PARUL UNIVERSITY

Faculty of Engineering & Technology

Department of Applied Sciences & Humanities

3rd Semester B.Tech Programme (CSE/IT)

Discrete Mathematics (Subject Code: 203191202)

SYLLABUS FOR Mid Semester EXAM

Exam Date: 06/08/2021   Time:

UNIT-1	Sets, Relation and Function Operations and Laws of Sets, Cartesian Products, Binary Relation, Partial Ordering Relation, Equivalence Relation, Image of a Set, Sum and Product of Functions, Bijective functions, Inverse and Composite Function, Size of a Set, Finite and infinite Sets, Countable and uncountable Sets, Cantor's diagonal argument and The Power Set theorem, Schroeder-Bernstein theorem.	12 marks
UNIT-2	Principles of Mathematical Induction: The Well-Ordering Principle, Recursive definition, The Division algorithm: Prime Numbers, The Greatest Common Divisor: Euclidean Algorithm, The Fundamental Theorem of Arithmetic. Basic counting techniques-inclusion and exclusion, pigeon-hole principle, permutation and combination	06marks
UNIT-3	Propositional Logic: Syntax, Semantics, Validity and Satisfiability, Basic Connectives and Truth Tables, Logical Equivalence: The Laws of Logic, Logical Implication, Rules of Inference, The use of Quantifiers. Proof Techniques: Some Terminology, Proof Methods and Strategies, Forward Proof, Proof by Contradiction, Proof by Contraposition, Proof of Necessity and Sufficiency	14marks
UNIT-4	Algebraic Structures with one Binary Operation, Semi Groups, Monoids, Groups.	08marks

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