


Name:	
Enrolment No:	

UPES
Class Test 1

Programme Name : B.Tech

Course Name : Discrete Mathematical Structure

Course Code : CSEG2006

Nos. of page(s) : 1

Semester : III

Time: 40 Min.

Max. Marks:

Batch: B41 and B42

Instructions: Do all questions.

S. No.		Marks	CO
Q 1	Show that $\forall x(P(x) \vee Q(x)) \rightarrow \forall xP(x) \vee \exists Q(x)$ using indirect method.		
Q 2	Show that $[(p \vee q) \wedge \sim(\sim p \wedge (\sim q \vee \sim r))] \vee (\sim p \wedge \sim q) \vee (\sim p \wedge \sim r)$ is tautology by using laws of logic.		
Q 3	Which elements of the poset $(\{2,4,5,10,12,20,25\},)$ are maximal and which are minimal.		
Q 4	Prove the following equivalence by using laws of propositional algebra. (a) $(p \rightarrow q) \rightarrow q \equiv p \vee q$ (b) $p \rightarrow (q \vee r) \equiv (p \rightarrow q) \vee (p \rightarrow r)$		
Q 5	Show that the mapping $f: R \rightarrow R$ be defined by $f(x) = ax + b$, where $a, b, x \in R, a \neq 0$ is invertible. Define its inverse.		