

18P268

(Pages: 2)

Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2019

(Regular/Improvement/Supplementary)

(CUCSS - PG)

CC17P CSS2 C01 - DESIGN AND ANALYSIS OF ALGORITHMS

(Computer Science)

(2017 Admission onwards)

Time: Three Hours

Maximum: 36 Weightage

PART A

Answer *all* questions. Each question carries 1 weightage.

1. Define an algorithm.
2. State Amdahl's law.
3. Define Speed up.
4. Define Scalability.
5. State Theta Ratio theorem.
6. Define Backtracking.
7. What is dynamic programming?
8. Define Iteration method.
9. Find Big Omega (Ω) notation for the function $f(n) = 3^n + 5n^2 + 4n$
10. Write a note on RAM model.
11. State Big-Oh Ratio Theorem.
12. Define Brute force approach.

(12 x 1 = 12 Weightage)

PART B

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

13. Illustrate Knapsack problem.
14. Describe Euler tour technique.
15. Explain Travelling Salesman problem.
16. Mention the methods of specify an algorithm.
17. Explain Time and Space complexity.
18. Give a description of Substitution method with an example.
19. What you mean by Sum of subset problem?
20. Give steps in developing algorithm.
21. What is NP-Hard and NP-Completeness problems?

(6 x 2 = 12 Weightage)

PART C

Answer any *three* questions. Each question carries 4 weightage.

22. Use Recursion tree method to solve the recurrence

$$T(n) = 3T(n/4) + n^2$$

23. Explain important problem types.

24. Briefly explain Prim's and Kruskal's algorithm.

25. Explain the analysis of Merge sort with an example.

26. Describe the following:

a) Parallel prefix computation.

b) Deterministic symmetry breaking.

27. Explain the analysis of Strassen's algorithm for matrix multiplication.

(3 x 4 = 12 Weightage)
