NOVEMBER/DECEMBER 2020

BSCS33 — DESIGN AND ANALYSIS OF ALGORITHMS (SBS-I)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define Algorithm.

2. How to measure the performance of an algorithm?

3. List the situation where divide and conquer can be used.

4. What is selection sort?

5. List any two problems that can be solved using greedy methods.

6. Define – Minimum cost spanning trees.

7. What is dynamic programming?

8. State design for reliability.

9. State any two terminologies on graph.

10. Define – Hamiltonian cycles.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Write the algorithms specification.

Or

(b) Describe the procedure of randomized algorithm.

12. (a) Explain how to implement quick sort with sample data.

Or

(b) Explain how to implement merge sort with sample data.

13. (a) Write the procedure of Tree Vertex Splitting algorithm.

Or

(b) Write the procedure for finding Minimum Cost Spanning Trees.

14. (a) Write the characteristics of dynamic programming.

Or

(b) Give the mathematic formulation of 0/1 Knapsack problem.

15. (a) Show how graph coloring concepts can be used to solve a problem.

Or

(b) Explain in order and preorder traversal on binary tree.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Develop an algorithm for finding total strength of a college and analyze its performance.

17. Explain the procedure followed in Stassen's Matrix Multiplications.

18. Give the procedure to solve optimal storage on tapes problem.

19. Describe the application areas of dynamic programming.

20. Describe the procedure for solving 8 queens problem.

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