UG DEGREE EXAMINATION, APRIL 2019

Computer Application

Allied — DISCRETE MATHEMATICS

(CBCS – 2011 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

 $(10 \times 2 = 20)$

Answer **all** questions.

- 1. Define Disjunction. Draw the truth table.
- 2. Define tautology.
- 3. Define conjunctive Normal form.
- 4. Define quantifiers.
- 5. What is sub graph?
- 6. Define path and cycles.
- 7. What is culvertices?
- 8. Define Hamiltonian graph.
- 9. Define Lattices.
- 10. What is an Equivalence relation?

Part B (5 × 5 = 25)

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

11. (a) Explain if statements with examples.

Or

- (b) Show that $[p \land (p \lor q)] \lor \sim p$ is a tautology.
- 12. (a) Obtain the principal disjunctive normal form of $\Box P \lor Q$.

Or

- (b) Discuss in detail on open statements.
- 13. (a) Explain complete graph with examples.

 \mathbf{Or}

- (b) Explain Isomorphic graph with examples.
- 14. (a) Explain prim's Algorithm to construct a minimum spanning tree.

Or

- (b) Explain Eulerian graph with an example.
- 15. (a) Discuss the binary relation in a set.

Or

(b) Describe about special Lattices.

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Part C (3 × 10 = 30)

Answer any **three** questions.

- 16. Discuss about Tautological implication formulae with distinct Truth Table.
- 17. Explain the theory of Interence for predicate calculus.
- 18. Explain the basic terminology of graph.
- 19. Explain the basic concept of spanning tree.
- 20. Discuss about Boolean functions.

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