 October | Polynomial rings over commutative rings, Unique factorization domain |
| 15 | 1 November- 2 November | R unique factorization domain implies so is R[X1 , X2……Xn] |
| 16 | 4 November- 9 November | Revision |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

 **Subject name:-BM-353 Numerical analysis**

**Class:- B.Sc. 5thsem Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Finite Differences operators and their relations. Finding the missing ter ms and effect oferror in a difference tabular values, Interpolation with equal intervals: Newton’s forward interpolation formulae |
| 2 | 29 july-3 August | Interpolation with equal intervals: Newton’s backward interpolation formulae.Interpolation with unequal intervals:Newton’s divided difference |
| 3 | 5 August-10 August |  Lagrange’s Interpolation formulae, Hermite Formula |
| 4 | 12 August-17 August | Central Differences: Gauss forward and Gauss’s backward interpolation formulae, |
| 5 | 19 August-24 August | Central Differences:Sterling, Bessel Formula |
| 6 | 26 August-31- August | Probability distribution of random variables, Binomial distribution, |
| 7 | 2 September – 7 September | Poisson’sdistribution, Normal distribution: Mean, Variance and Fitting. |
| 8 | 9 September -14 September | Numerical Differentiation: Derivative of a function using interpolation formulae  |
| 9 | 16 September – 21 September | Eigen Value Problems: Power method, Jacobi’s method, |
| 10 | 23 September- 28 September | Eigen Value Problems: Given’s method, HouseHolder’s method, QR method, Lanczos method |
|  11 | 30 September-5 October | Numerical Integration: Newton-Cote’s Quadrature formula, Trapezoidal rule, Simpson’s one- third  |
| 12 | 7 October-12 October | Simpson’s three-eighth rule, Chebychev formula, Gauss Quadrature formula. |
| 13 | 14 October-19 October | Numerical solution of ordinary differential equations: Picard’s method. Taylor’s series method,  |
| 14 | 21 October- 23 October | Euler’s method, Runge-Kutta Methods |
| 15 | 31 October- 2 November | Multiple step methods; Predictor-corrector method |
| 16 | 4 November- 9 November | Modified Euler’s method,Milne-Simpson’s method.Revision.  |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Annu Class:- BCA Ist sem**

**Subject Name:MATHEMATICAL FOUNDATION-1 Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Set, subsets and operations on sets, Venn diagram of sets |
| 2 | 29 july-3 August | Power set of a set. Equivalence relation on a set and partition of a set, Permutation |
| 3 | 5 August-10 August | combinations, Partially ordered sets, |
| 4 | 12 August-17 August |  Lattices , Boolean algebra |
| 5 | 19 August-24 August | Epsilon and delta definition of the continuity of a function of a single variable |
| 6 | 26 August-31- August | Basic properties of limits, Continuous functions and classifications of discontinuities |
| 7 | 2 September – 7 September | Derivative of a function, Derivatives of Logarithmic, exponential |
| 8 | 9 September -14 September | Derivative of trigonometric, inverse trigonometrical and hyperbolic functions. Higher order derivatives |
| 9 | 16 September – 21 September | Formation of differential equations order and degree of the differential equation |
| 10 | 23 September- 28 September |  Geometrical approach to the existence of the solution of the differential equation dy/dx=f (x,y) |
|  11 | 30 September-5 October | Ordinary differential equations of first degree and the first order, exact differential equations |
| 12 | 7 October-12 October |  Linear differential equations of higher order with constant coefficients |
| 13 | 14 October-19 October | Homogeneous linear differential equations |
| 14 | 21 October- 23 October | linear differential equations, reducible to homogenous differential equations |
| 15 | 31 October- 2 November |  Applications of differential equations to geometry |
| 16 | 4 November- 9 November | Revision |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Lalisha Class:- BCA 3rdsem**

**Subject Name:-Computer-Oriented Numerical Methods Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | ComputerArithmetic:Floating point represetation of numbers, arithmetic operations with normalized floating-point numbers and their consequences, significant figures. |
| 2 | 29 july-3 August | Error in number representation-inherent error, truncation, absolute, relative, percentage. |
| 3 | 5 August-10 August | Iterative Methods: Bisection, False position, Newton-Raphson method.. |
| 4 | 12 August-17 August | Iteration method, discussion of convergence, Bairstow's method. |
| 5 | 19 August-24 August | Solution of simultaneous linear equations and ordinary differential equations: Gauss-Elimination methods,. |
| 6 | 26 August-31- August | pivoting, Ill-conditioned equations, refinement of solution. Gauss-Seidal iterative method. |
| 7 | 2 September – 7 September | Euler method, Euler modified method, Taylor-series method |
| 8 | 9 September -14 September | Runge-Kutta methods, Predictor-Corrector methods. |
| 9 | 16 September – 21 September | Polynomial interpolation:Newton,Lagranges,Difference tables, |
| 10 | 23 September- 28 September | Approximation of functions by Taylor Series. |
|  11 | 30 September-5 October | Chebyshev polynomial: First kind, Second kind. and their relations |
| 12 | 7 October-12 October | Orthogonal properties. |
| 13 | 14 October-19 October | Numerical Differentiation: Differentiation formulae based on polynomial fit |
| 14 | 21 October- 23 October | pitfalls in differentiation |
| 15 | 31 October- 2 November | Trapezoidal & Simpson Rules |
| 16 | 4 November- 9 November | Gaussian Quadrature.Revision . |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Ankita Class:- M.Sc. Mathematics 1st sem**

**Subject Name:- MM-401: Advanced Abstract Algebra-I Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Automorphisms and Inner automorphisms of a group G. The groups Aut(G) and Inn(G). Automorphism group of a cyclic group. |
| 2 | 29 july-3 August | Normalizer and Centralizer of a non-empty subset of a group G. Conjugate elements and conjugacy classes. Class equation of a finite group G and its applications. Derived group (or a commutator subgroup) of a group G. perfect groups. Zassenhau’s Lemma. |
| 3 | 5 August-10 August | Normal and Composition series of a group G. Scheier’s refinement theorem. Jordan Holder theorem. Composition series of groups of order pn and of Abelian groups. |
| 4 | 12 August-17 August | Caunchy theorem for finite groups. ∏ - groups and pgroups. Sylow ∏-subgroups and Sylow p-subgroups. Sylow’s Ist, IInd and IIIrd theorems. Application of Sylow theory to groups of smaller orders. |
| 5 | 19 August-24 August | Characteristic of a ring with unity. Prime fields Z/pZ and Q. Field extensions. Degree of an extension. |
| 6 | 26 August-31- August | Algebraic and transcendental elements. Simple field extensions. Minimal polynomial of an algebraic element. |
| 7 | 2 September – 7 September | Conjugate elements. Algebraic extensions. Finitely generated algebraic extensions. |
| 8 | 9 September -14 September | Algebraic closure and algebraically closed fields. Splitting fields., finite fields.. Normal extensions. |
| 9 | 16 September – 21 September | Separable elements, separable polynomials and separable extensions. |
| 10 | 23 September- 28 September | Theorem of primitive element. Perfect fields. Galois extensions. Galois group of an extension. Dedekind lemma |
| 11 | 30 September-5 October | Fundamental theorem of Galois theory. Frobenius automorphism of a finite field. |
| 12 | 7 October-12 October | Klein’s 4-group and Diheadral group. Galois groups of polynomials. Fundamental theorem of Algebra. |
| 13 |  14October-19 October | Solvable groups Derived series of a group G. Simplicity of the Alternating group An (n>5). Non-solvability of the symmetric group Sn |
| 14 | 21 October- 24 October | Alternating group An (n>5). Roots of unity Cyclotomic polynomials and their irreducibility over Q Radicals extensions. Galois radical extensions. |
| 15 | 1 November- 2 November | Cyclic extensions. Solvability of polynomials by radicals over Q. Symmetric functions and elementary symmetric functions. Construction with ruler and compass only. |
| 16 | 4 November- 9 November | Revision |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Neha Class:- MSc –1st Sem**

**Subject Name:MM-402 REAL ANALYSIS-I Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Definition and existence of Riemann Stieltjes integral, properties of the integral |
| 2 | 29 july-3 August | integration and differentiation, the fundamental theorem of integral calculus |
| 3 | 5 August-10 August | integration by parts, integration of vector-valued functions, Rectifiable curves. |
| 4 | 12 August-17 August | Pointwise and uniform convergence, Cauchy criterion for uniform convergence |
| 5 | 19 August-24August | Weirstrass M-test, Abel’s test and Dirichlet’s test for uniform convergence |
| 6 | 26 August-31- August | uniform convergence and continuity, uniform convergence and Riemann Stieltjes integration |
| 7 | 2 September – 7 September | uniform convergence and differentiation, existence of a real continuous nowhere differentiable function |
| 8 | 9 September -14 September | equicontinous families of functions, Weierstrass approximation theorem |
| 9 | 16 September – 21 September |  Functions of several variables : linear transformations, Derivative in an open subset of Rn |
| 10 | 23 September- 28 September | Chain rule, Partial derivatives, directional derivatives, the contraction principle |
|  11 | 30 September-5 October | inverse function theorem, Implicit function theorem, Jacobians, extremum problems with constraints |
| 12 | 7 October-12 October | Lagrange’s multiplier method, Derivatives of higher order, mean value theorem for real functions of two variables |
| 13 | 14 October-19 October | interchange of the order of differentiation, Differentiation of integrals. |
| 14 | 21 October- 23 October | Power Series : Uniqueness theorem for power series, Abel’s and Tauber’s theorem |
| 15 | 31 October- 2 November | Taylor’s theorem, Exponential & Logarithm functions |
| 16 | 4 November- 9 November | Trigonometric functions, Fourier series, Gamma function,Revision  |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Lalisha Class:- M.Sc 1s tsem**

**Subject Name:-MM-403 Topology Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Definition and examples of topological spaces, Neighbourhoods, Neighbourhood system of a point and its properties, Interior point and interior of a set, interior as an operator and its properties, definition of a closed set as complement of an open set, limit point (accumulation point) of a set, derived set of a set, definition of closure of a set as union of the set and its derived set,. |
| 2 | 29 july-3 August | Adherent point (Closure point) of a set , closure of a set as set of adherent (closure) points, properties of closure, closure as an operator and its properties, boundary of a set, Dense sets. A characterization of dense sets.Base for a topology and its characterization, Base for Neighbourhood system, Sub-base for a topology. |
| 3 | 5 August-10 August | Relative (induced) Topology and subspace of a topological space. Alternate methods of defining a topology using ‘properties’ of ‘Neighbourhood system’, ‘Interior Operator’, ‘Closed sets’, Kuratowski closure operator and ‘base’.First countable, Second countable and separable spaces, their relationships and hereditary property. About countability of a collection of disjoint open sets in a separable and a second countable space, Lindelof theorem. |
| 4 | 12 August-17 August | Comparison of Topologies on a set, about intersection and union of topologies, infimum and supremum of a collection of topologies on a set, the collection of all topologies on a set as a complete lattice |
| 5 | 19 August-24 August | Definition, examples and characterisations of continuous functions, composition of continuous functions, Open and closed functions, Homeomorphism, embedding. |
| 6 | 26 August-31- August | Tychonoff product topology in terms of standard (defining) subbase, projection maps, their continuity and openness, Characterisation of product topology as the smallest topology with projections continuous, continuity of a function from a space into a product of spaces. |
| 7 | 2 September – 7 September | T0 , T1, T2,Regular and T3 separation axioms, their characterization and basic properties i.e. hereditary property of T0 , T1, T2, Regular and T3 spaces, and productive property of T1 and T2 spaces |
| 8 | 9 September -14 September | Quotient topology w.r.t. a map, Continuity of function with domain a space having quotient topology, About Hausdorffness of quotient space |
| 9 | 16 September – 21 September | Completely regular and Tychonoff (T 3 1/2), spaces, their hereditary and productive properties. Embedding lemma, Embedding theorem. |
| 10 | 23 September- 28 September | Normal and T4 spaces : Definition and simple examples, Urysohn’s Lemma, complete regularity of a regular normal space, T4 implies Tychonoff, Tietze’s extension theorem (Statement only). |
|  11 | 30 September-5 October | Definition and examples of filters on a set, Collection of all filters on a set as a p.o. set, finer filter, methods of generating filters/finer filters, Ultra filter (u.f.) and its characterizations, Ultra Filter Principle (UFP) i.e. Every filter is contained in an ultra filter. Image of filter under a function. |
| 12 | 7 October-12 October | Convergence of filters: Limit point (Cluster point) and limit of a filter and relationship between them, Continuity in terms of convergence of filters. Hausdorffness and filter convergence. |
| 13 | 14 October-19 October | Compactness: Definition and examples of compact spaces, definition of a compact subset as a compact subspace, relation of open cover of a subset of a topological space in the sub-space with that in the main space, |
| 14 | 21 October- 23 October | compactness in terms of finite intersection property (f.i.p.), continuity and compact sets, compactness and separation properties, Closedness of compact subset, closeness of continuous map from a compact space into a Hausdorff space and its consequence, Regularity and normality of a compact Hausdorff space. |
| 15 | 31 October- 2 November | Compactness and filter convergence, Convergence of filters in a product space, compactness and product space. Tychonoff product theorem using filters |
| 16 | 4 November- 9 November | Tychonoff space as a subspace of a compact Hausdorff space and its converse, compactification and Hausdorff compactification, Stone-Cech compactification, Revision  |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Shilpa Class:- M.Sc. Mathematics 1st sem**

**Subject Name:-MM-404 Complex Analysis-1 Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Power series, its convergence, radius of convergence, examples, sum and product, 0differentiability of sum function of power series |
| 2 | 29 july-3 August | property of a differentiable function with derivative zero. expz and its properties, logz, power of a complex number (z ), their branches with analyticity |
| 3 | 5 August-10 August | Path in a region, smooth path, p.w. smooth path, contour, simply connected region, multiply connected region, bounded variation |
| 4 | 12 August-17 August | total variation, complex integration, Cauchy-Goursat theorem, Cauchy theorem for simply and multiply connected domains. |
| 5 | 19 August-24August | Index or winding number of a closed curve with simple properties. Cauchy integral formula. |
| 6 | 26 August-31- August | Extension of Cauchy integral formula for multiple connected domain. Higher order derivative of Cauchy integral formula. |
| 7 | 2 September – 7 September | Gauss mean value theorem Morera’s theorem. Cauchy’s inequality. Zeros of an analytic function, entire function |
| 8 | 9 September -14 September | Radius of convergence of an entire function, Liouville’s theorem, Fundamental theorem of algebra, Taylor’s theorem. |
| 9 | 16 September – 21 September |  Maximum modulus principle, Minimum modulus principle. Schwarz Lemma. |
| 10 | 23 September- 28 September | Singularity, their classification, pole of a function and its order. Laurent series. |
|  11 | 30 September-5 October | Cassorati – Weiertrass theorem Meromorphic functions, Poles and zeros of Meromorphic functions. |
| 12 | 7 October-12 October | Residue : Residue at a singularity, residue at a simple pole, residue at infinity. |
| 13 | 14 October-19 October | Cauchy residue theorem and its use to calculate certain integrals, definite integral (∫0 2∏ f(cosθ, sinθ) dθ, ∫-∞ ∞ f(x)dx), integral of the type ∫0 ∞ f(x) sinmx dx or ∫0 ∞ f(x) cosmx dx, poles on the real axis, integral of many valued functions. |
| 14 | 21 October- 26 October | Bilinear transformation, their properties and classification, cross ration.preservance of cross ration under bilinear transformation, preservance of circle and straight line under bilinear transformation. |
| 15 | 28 October- 2 November | fixed point bilinear transformation, normal form of a bilinear transformation. Definition and examples of conformal mapping, critical points. |
| 16 | 4 November- 9 November | Revision |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Annu Class:- M.Sc 1st sem**

**Subject Name:-MM-405 DIFFERENTIAL EQUATION-1 Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Preliminaries: Initial value problem and equivalent integral equation, ε-approximate solution, equicontinuous set of functions. |
| 2 | 29 july-3 August | Basic theorems: Ascoli- Arzela theorem, Cauchy –Peano existence theorem and its corollary |
| 3 | 5 August-10 August | Lipschitz condition. Differential inequalities and uniqueness, Gronwall’s inequality. Successive approximations. Picard-Lindelöf theorem |
| 4 | 12 August-17 August | Continuation of solution, Maximal interval of existence, Extension theorem. Kneser’s theorem |
| 5 | 19 August-17 August | Linear differential systems: Definitions and notations. Linear homogeneous systems; Fundamental matrix |
| 6 | 26 August-31- August | Adjoint systems, reduction to smaller homogeneous systems. Nonhomogeneous linear systems; variation of constants |
| 7 | 2 September – 7 September | Linear systems with constant coefficients. Linear systems with periodic coefficients; Floquet theory |
| 8 | 9 September -14 September | Higher order equations: Linear differential equation (LDE) of order n; Linear combinations |
| 9 | 16 September – 21 September | Linear dependence and linear independence of solutions. Wronskian theory: Definition, necessary and sufficient condition for linear dependence and linear independence of solutions of homogeneous LDE |
| 10 | 23 September- 28 September | Abel’s Identity, Fundamental set, More Wronskian theory. Reduction of order. Non-homogeneous LDE |
|  11 | 30 September-5 October | Variation of parameters. Adjoint equations, Lagrange’s Identity, Green’s formula. Linear equation of order n with constant coefficients |
| 12 | 7 October-12 October | System of differential equations, the n-th order equation |
| 13 | 14 October-19 October | Dependence of solutions on initial conditions and parameters: Preliminaries, continuity and differentiability |
| 14 | 21 October- 23 October | Maximal and Minimal solutions. Differential inequalities. |
| 15 | 31 October- 2 November | A theorem of Wintner. Uniqueness theorems: Kamke’s theorem |
| 16 | 4 November- 9 November | Nagumo’s theorem and Osgood theorem,Revision  |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Shubham Class:- M.Sc 1st sem**

**Subject Name:-( MM-406) PRACTICAL-1 Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Introduction of C, constants,variables, conditional statements,loops,switch statement |
| 2 | 29 july-3 August | Use of nested if.. .else in finding the smallest of four numbers. |
| 3 | 5 August-10 August | Use series sum to compute sin(x) and cos(x) for given angle x in degrees. Then, check error in verifying sin2 x+cos2 (x)=1. |
| 4 | 12 August-17 August | Verify ∑n3 ={∑n } 2 , (where n=1,2,..,m) & check that prefix and postfix increment operator gives the same result. |
| 5 | 19 August-17 August | Compute simple interest of a given amount for the annual rate = .12 if amount >=10,000/- or time >=5 years; =.15 if amount >=10,000/- and time >=5 years; and = .10 otherwise. |
| 6 | 26 August-31- August | Introduction of array,user defined functions |
| 7 | 2 September – 7 September | Use array of pointers for alphabetic sorting of given list of English words. |
| 8 | 9 September -14 September | Program for interchange of two rows or two columns of a matrix. Read/write input/output matrix from/to a file. |
| 9 | 16 September – 21 September | Revision |
| 10 | 23 September- 28 September | Calculate the eigenvalues and eigenvectors of a given symmetric matrix of order 3. |
|  11 | 30 September-5 October | Calculate standard deviation for a set of values {x(j)j=l,2,...,n} having the corresponding frequencies {f(j)j=l,2,...,n}. |
| 12 | 7 October-12 October | Find GCD of two positive integer values using pointer to a pointer. |
| 13 | 14 October-19 October | Compute GCD of 2 positive integer values using recursion |
| 14 | 21 October- 23 October |  Check a given square matrix for its positive definite form |
| 15 | 31 October- 2 November | To find the inverse of a given non-singular square matrix |
| 16 | 4 November- 9 November | Revision |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Shubham Class:- M.Sc 3rd sem**

**Subject Name:-MM-501 Functional Analysis Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Normed linear spaces, Banach spaces and examples, subspace of a Banach space, completion of a normed space, quotient space of a normed linear space and its completeness, product of normed spaces |
| 2 | 29 july-3 August | finite dimensional normed spaces and subspaces, equivalent norms, compactness and finite dimension, F.Riesz’s lemma. |
| 3 | 5 August-10 August | Bounded and continuous linear operators, differentiation operator, integral operator, bounded linear extension, linear functionals, bounded linear functionals, continuity and boundedness |
| 4 | 12 August-17 August | definite integral, canonical mapping, linear operators and functionals on finite dimensional spaces, normed spaces of operators, dual spaces with examples |
| 5 | 19 August-24 August | Hahn-Banach theorem for real linear spaces, complex linear spaces and normed linear spaces |
| 6 | 26 August-31- August |  application to bounded linear functionals on C[a,b], Riesz-representation theorem for bounded linear functionals on C[a,b], adjoint operator, norm of the adjoint operator |
| 7 | 2 September – 7 September | Reflexive spaces, uniform boundedness theorem and some of its applications to the space of polynomials and fourier series. |
| 8 | 9 September -14 September | Strong and weak convergence, weak convergence in l p , convergence of sequences of operators, uniform operator convergence, strong operator convergence, |
| 9 | 16 September – 21 September | weal operator convergence, strong and weak\* convergence of a sequence of functionals. Open mapping theorem |
| 10 | 23 September- 28 September | bounded inverse theorem, closed linear operators, closed graph theorem, differential operator, relation between closedness and boundedness of a linear operator |
|  11 | 30 September-5 October | Inner product spaces, Hilbert spaces and their examples, pythagorean theorem, Apolloniu’s identity, Schwarz inequality, continuity of innerproduct, completion of an inner product space |
| 12 | 7 October-12 October | subspace of a Hilbert space, orthogonal complements and direct sums, projection theorem, characterization of sets in Hilbert spaces whose space is dense. |
| 13 | 14 October-19 October | Orthonormal sets and sequences, Bessel’s inequality, series related to orthonormal sequences and sets |
| 14 | 21 October- 23 October | total(complete) orthonormal sets and sequences, Parseval’s identity, separable Hilbert spaces.Representation of functionals on Hilbert spaces |
| 15 | 31 October- 2 November | Riesz representation theorem for bounded linear functionals on a Hilbert space, sesquilinear form, Riesz representation theorem for bounded sesquilinear forms on a Hilbert space |
| 16 | 4 November- 9 November | Hilbert adjoint operator, its existence and uniqueness, properties of Hilbert adjoint operators, self adjoint, unitary, normal, positive and projection operators, revision . |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Ankita Class:- M.Sc. Mathematics 3rd sem Subject Name:-** **MM-502 Analytical Mechanics and Calculus of Variations Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Motivating problems of calculus of variations: shortest distance, Minimum surface of revolution, Brachistochrone problem, Isoperimetric problem, Geodesic. Fundamental Lemma of calculus of variation. |
| 2 | 29 july-3 August | Euler’s equation for one dependent function of one and several independent variables, and its generalization to (i) Functional depending on ‘n’ dependent functions, (ii) Functional depending on higher order derivatives. |
| 3 | 5 August-10 August | Variational derivative, invariance of Euler’s equations, natural boundary conditions and transition conditions |
| 4 | 12 August-17 August | Conditional extremum under geometric constraints and under integral constraints . Variable end points. |
| 5 | 19 August-24 August | Free and constrained systems, constraints and their classification. Generalized coordinates. Holonomic and Non-Holonomic systems. Scleronomic and Rheonomic systems. Generalized Potential, Possible and virtual displacements,ideal constraints. |
| 6 | 26 August-31- August | Lagrange’s equations of first kind, Principle of virtual displacements D’Alembert’s principle, HolonomicSystems independent coordinates, generalized forces, Lagrange’s equations of second kind. |
| 7 | 2 September – 7 September | Uniqueness of solution. Theorem on variation of total Energy. Potential, Gyroscopic and dissipative forces, |
| 8 | 9 September -14 September | Lagrange’s equations for potential forces equation for conservative fields. |
| 9 | 16 September – 21 September | Hamilton’s variables. Don kin’s theorem. Hamilton canonical equations. . Routh’s equations. Cyclic coordinates Poisson’s Bracket. Poisson’s Identity. |
| 10 | 23 September- 28 September | Jacobi-Poisson theorem. Hamilton’s Principle, second form of Hamilton’s principle. Poincare-Carton integral invariant. |
| 11 | 30 September-5 October | Whittaker’s equations. Jacobi’s equations. Principle of least action |
| 12 | 7 October-12 October | Canonical transformations, free canonical transformations, Hamilton-Jacobi equation. Jacobi theorem. Method of separation of variables for solving Hamilton-Jacobi equation. |
| 13 | 14 October-19 October | Testing the Canonical character of a transformation. Lagrange brackets. |
| 14 | 21 October- 24 October | . Condition of canonical character of a transformation in terms of Lagrange brackets and Poisson brackets. Simplicial nature of the Jacobian matrix of a canonical transformations |
| 15 | 1 November- 2 November | Invariance of Lagrange brackets and Poisson brackets under canonical transformations |
| 16 | 4 November- 9 November | revision |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Nirmala Class:- MSc-3rd Sem**

**Subject Name:- MM- 503 ELASTICITY (opt-1) Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Tensor Algebra: Coordinate-transformation, Cartesian Tensor of different order. |
| 2 | 29 july-3 August | Properties of tensors, Isotropic tensors of different orders and relation between them |
| 3 | 5 August-10 August | Symmetric and skew symmetric tensors. Tensor invariants, Deviatoric tensors. |
| 4 | 12 August-17 August | Eigenvalues and eigen-vectors of a tensor. |
| 5 | 19 August-24 August | Tensor Analysis: Scalar, vector, tensor functions, Comma notation, Gradient, divergence and curl of a vector / tensor field |
| 6 | 26 August-31- August | Analysis of Strain : Affine transformation, Infinitesimal affine deformation |
| 7 | 2 September – 7 September | Geometrical Interpretation of the components of strain. Strain quadric of Cauchy. |
| 8 | 9 September -14 September | Principal strains and invariance, General infinitesimal deformation. |
| 9 | 16 September – 21 September | Saint-Venant's equations of compatibility. Finite deformations |
| 10 | 23 September- 28 September | Analysis of Stress : Stress Vecotr, Stress tensor, Equations of equilibrium, Transformation of coordinates. |
| 11 | 30 September-5 October | Stress quadric of Cauchy, Principal stress and invariants. Maximum normal and shear stresses. Mohr’s circles, examples of stress |
| 12 | 7 October-12 October | Equations of Elasticity : Generalised Hooks Law, Anisotropic symmetries, Homogeneous isotropic medium. |
| 13 | 14 October-19 October | Elasticity moduli for Isotropic media. Equilibrium and dynamic equations for an isotropic elastic solid. |
| 14 | 21 October- 23October | Strain energy function and its connection with Hooke’s Law. |
| 15 | 31 October- 2 November | Uniqueness of solution. Beltrami-Michell compatibility equations. |
| 16 | 4 November- 9 November | Clapeyrom’s theorem. Saint-Venant's principleRevision  |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Neha Class:- MSc-3rd Sem**

**Subject Name:- MM-504 FLUID MECHANICS-I (opt-1)**

**Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Kinematics of fluid in motion:Velocity at a point of a fluid. Lagrangian and Eulerian methods |
| 2 | 29 july-3 August | Stream lines, path lines and streak liens, vorticity and circulation, Vortex lines, Acceleration and Material derivative |
| 3 | 5 August-10 August | Equation of continuity (vector or Cartesian form). Reynolds transport Theorem. |
| 4 | 12 August-17 August | General analysis of fluid motion. Properties of fluids- static and dynamic pressure |
| 5 | 19 August-24 August | Boundary surfaces and boundary surface conditions. Inotational and rotational motions. Velocity potential. |
| 6 | 26 August-31- August | Equation of Motion : Lagrange's and Euler's equations of Motion (vector or in Cartesian form). Bernculli's theorem. |
| 7 | 2 September – 7 September | Applications of the Bernoulli Equation in one –dimensional flow problems. Kelvins circulation theorem |
| 8 | 9 September -14 September | vorticity equation. Energy equation for incompressible flow. Kinetic energy of irrotational flow. |
| 9 | 16 September – 21 September | Kelvins minimum energy theorem ,mean potential over a spherical surface. Kinetic energy of infinite liquid. Uniqueness theorems. |
| 10 | 23 September- 28 September | Stress components in a real fluid. Relations between rectangular components of stress |
| 11 | 30 September-5 October | Connection between stresses and gradients of velocity.Navier- Stoke’s equations of motion. |
| 12 | 7 October-12 October | Steady flows between two parallel plates, Plane Poiseuille and Couette flows. |
| 13 | 14 October-19 October | Reduction of Navier-Stock equations in flows having axis of symmetry, steady flow in circular pipe: the Hagen-Poiseuille flow |
| 14 | 21 October- 23October | steady flow between two coaxial cylinders, flow between two concentric rotating cylinders |
| 15 | 31 October- 2 November | Steady flows through tubes of uniform crosssection in the form (i) Ellipse |
| 16 | 4 November- 9 November | (ii) equilateral triangle, (iii) rectangle, under constant pressure gradient, uniqueness theorem. Revision  |

 **INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Lalisha Class:- M.Sc 3rdsem**

**Subject Name:-MM-505 Integral Equations (opt-1) Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Definition of Integral Equations and their classifications.Eigen values and Eigen functions. |
| 2 | 29 july-3 August | Special kinds of Kernel Convolution Integral. The inner or scalar product of two functions. |
| 3 | 5 August-10 August | Reduction to a system of algebraic equations. Fredholm Alternative. |
| 4 | 12 August-17 August | Fredholm Theorem, Fredholm Alternative Theorem,An approximate method. |
| 5 | 19 August-24 August | Methods of successive approximations, Iterative scheme for Fredholm and Volterra Integral equations of the second kind. |
| 6 | 26 August-31- August | Conditions of uniform convergence and uniqueness of series solution. Some results about the resolvent kernel. |
| 7 | 2 September – 7 September | Application of iterative scheme to Volterra Integral equations of the second kind. Classical Fredholm Theory, The method of solution of Fredholm equation |
| 8 | 9 September -14 September | Fredholm First theorem, Fredholm Second theorem, Fredholm Third theorem |
| 9 | 16 September – 21 September | Symmetric kernels, Introduction, Complex Hilbert space. An orthonormal system of functions, Riesz- Fisher theorem, A complete two - Dimensional orthonormal set over the rectangle. |
| 10 | 23 September- 28 September | Fundamental properties of Eigenvalues and Eigenfunctions for symmetric kernels. Expansion in eigen functions and Bilinear form. Hilbert - Schmidt theorem and some immediate consequences. |
|  11 | 30 September-5 October | Definite Kernels and Mercer theorem. Solution of a symmetric integral Equation. Approximation of a general (Not necessarily symmetric ) by a separable kernel. |
| 12 | 7 October-12 October | The operator method in the theory of integral equations. Rayleigh -Ritz methodfor finding the first eigen value. |
| 13 | 14 October-19 October | The Abel Integral Equation.Inversion formula for singular integral equation with kernel of the type h(s) - h(t). |
| 14 | 21 October- 23 October | Cauchy's principal value for integrals solutionof the Cauchy - type singular integral equation. |
| 15 | 31 October- 2 November | Closed contour, unclosed contours and the Riemann-Hilbert problem. |
| 16 | 4 November- 9 November | The Hilbert -kernel, Solution of the Hilbert - Type singular Integral equation. Revision  |

**INDIRA GANDHI MAHILA MAHAVIDYALAYA**

**Faculty Name:- Ms. Shilpa Class:- M.Sc. Mathematics 3rd sem**

**Subject Name:- (MM-506) Practical-III Session:-2019-2020**

|  |  |  |
| --- | --- | --- |
| **Sr.No** | **Date** | **Content** |
| 1 | 22 July-27 July | Simple program of Fortran 90  |
| 2 | 29 july-3 August | Program to find the area of Triangle. |
| 3 | 5 August-10 August | Use a function program for simple interest to display year-wise compound interest and amount, for given deposit, rate and time. |
| 4 | 12 August-17 August | Use logical operators in computing the compound interest on a given amount for rate of interest varying with amount as well as time of deposit. |
| 5 | 19 August-24 August | Write a subroutine program to check (logical output) whether the three given points in a plane are collinear. |
| 6 | 26 August-31- August | Use subroutine program to multiply two given matrices and use resource files in main program to read input and write output. |
| 7 | 2 September – 7 September | Use ALLOCATABLE size declaration for given set of points in a plane and fit a straight line through these points. |
| 8 | 9 September -14 September | Write a program to display the use of whole-array operations on non-conformable arrays. |
| 9 | 16 September – 21 September | Write a program to display the procedure of format-rescan-rule and the action of tab-edit descriptors. |
| 10 | 23 September- 28 September | Revision  |
| 11 | 30 September-5 October |  Compute a given definite integral (as summation) in a subroutine using integrand as a dummy argument. |
| 12 | 7 October-12 October |  Explain the use of MODULE in defining an abstract (derived) data type for complex arithmetic. |
| 13 | 14 October-19 October | Use of pointers in manipulating a linked-list. |
| 14 | 21 October- 24 October | To solve a quadratic equation with given (complex-valued) coefficients, using COMPLEX data type |
| 15 | 1 November- 2 November | Use string operations to find if a given string is a palindrome or not. |
| 16 | 4 November- 9 November | Revision  |