ANNA UNIVERSITY COIMBATORE

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

REGULATIONS: 2007

THIRD SEMESTER

070230007 - DATA STRUCTURES

(COMMON TO ECE / CSE *liT)*

TIME: 3 Hours **Max.Marks : 100**

PART-A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. How efficiency of algorithm can be increased?
2. Define time complexity and space complexity.
3. Discuss on worst case and average case behavior of an algorithm?
4. What is order notation?
5. Differentiate doubly and circularly linked list.
6. Write the algorithm for balancing symbols.
7. Convert the given infix to postfix U*k)+(x+y).
8. How the enqueue and dequeue operations are performed in queue.
9. Give the applications of priority queues.
10. Define depth of a node in a tree. Give example.
11. Draw the expression tree for the given postfix expression using stack AB*C+.
12. What is collision in hashing?
13. Differentiate between linear probing and quadratic probing.
14. What is the average depth of all nodes in an equally likely tree?
15. Write a note on comparison based sorting
16. What is meant by quick sort?
17. List the advantage of Poly phase Merge.
18. What do you mean by Undirected Graph?

19. Define cycle.

20. Explain the principle of topological sort.

PART - B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. Describe top down design method in the process of program development.

22. Explain the following:

a) Divide and conquer algorithms (6)

b) Brute force algorithms (6)

23. Write a 'C' program for array implementation of list **ADT.**

24. Define binary search tree. Write the routines for inserting and deleting an element in binary search tree with suitable example.

25. Write the steps and routine for the Inorder ,Preorder and Postorder traversal with example.

26. a) Write the advantages and disadvantages for all the internal sorting methods. (8)

b) Write the principles of all types of internal sorting. (4)

27. a) Perform insertion sort for the given list of numbers (6)
25,37,18,82,55,64,78

b) Perform bubble sort for the given list of (u)
numbers 56, 91, 35,72,48,68

28. State the principle of Dijkstra's algorithm. Write the routines for finding the shortest path in a graph.

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