ANNA UNIVERSITY COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : MAY / JUNE 2010

REGULATIONS : 2007

FOURTH SEMESTER

070230017 - DESIGN AND ANALYSIS OF ALGORITHMS

(COMMON TO CSE / IT)

TIME : 3 Hours   Max.Marks : 100

PART – A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1.   Define Algorithm with the diagrammatic representation of notion of algorithm.

2.   What are the types of Algorithm Efficiencies?

3.   Mention some of the important Problem Types.

4.   What are the steps involved in the Analysis Framework?

5.   Write the Non-recursive Algorithm for Matrix Multiplication.

6.   Write the Recursive Algorithm to fine the nth factorial number.

7.   State Empirical Analysis of Algorithm.

8.   What do you mean by Algorithm Visualization?

9.   What is the difference between Merge Sort and Quick Sort?

10. What is Binary Search?

11. What are the Classic Traversals of a Binary Tree?

12. Write the difference between Depth-First Search and Breadth-First Search.

13. What is Dynamic Programming? Write the General Procedure for it.

14. How many Binary Search Trees can be formed with 'n' keys?

15. Give the algorithm used to find Optimal Binary Search Tree.

16. State the difference between Greedy Method and Dynamic Programming.

17. Differentiate Backtracking from Branch and Bound.

18. Define the Hamiltonian Circuit.

19. What is subset-sum problem? When can a node be terminated in it?

20. Define 0/1 Knapsack Problem.

PART – B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. Explain the fundamental steps involved in Algorithmic Problem Solving Techniques for designing and analyzing an algorithm.

22. (a) Describe various Asymptotic Notations used in Analysis of Algorithm.   (8)

     (b) Give the tabular representation with the contents of Class, Name and (4) Comments for Basic Efficiency Classes.

23. Explain the necessary steps for analyzing the efficiency of Recursive Algorithms with an example.

24. Describe in detail about the Mathematical Analysis of Non-recursive Algorithms with an example.

25. Explain Quick Sort Algorithm and the concepts of its Performance with suitable example.

26. Write the Binary Search Algorithm with Pascal Code.

27. Write the Prim's Algorithm to generate a Minimum-cost Spanning Tree.

28. (a) Apply Branch and Bound Technique to solve Traveling Salesman Problem.   (8)

     (b) Write some Applications, Time and Space complexities of Traveling (4) Salesperson Problem.

*****THE END*****