

NOVEMBER/DECEMBER 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. Mention the algorithms specification.
2. List any two problems can be solved using randomized algorithms.
3. Mention a situation where binary search can be used.
4. State the procedure in selection sort.
5. What is Tree Vertex Splitting?
6. Where the apply Optimal Merge Pattern procedure?
7. State for what multistage graphs is used.
8. Define Dynamic programming.
9. Give any two terminologies of binary tree.
10. How searching can be done on graph?



SECTION B — ($5 \times 5 = 25$ marks)

Answer ALL questions.

11. (a) Describe the Components of algorithm.

Or

- (b) Analyse the performance of algorithm for finding sum of square of first ten natural numbers.

12. (a) Write the procedure for finding minimum and maximum.

Or

- (b) Implement merge sort with your own sample data set.

13. (a) Describe the procedure of knapsack problem.

Or

- (b) Explain how to find Optimal Storage on Tapes.

14. (a) Show how a problem can be solved with dynamic programming.

Or

- (b) Why is design of reliability important?

15. (a) Give the procedure for 8 queens problem.

Or

- (b) Explain post order and preorder binary tree traversal.

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

Answer any THREE questions.

16. Write the algorithm specification. Apply it for finding average height of the students in a class.

17. Write the procedure for quick sort. Analyse its performance on various cases.

18. Describe how to find the optimal sequencing of Jobs with Deadlines

19. Show how dynamic programming varies from other searching techniques.

20. Write graph colouring procedure with any one its real time applications.

