



21102789

QP CODE: 21102789

Reg No :

Name :

B.Sc/BCA DEGREE (CBCS) EXAMINATIONS, OCTOBER 2021

Fourth Semester

Core Course - CS4CRT09 - DESIGN AND ANALYSIS OF ALGORITHMS

(Common for B.Sc Information Technology Model III & Bachelor of Computer Applications)

2019 Admission only

DDA82AD0

Time: 3 Hours

Max. Marks : 80

Part A

*Answer any **ten** questions.*

Each question carries 2 marks.

1. List of various algorithm design strategies.
2. What is performance measurement?
3. Write down the control abstraction for divide and conquer.
4. Illustrate the tree structure of mergesort algorithm of 10 elements.
5. Quicksort is more efficient than mergesort. Judge your answer.
6. What is subset paradigm?
7. Define feasible solution and optimal solution.
8. What is dynamic programming?
9. Explain all pair shortest path.
10. Explain single source shortest path.
11. What is an articulation point in a graph?
12. Draw a graph that contain hamiltonian circuit.

(10×2=20)

Part B

*Answer any **six** questions.*

Each question carries 5 marks.

13. What are the conditions to be satisfied by an algorithm?
14. Compare best case, worst case and average case complexity.





15. Explain the divide and conquer MaxMin algorithm.
16. Write a note on knapsack problem with algorithm.
17. Explain Kruskal's algorithm with necessary graph.
18. Write the algorithm for 0/1 knapsack problem with example.
19. Describe Travelling Sales Persons problem.
20. What are basic traversal techniques? Explain with algorithm.
21. Draw the state space tree to generate the first solution to 4 queens problem.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. Differentiate space complexity and time complexity of algorithms with example.
23. Explain Strassen's Matrix Multiplication problem with an example.
24. What is Minimum Cost Spanning tree? Explain the Kruskal's Minimum Cost Spanning tree with suitable example.
25. Explain the algorithm for finding m-colorings of a graph.

(2×15=30)

