Answer all in the given sequence. All question having same marks Max.Marks (10)

Seat /ID	Discrete Structure (CS1005)	Section: BCS3H
Date: 4-09-2024	Quiz-1	Time: 30 mint

Problem-1

Let p and q be the propositions "The election is decided" and "The votes have been counted," respectively. Express each of these compound propositions as an English sentence.

a) $\neg p \rightarrow \neg q$ b) $p \vee q$
c) $\neg q \vee (\neg p \wedge q)$ d) $q \rightarrow p$

Problem-2

Use truth table for given statement is a tautology, contradiction or contingency

$(p \wedge \neg q) \wedge (\neg p \vee q)$

Problem-3

Write converse, contrapositive and inverse of given conditional statement.

"if it snows tonight then I will stay at home "

Problem-4

Show that using law of logical equivalence and justify each steps

$(p \wedge q) \rightarrow (p \rightarrow q) \equiv T$

Problem-5

Use truth table

Determine the validity of the following argument:

If 7 is less than 4, then 7 is not a prime number.
7 is not less than 4.

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7 is a prime number.