TB162680B

BCA DEGREE (C.B.C.S.S) EXAMINATION, MARCH 2017
(2016 Admission - Regular & 2015 Admission – Supplementary / Improvement)
SEMESTER II - CORE COURSE
(CLOUD TECHNOLOGY AND INFORMATION SECURITY MANAGEMENT)
CA2C08TB - DATA STRUCTURES USING C

Time: Three Hours   **Maximum Marks: 80**

PART A

I.   Answer all questions. Each question carries 1 mark.

1.   A tree is empty if _____
2.   Degree of a leaf node is_____
3.   An n dimensional array contains _____ subscripts.
4.   First nod in a linked list is called a_____
5.   Nodes at the same level that shares the same parent are called_____
6.   Depth of the tree is basically number of _____ in the tree.

                                                                   (6x1=6)

PART B

II.   Answer any seven questions. Each question carries 2 marks.

7.   Write a short note on stacks.
8.   Discuss the applications of date structure.
9.   Compare pointer and array name.
10. What do you understand by the term 'pointer to function'?
11. How does a linked stack differ from a linear stack?
12. Why are parenthesis not required in post fix/pre fix expressions?
13. Make a comparison with a link list and a linear array.
14. Give the advantage of using circular link list.
15. How are graphs represented inside a computer's memory?
16. Define depth-first search.

                                                                   (7x2=14)

PART C

III. Answer any five questions. Each question carries 6 marks.

17. Differentiate between linear and non-linear date structure.
18. Discuss the significance and limitation of the Big-Oh notation.
19. Explain the difference between Bubble sort and Quick sort, which one is more efficient?
20. Explain the operations on binary search trees.
21. What do you understand by Priority queue? Discuss its applications, also explain its implementation details.
22. Create a link list which stores the name of the employees. Then sort these names and re-display the contents of the link list.

23. Explain graph-traversal algorithms in detail with example.
24. How does the height of binary search tree effect its performance?

(5x6=30)

PART D

IV. Answer any two of the questions. Each question carries 15 marks.

25. Differentiate between function returning pointer to int and a pointer to function returning int. Write a program that illustrate passing of a character arrays as an argument to a function (use pointers)
26. Write a recursive function to perform selection sort. Compare the running complexity of different sorting algorithms.
27. Write a program to implement a stack using a link list. How is a linked stack better than a linear stack?
28. Write a program to interchange the Kth and the $(K+1)^{th}$ node of a circular doubly link list.

(2x15=30)