25P258 (Pages: 2) Name: .....

Reg.No: .....

SECOND SEMESTER M.Sc DEGREE EXAMINATION, APRIL 2026

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19PCSS2C06 - DESIGN AND ANALYSIS OF ALGORITHMS

(Computer Science)

(2019 Admission onwards)

Time : 3 Hours Maximum : 30 Weightage

Part-A

Answer any ***four*** questions. Each question carries 2 weightage.

1. Identify the Four Major Stages of Algorithm Analysis and Design.
2. Demonstrate merge sort problem using divide and conquer technique. Give an example.
3. Demonstrate Backtracking.
4. Deduce the difference between Time Complexity and Space complexity.
5. Justify recursion tree method for solving recurrence equation.
6. Discuss spanning tree? Give an example.
7. Examine Scalability.

(4 × 2 = 8 Weightage)

Part-B

Answer any ***four*** questions. Each question carries 3 weightage.

8. List out Sorting, Searching, String processing, Graph problems, Combinatorial problems, Geometric problems.
9. Implement 0/1 knapsack problem using branch and bound designing technique.
10. Demonstrate longest common subsequence problem.
11. Criticize Big-oh and little -oh.
12. Criticize Big-omega theorem.
13. Explain NP Complete problems. Give examples.
14. Analyse about Euler tour technique.

(4 × 3 = 12 Weightage)

Part-C

Answer any ***two*** questions. Each question carries 5 weightage.

15. List out PRAM model with its constraints.

16. Illustrate spanning tree. Write Kruskal's algorithm for finding minimum cost spanning tree. Demonstrate how Kruskal's algorithm is different from Prim's algorithm for finding minimum cost spanning tree

17. Criticize different methods to solve recurrence equations

18. Conclude the strassen's matrix multiplication algorithm in detail. Also, give illustrative example to explain the efficiency achieved through this algorithm.

(2 × 5 = 10 Weightage)

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