S.S. JAIN SUBODH P.G. COLLEGE

RAM BAGH CIRCLE, JAIPUR-302004

SYLLABUS

Bachelor of Computer Application
Skill Enhancement Courses

Mathematics for Computing

EXAMINATION 2025-2026 AND ONWARDS

Examination Scheme

70% weightage for End of Semester Exam (EoSE) and 30% weightage of Continuous Internal Assessment (CIA)

Passing Marks:

40% marks in each paper/ subject including sessional/ CIA and EoSE put together.

Question Paper Pattern

Total Marks: 50

CIA Max Marks: 15

EoSE Max. Marks: 35

The question paper for Basic Mathematics wiil be so set that it has 35 multiple-choice questions (Bilingual) of one mark each. The duration of the question paper will be 1 hour. The examinees will have to give their answers on an OMR sheet only to be provided by the College whose evaluation will be done based on OMR Scanning Technology.

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BCA Semester I

Mathematics for Computing

2 Credit- 50 Marks

Question Paper: 35 Marks

Internal Assessment: 15 Marks

Objectives of the Course: The objective of the course is to be mastering the fundamental concepts in each topic area, with an emphasis on understanding, application, and problem-solving.

Prerequisites: Mathematics courses of X Std. of Central Board of Secondary Education or equivalent.

Course Learning Outcomes: The course will enable the students to:

- Understand the definition of complex numbers and distinguish between real and imaginary parts, sequences, and series.
- Understand the basic concepts of sets, relations, functions, and induction.
- Understand mathematical logic and logical operations in various fields

These outcomes will equip students with a comprehensive understanding of each topic and the ability to solve related mathematical problems effectively.

Mark distribution in question paper:

The question paper for Basic Mathematics will be so set that it has 35 multiple-choice questions (Bilingual) of one mark each. The duration of the question paper will be 1 hour. The examinees will have to give their answers on an OMR sheet only to be provided by the College whose evaluation will be done based on OMR Scanning Technology.

UNIT-I

Sets: Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers especially intervals (with notations). Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement.

UNIT-II

Relations & Functions: Cartesian product of sets. Number of elements in the Cartesian product of

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two finite sets. Cartesian product of the set of reals with itself. Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions.

UNIT-III

Complex Numbers: Definition, real and imaginary parts, complex conjugate, representation of a complex number in a plane, modulus and argument of a complex number, algebra of complex numbers, cube root of unity.

UNIT-IV

Sequences and Series: Sequence and series (finite and infinite), n^{th} term, arithmetical progression (A.P.), sum of *n* terms of an A.P., arithmetic mean (G.M.), Geometric progression (G.P.), sum of *n* terms and infinite terms of a G.P., Geometric mean (G.M.), Harmonic progression (H.P.), Harmonic mean (H.M.), relation between A.M., G.M. and H.M.

Suggested Books and References –

1. Higher Algebra, Hall & Knight, Arihant Publications India Limited, 2019.
2. Complex Variables and Applications, James Brown and Ruel Churchill, Mc Graw Hill, 2021
3. Higher Engineering Mathematics, B. S. Grewal, Khanna Publishers, 2012.

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