ANNA UNIVERSITY COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : DECEMBER 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. Give the diagram representation of Notion of algorithm
2. What is pseudo-code?
3. What are the fundamental steps involved in algorithmic problem solving?
4. What is worst-case efficiency?
5. Define –notation.
6. What is a heap?
7. What is the subset-sum problem?
8. Give a non-recursive algorithm to find out the largest element in a list of n numbers.
9. What is presorting?
10. What are the classic traversals of a binary tree?
11. Write a short notes on min-heap.
12. Mention the Huffman's algorithm.
13. Define Brute force approach?
14. What is a rotation in AVL tree used for?
15. Give the general plan for divide-and-conquer algorithms.
16. Explain about greedy technique.
17. What is selection sort?
18. Define transitive closure.
19. What is algorithm visualization?

20. Write a recursive algorithm for solving Tower of Hanoi problem

PART – B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. a) What is an algorithm? State & Explain basic properties of an algorithm
    b) Explain the Space & time complexities.

22. a) Write a short notes on Empirical Analysis of Algorithms.
    b) Describes the kruskal's algorithms for finding the minimum spanning three.

23. a) Explain the AVL Trees with suitable example.
    b) What is an optimal Binary Three? Write an algorithm for inserting an element into a binary search tree.

24. a) Explain the greedy technique with Knapsack problem as an example.
    b) Differentiate between Warshall's and Floyd's Algorithm.

25. a) Explain the difference between NP-Hard and NP-Complete problem with example.
    b) Explain the Dynamic Programming method.

26. a) Write a short notes on Notion of Algorithm.
    b) Explain about Mathematical Analysis of Recursive and Non- Recursive Algorithm.

27. a) Describe merge sort algorithm using Divide-and-conquer strategy.
    b) Differentiate between Depth first Search and Breadth First Search.

28. a) Explain Branch & Bound Technique using traveling salesman problem.
    b) Explain the Back Tracking Strategy.