F–2748

Sub. Code
7BITA3

U.G. DEGREE EXAMINATION, NOVEMBER 2019

Information Technology

Allied — DISCRETE MATHEMATICS

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define compound statements.
2. Construct truth table of Q → P.
3. Mention the uses of predicate calculus.
4. What is disjunctive normal form?
5. What is simple graph?
6. Define edges.
7. What do you mean by cut vertices?
8. Draw the Hamiltonian graph.
9. Define sub lattice.
10. What is partial ordering?

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe about conditional statement and Bi conditional statement.

Or

(b) Write short note on well formed formulae with an example.

12. (a) Narrate Quantifiers with suitable examples.

Or

(b) Explain open statement with suitable examples.

13. (a) Write short note on define the symmetric diagraph and asymmetric diagraph.

Or

(b) Discuss about Isomorphic graphs with suitable example.

14. (a) Describe the merits of Prim's algorithm.

Or

(b) Narrate spanning tree with suitable example.

15. (a) Mention the various properties of lattices.

Or

(b) Write a short note on Hasse diagram.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write brief note on various connectives with suitable truth tables.

17. Obtain a disjunctive normal form of

$P \rightarrow ((P \rightarrow Q)) \wedge \neg (\neg Q \vee \neg P)$

18. Explain the following with neat diagram.

(a) Paths and Cycles (b) Bipartite graph

19. Explain Dijkstra's algorithm with suitable example.

20. Enumerate the equivalence relations with an example.

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