देवी अहिल्या विश्वविद्यालय, इन्दौर
(Regular) छात्रो के लिए

Class: BCA III Semester
Paper: Discrete Mathematics

Attempt all the five Questions. Each Question Carry equal marks.

Q.1 (a) Show that $\sim(P \vee (\sim P \wedge Q))$ & $\sim P \wedge \sim Q$ are logically eqivalent by truth table
(b) Show that $(P \wedge Q) \rightarrow (P \vee Q)$ is a tautology by truth table

Q.2 Define following with Suitable example each.
i) Set and set operations
ii) Mathematical induction & its uses

Q.3 Find sum-of-Product of Boolean Function F(x,y,z) that equal if and only if:
i) $x=0$ ii) $xy=0$
iii) $x+y=0$ iv) $xyz=0$

Q.4 Explain and define operations on relations.

Q.5 i) Define with examples
Hamiltonian path, circuits, Graph coloring
ii) Construct an algorithm for a binary search tree.

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