

Answer all in the given sequence. All question having same marks

Max.Marks (10)

Seat /ID 23K2001

Discrete Structure (CS1005)

Section: BCS-3J

Date: 04-09-2024

Quiz-1

Time: 30 mints

Q1 Let p , q , and r be the propositions

p : You have the flu.

q : You miss the final examination.

r : You pass the course.

Express each of these propositions as an English sentence.

a) $p \rightarrow q$

b) $\neg q \leftrightarrow r$

c) $q \rightarrow \neg r$

d) $p \vee q \vee r$

Q2(a) Translate the following proposition into logical expression.

"You can access the Internet from campus only if you are a computer science major or you are not a freshman."

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

$$[\neg p \wedge (p \vee q)] \rightarrow q$$

Q3 Write Contrapositive, converse and Inverse of the following proposition

"If Howard can swim across the lake, then Howard can swim to the island."

Q4 Show that by using law of logical equivalence, justify each steps

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

Q5 Determine the validity of the following argument using truth table

$$p \vee q$$

$$p \rightarrow \neg q$$

$$p \rightarrow r$$

$$\therefore r$$

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ALL THE BEST