

B.C.A. Semester – II
BCA-203 : Discrete Mathematics

Teaching Scheme (per week)		Teaching Scheme (per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	40	4	30	--	70	--	100	--

Unit - I **[18 Marks]**

Set Theory:

Introduction, Definition and Concepts, Representation of Sets, Finite Sets, Infinite Sets (Definition), Set Operations : Union, Intersection, Addition theorem, difference, Symmetric difference, D' Morgons Law, Subsets, Power Sets, Partitions Sets.

Unit - II **[17 Marks]**

Functions:

Introduction: Definitions and Concepts, One to One, onto functions, Invertible Functions.

Mathematical Functions (Definition and Examples) : Floor and ceiling functions, Integer and Absolute value functions, Remainder functions, Exponential functions, logarithmic functions, Recursive functions

Unit - III **[18 Marks]**

Determinants and Matrices:

Determinants, Basic theorems of determinants,

Metrics -Definition and Concept, square Matrix, unit Matrix, null Matrix, Matrix Addition, Multiplication, Scalar multiplication, Transpose of a Matrix, Invertible Matrices, Inverse of a Matrix.

Unit - IV **[17 Marks]**

Sequences and Series:

Sequences: Introduction, Types of sequence, Arithmetic progression (A.P), Geometric progression (G.P).

Series : Introduction, Types of series, Arithmetic series (A.P)

Permutation, Combinations

Reference Books:

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| 1. Discrete Mathematics (Second Edition) | S.LIPSCHUTZ, M. LIPSON (TMH) |
| 2. Elements of Discrete Mathematics | C.L. LIU (TMH) |
| 3. Discrete Mathematics | J K SHARMA (Macmillan Publishers) |

Question Paper Scheme:**University Examination Duration: 3 Hours.**

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| Q.1 - Unit-I | (18 Marks) |
| A. Objective/ Short Questions. | |
| B. Descriptive/ Long questions. | |
| Q.2 - Unit-II | (17 Marks) |
| A. Objective/ Short Questions. | |
| B. Descriptive/ Long questions. | |
| Q.3 - Unit-III | (18 Marks) |
| A. Objective/ Short Questions. | |
| B. Descriptive/ Long questions. | |
| Q.4 - Unit-IV | (17 Marks) |
| A. Objective/ Short Questions. | |
| B. Descriptive/ Long questions. | |

Note: All Objective/ Short Questions are compulsory, no option will be given.