



APRIL/MAY 2019

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

Time : Three hours

Maximum : 75 marks

SECTION A — ($10 \times 2 = 20$ marks)

Answer ALL questions.

1. Write an algorithm for finding volume of a cube.
2. How to measure the complexity of an algorithm.?
3. What is binary search?
4. Give the condition for performing matrix multiplication.
5. Define Knapsack problem.
6. Give any two applications of Tree Vertex Splitting algorithm
7. What is 0/1 knapsack?
8. Define TSP
9. What is skewed binary tree?
10. Define 8 queens problem.

SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Mention the steps to develop an algorithm?

Or

- (b) Mention the algorithms specification.

12. (a) Describe the procedure followed in merge sort.

Or

- (b) Describe the procedure of Strassen's Matrix Multiplications.

13. (a) Describe the procedure followed in Job Sequencing with Deadlines algorithm to find the optimal solution using greedy method.

Or

- (b) Narrate an algorithm for finding Single Source Shortest Paths.

14. (a) Write the procedure for all pair shortest path problem.

Or

- (b) What is Design for Reliability (DFR)? Why is it important?

15. (a) Explain any three terminologies in graph.

Or

- (b) Describe the application of graph coloring concept.

SECTION C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

16. Explain the procedure followed in randomized algorithms. List two problems that could be solved using randomized algorithms

17. Give the procedure for finding minimum and maximum. Describe a situation where finding minimum and maximum is needed.

18. Describe how to get optimal pattern while merging a set of sorted files of different length into a single sorted file

19. Give short note on multistage graph problem to find the shortest Path from source to sink.

20. Explain the binary tree traversals with suitable example.

