Shiv Nadar University Chennai, Kalavakkam - 603 110

(A State Private University)

School of Engineering

Department of Computer Science and Engineering

Regulation 2021

Continuous Internal Assessment - I

Question Paper

Name of the Program & Branch	B.Tech., AI & DS; B.Tech., CSE (IoT); BTech CSE (CS)	Semester: III
Course Code & Name	MA2003 Discrete Mathematics / MA2001 Discrete Mathematics and Graph Theory	Date: 08/08/2024
Time: 50 Minutes (08:10 AM - 09:00 AM)	Answer All Questions	Maximum: 20 Marks

Q. No.	Questions	Marks	CO	KL
1	What is the contrapositive, converse, and the inverse of the following statement: "When I stay up late, it is necessary that I sleep until noon".	2	CO1	KL3
2	Translate the following into logical statements: a) If he goes by car or bike, he will not reach the venue on time. b) I will remember to send you the address only if you send me an e-mail message or a text message.	2	CO1	KL2
3	Obtain the PCNF of $(\neg p \vee q) \rightarrow (p \leftrightarrow \neg q)$ using truth table.	2	CO1	KL2
4	Prove the following equivalence by proving the equivalence of their duals: $(p \vee q) \rightarrow r \equiv (p \rightarrow r) \wedge (q \rightarrow r)$.	2	CO1	KL3
5	Verify if the following statement is a Tautology, Contradiction or Contingency using the truth table $(q \rightarrow \neg p) \leftrightarrow (p \leftrightarrow q)$.	2	CO1	KL2
6	Obtain PDNF of $(\neg q \rightarrow (p \wedge r)) \wedge \neg((\neg p \rightarrow r) \wedge q)$ without using truth table and hence find the PCNF.	5	CO1	KL3
7	Prove that $[(p \vee q) \wedge (p \rightarrow r) \wedge (q \rightarrow r)] \rightarrow r$ is Tautology without using truth table.	5	CO1	KL3

KL - Bloom's Taxonomy Levels (KL1: Remembering, KL2: Understanding, KL3: Applying, KL4: Analyzing, KL5: Evaluating, KL6: Creating); CO - Course Outcomes