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**SAINTGITS COLLEGE OF APPLIED SCIENCES**

**SECOND INTERNAL ASSESSMENT EXAMINATION, MARCH 2019**

**Department of B.C.A, Semester 4**

DESIGN AND ANALYSIS OF ALGORITHM

Total : **80 marks** Time: **3 Hours**

**Section A**

*Answer any 10 questions. Each question carries 2 marks.*

1. What is an algorithm design technique?
2. What is worst case efficiency of an algorithm?
3. Define Omega notation.
4. Define the general concept of Divide and Conquer method.
5. Write any two characteristics of greedy algorithm.
6. What is the use of Dijkstra’s algorithm?
7. What is meant by n-queen problem?
8. Define Travelling salesman problem.
9. Define Hamiltonian circuit.
10. What are a feasible solution and an optimal solution?
11. What is knapsack problem?
12. Define an algorithm. 10 x 2 = 20

**Section B**

Answer any six of the following. Each question carries 5 marks.

 13. Write the algorithm of binary search.

14. Briefly explain Strassen’s matrix multiplication method with an example.

15. Explain graph coloring in detail.

16. Explain asymptotic notations in detail.

17. Explain the properties of an algorithm with an example each.

18. What is backtracking? Write any one algorithm which follows backtracking.

19. State the Greedy Knapsack? Find an optimal solution to the Knapsack instance

n=3, m=20, (P1, P2, P3) = (25, 24, 15) and (W1, W2, W3) = (18, 15, 10).

20. What is a Hamiltonian Cycle? Explain how to find Hamiltonian path and cycle

using backtracking algorithm.

21. Write the algorithm of Kruskal.

 (6x5=30)

**Section C.**

Answer any two of the following.

Each question carries 15 marks

 22. Explain Prim’s algorithm in detail.

23. Apply merge sort algorithm to the list {14, 33, 27, 10, 35, 19, 42, and 44}.

24. Write and explain the algorithm of Sum of Subsets.

25. What is dynamic programming? Write any algorithm which uses dynamic programming concept.

 (2x15=30)



[Scan QR code for answer key]

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