

B.Sc. DEGREE PROGRAMME (UGCBCS 2017)
MATHEMATICS
(COMPLEMENTARY COURSE TO B.Sc COMPUTER SCIENCE/ BCA)
FIRST SEMESTER
MM1CMT03 DISCRETE MATHEMATICS (I)

4 hrs/week (Total Hrs:72)

4Credits

Syllabus

Text Books

Kenneth H Rosen ; Discrete Mathematics And Its Applications ; 6th Edition ;

Tata Mc Graw-Hill Publishing Company Limited

Module 1: Logic

(18 hrs)

Propositional Logic, Propositional Equivalence, Predicates and Quantifiers and Rules of Inference

Chapter 1 (Sections 1.1, 1.2, 1.3 and 1.5only)

Module II: Basic Structures

(15 hrs)

Sets, Set Operations, Functions, Sequences and Summations

Chapter 2 (Sections 2.1, 2.2, 2.3 and 2.4)

Module III: Number Theory and Cryptosystem

(20 hrs)

The Integers and Division, Primes and Greatest Common Divisors, Applications of Number Theory.

Chapter 3 (Sections 3.4, 3.5 and 3.7 Only)

Module IV: Relations

(19 hrs)

Relations and Their Properties, Representing Relations, Equivalence Relations, Partial Orderings.

Chapter 7 (Sections 7.1, 7.3, 7.5 and 7.6)

References

1. Clifford Stien, Robert L Drysdale, Kenneth Bogart ; Discrete Mathematics for Computer Scientists; Pearson Education; Dorling Kindersley India Pvt. Ltd
2. Kenneth A Ross; Charles R.B. Wright ; Discrete Mathematics; Pearson Education; Dorling Kindersley India Pvt.Ltd
3. Ralph P. Grimaldi, B.V.Ramana; Discrete And Combinatorial Mathematics ; Pearson Education; Dorling Kindersley India Pvt. Ltd
4. Richard Johnsonbaugh; Discrete Mathematics; Pearson Education; Dorling Kindersley India Pvt.Ltd
5. Winfried Karl Grassman, Jean-Paul Tremblay; Logic And Discrete Mathematics A Computer Science Perspective ; Pearson Education; Dorling Kindersley India Pvt. Ltd

QUESTION PAPER PATTERN

Module	Part A 2 Mark	Part B 5 Marks	Part C 15Marks	Total
I	3	3	1	7
II	3	2	1	6
III	3	2	1	6
IV	3	2	1	6
Total No. of Questions	12	9	4	25
No. Questions to be answered	10	6	2	18
Total Marks	20	30	30	80

B.Sc. DEGREE PROGRAMME (UGCBCS 2017)
MATHEMATICS
(COMPLEMENTARY COURSE TO B.Sc COMPUTER SCIENCE/ BCA)
SECOND SEMESTER
MM2CMT03 DISCRETE MATHEMATICS (II)

4 hrs/week (Total Hrs:72)

4credits

Syllabus

Text Books

- 1. Kenneth H Rosen ; Discrete Mathematics And Its Applications ; 6th Edition ; Tata
Mc Graw-Hill Publishing Company Limited**
- 2. Frank Ayres Jr : Matrices , Schaum's Outline Series , TMH Edition.**

Module I: Graphs (18 hrs)

Graphs and Graph Models, Graph Terminology and Special types of Graphs, Representing Graphs and Graph Isomorphism, Connectivity, Euler and Hamilton Paths.

Text 1 Chapter 8 (Sections 8.1, 8.2, 8.3, 8.4 and 8.5 only)

Module II: Trees (17 hrs)

Introduction to Trees, Application of Trees, Tree Traversal, and Spanning Trees.

Text 1 Chapter 9 (Sections 9.1, 9.2, 9.3 and 9.4 only)

Module III: Boolean Algebra (17 hrs)

Boolean Function, Representing Boolean Functions and Logic Gates

Text 1 Chapter 10 (Sections 10.1, 10.2 and 10.3 only)

Module IV: Matrices (20 hrs)

Definitions and examples of Symmetric, Skew-symmetric, Conjugate, Hermitian, Skew-hermitian matrices. Rank of Matrix, Determination of rank by Row Canonical form and Normal form, Linear Equations, Solution of non homogenous equations using Augmented matrix and by Cramers Rule, Homogenous Equations, Characteristic Equation, Characteristic roots and Characteristic vectors of matrix, Cayley Hamilton theorem and applications.

Text 2. Relevant Sections of Chapters 2, 5 , 10 , 19 and 23 (Proofs of all Theorems in Module IV are Excluded)

References

1. Clifford Stien, Robert L Drysdale, Kenneth Bogart ; Discrete Mathematics for Computer Scientists; Pearson Education; Dorling Kindersley India Pvt. Ltd
2. Kenneth A Ross; Charles R.B. Wright ; Discrete Mathematics; Pearson Education; Dorling Kindersley India Pvt.Ltd
3. Ralph P. Grimaldi, B.V.Ramana; Discrete And Combinatorial Mathematics ; Pearson Education; Dorling Kindersley India Pvt. Ltd
4. Richard Johnsonbaugh; Discrete Mathematics; Pearson Education; Dorling Kindersley India Pvt.Ltd
5. Winfried Karl Grassman, Jean-Paul Tremblay; Logic And Discrete Mathematics A Computer Science Perspective ; Pearson Education; Dorling Kindersley India Pvt. Ltd

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