

S.S. JAIN SUBODH P.G. (AUTONOMOUS) COLLEGE, JAIPUR
CIA-I Syllabus Aug. 2019
B.Sc. Pass Course
Semester – I

PAPER- I DISCRETE MATHEMATICS

UNIT I: Sets and Propositions: Russell's paradox, fundamental operations of set, Mathematical Induction. Principle of inclusion and exclusion.

PAPER – II CALCULUS-I

UNIT III: Partial differentiation, Euler's Theorem for Homogeneous functions, Chain Rule of Partial Differentiation, Differentiation of implicit functions

PAPER – III THREE DIMENSIONAL GEOMETRY AND VECTOR CALCULUS

UNIT I: Sphere:- Equation of sphere, intersection of two spheres, diameter form, tangent line and tangent plane, condition of tangency, pole and polar plane, condition of orthogonality.

Semester – III

Paper –I REAL ANALYSIS- I

UNIT II: Properties of continuous function on closed intervals.

UNIT III: Notion of Limit and Continuity for functions of two variables.

PAPER – II DIFFERENTIAL EQUATION-I

UNIT I: Degree and order of a differential equation, Equations of first order and first degree, Equation in which the variables are separable, Homogeneous equations and equation reducible to homogeneous form, Linear equations and Equation reducible to Linear form, Exact Differential Equations and equations which can be made exact.

PAPER – III - NUMERICAL ANALYSIS

UNIT I: Differences, Relation between differences and derivative, differences of polynomial, Newton's Formula for Forward and Backward interpolation, Divided Differences, Newton's Divided difference interpolation formula, Lagrange's Interpolation Formula .

Semester –V

PAPER – I ABSTRACT ALGEBRA-I

UNIT I: Definition and simple properties of Groups and subgroup, cyclic group, Permutation group.

Paper – II: COMPLEX ANALYSIS-I

UNIT II: Analytic functions, Cauchy-Riemann equations (Cartesian and polar form), Harmonic functions, Construction of an analytic function.

PAPER - III : DYNAMICS

UNIT I: Velocity and acceleration-along radial and transverse directions, along tangential and normal directions.

B.SC. HONOURS (MATHS)

Semester – I

PAPER- I DISCRETE MATHEMATICS

UNIT I: Sets and Propositions: Russell's paradox, fundamental operations of set, Mathematical Induction. Principle of inclusion and exclusion.

PAPER – II CALCULUS-I

UNIT III: Partial differentiation, Euler's Theorem for Homogeneous functions, Chain Rule of Partial Differentiation, Differentiation of implicit functions

PAPER – III THREE DIMENSIONAL GEOMETRY AND VECTOR CALCULUS

UNIT I: Sphere:- Equation of sphere, intersection of two spheres, diameter form, tangent line and tangent plane, condition of tangency, pole and polar plane, condition of orthogonality.

PAPER-IV NUMBERS THEORY-I

UNIT I: Divisibility - Division Algorithm, the Greatest Common Divisor, Euclidean algorithm. Greatest Common Divisor of more than two integers, least common multiple, least common multiple of n integers

Semester – III

Paper –I REAL ANALYSIS- I

UNIT II: Properties of continuous function on closed intervals.

UNIT III: Notion of Limit and Continuity for functions of two variables.

PAPER – II DIFFERENTIAL EQUATION-I

UNIT I: Degree and order of a differential equation, Equations of first order and first degree, Equation in which the variables are separable, Homogeneous equations and equation reducible to homogeneous form, Linear equations and Equation reducible to Linear form, Exact Differential Equations and equations which can be made exact.

PAPER – III - NUMERICAL ANALYSIS

UNIT I: Differences, Relation between differences and derivative, differences of polynomial, Newton's Formula for Forward and Backward interpolation, Divided Differences, Newton's Divided difference interpolation formula, Lagrange's Interpolation Formula .

PAPER-IV Operations Research-I

UNIT II: Theory of Games - Introduction, Basic definitions, Minimax (Maximin) criterion and optimal strategy, Saddle point, Minimax-Maximin principle for mixed strategy games.

UNIT III: Fundamental theorem of game theory, Two-by-two games without saddle point, Arithmetic method for 2×2 games, graphical method for 2×2 games.

Semester –V

PAPER – I ABSTRACT ALGEBRA-I

UNIT I: Definition and simple properties of Groups and subgroup, cyclic group, Permutation group.

Paper – II: COMPLEX ANALYSIS-I

UNIT II: Analytic functions, Cauchy-Riemann equations (Cartesian and polar form), Harmonic functions, Construction of an analytic function.

PAPER - III : DYNAMICS

UNIT I: Velocity and acceleration-along radial and transverse directions, along tangential and normal directions.

PAPER-IV-Statistics-I

UNIT I: Introduction, Growth of Statistics, Importance , limitations, Disturbance and function of statistics, collection of data, classification, seriation and tabulation, Diagrammatic representation of data, demographic ratios, percentages and logarithm, Measure of central tendency, Arithmetic Average, A.M., G.M. H.M., relationship between A.M., G.M., and H.M.; Median, Mode.