Register No: ……………………….

B.E/B.TECH DEGREE EXAMINATIONS: APRIL /MAY 2011

Second Semester

CSE102: DATA STRUCTURES

(Common to Computer Science & Engineering and Information Technology)

Time: Three Hours   **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. Dividing the original problem in to two or more sub problems is called _____

   A. Divide and Conquer Strategy   B. Divide and Divide Strategy

   C. Greedy Strategy   D. Topdown Strategy.

2. An attempt to test whether or not a program will handle all variations of the problem it was designed to solve is called _____

   A. Software Design   B. Software Testing   C. Software Coding   D. Software Maintenance

3. _____consists of a series of structures, which are not necessarily adjacent in memory .Each Structure, contains the element and a pointer to successor structure.

   A. Stack   B. Queue   C. Linked List   D. Tree

4. In _____the last cell keeps a pointer back to the first cell.

   A. Doubly Linked List   B. Stack   C. Queue   D. Circular Linked List

5. Insertion and deletions performed in only one position namely, the end of the list called the Top. This Data Structure is called _____

   A. Stack   B. Queue   C. Linked List   D. Tree

6. Insertion is done at one end; whereas deletion is performed at the other end is called_____

   A. Stack   B. Queue   C. Linked List   D. Tree

7. Nodes with no children are known as _____

   A. Grand Parent   B. Height   C. Leaves   D. Siblings

8. For every node, X in the tree, the value of all the keys in its left sub tree are smaller than the key value in X, and the values of all the keys in its right sub tree are larger than the key value in X. Such a tree is called _____

   A. Binary tree   B. AVL tree   C. Expression Tree   D. Binary Search Tree

9. Sorts that cannot be performed in main memory and must be done on disk or tape. This type of sorting is known as _____

    A. External Sorting   B. Internal Sorting.   C. Quick Sort   D. Insertion Sort

10. Which of the following is fastest sorting method?

    A. Bubble sort   B. Quick Sort   C. Insertion Sort   D. Shell Sort.

PART B (10 x 2 = 20 Marks)

11. What is Problem Definition phase?

12. List few useful suggestions in designing efficient algorithms.

13. Why simple arrays are generally not used to implement Lists?

14. Write routines to test whether current position is the last in a Linked List.

15. Write a routine to test whether a Stack is empty.

16. List some applications of Queue.

17. What is Binary Tree?

18. List down the three Tree Traversal method.

19. List down the choices for picking the Pivot element in Quick sort algorithm.

20. State the difference between Linear Search & Binary Search.

PART C (5 x 14 = 70 Marks)

21. a) Write a detailed note on Top Down Design.

(OR)

    b) Explain about the Analysis of Algorithms

22. a) Write a note on the following

        (i) Doubly Linked List

        (ii) Circular Linked List

(OR)

    b) Write a note on Polynomial ADT.

23. a) (i) Evaluate the following postfix expression using stack

        6 5 2 3 + 8 * + 3 + *

    (ii) Convert the following Infix Expression to Postfix expression using Stack.

        a + b * c + (d * e + f) * g

b) Explain with various operations, the Array Implementation of Queue

24. a) Write a detailed note on AVL Trees

(OR)

b) Explain the two basic heap operations insert( ) and Deletemin( ) with Examples.

25. a) Sort the following numbers using Quick Sort Algorithm

97, 53, 59, 26, 41, 58, 31

(OR)

b) Write a detailed note on External Sorting.

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