ANNA UNIVERSITY COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : OCTOBER 2009

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. State the different criteria an algorithm must satisfy.
2. What is meant by indirect recursive algorithms?
3. Name the two major phases of the performance evaluation of an algorithm.
4. Write down the various asymptotic notations to measure the complexities of an algorithm.
5. Analyze the time complexity of the Fibonacci series.
6. Determine the total step counts for the matrix addition algorithm.
7. How will you estimate the total memory spaces needed by an algorithm?
8. Define Merge sort.
9. What is meant by Divide and Conquer method?
10. Write down the properties of binary search tree.
11. State the computing time of binary search tree for successful and unsuccessful criteria.
12. Distinguish between Depth first search and Breadth first search.
13. What is the usage of the dynamic programming?
14. State the property of the Heaps.
15. Write down the Floyd's algorithm.
16. Name the two algorithms to find the minimum cost spanning tree.
17. State the Sum-of-subsets problem.
18 What do you mean by Backtracking?
19. What is 0/1 Knapsack problem?
20. State the traveling salesman problem.

PART – B

(5 x 12 = 60 Marks)

ANSWER ANY FIVE QUESTIONS

21.a)   Explain the two major criteria for judging algorithms that have a more direct relationship to performance.   (6)

b)   Explain the different types of an algorithm in detail.   (6)

22. a)   Describe the mathematical analysis of recursive algorithms.   (6)

b)   Write a note on algorithm visualization.   (6)

23. a)   Compare selection sort with bubble sort with suitable examples.   (7)

b)   Design an algorithm for DFS with example.   (5)

24.   Illustrate Quick sort algorithm with suitable examples.

25. a)   Elucidate different types of binary tree traversal.   (6)

b)   Write short notes on Merge sort.   (6)

26.   Illustrate that the greedy method always obtain an optimal solution to traveling salesman problems.

27. a)   Find out the various spanning trees for the following undirected graph.   (4)
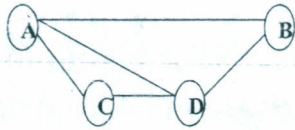
b)   Write a note on AVL trees.   (8)

28. a)   Apply backtracking technique to solve 8Queen problem.   (7)

b)   Enumerate on branch and bound technique.   (5)

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