SE- SEM II [CBGS] - ~~EXTR~~ comp 26 May 2015
Data Structure

QP Code :4833

(3 Hours)   Total Marks: 80

N.B.: (1) Question no. 1 is compulsory.
       (2) Attempt any three questions out of the remaining five questions.
       (3) Figures to the right indicate full marks.
       (4) Make suitable assumptions wherever necessary with justification.

Q1 a) State differences between Singly Linked List and Doubly Linked   5
        List data structures along with their applications.
    b) What is a graph? Explain methods to represent a graph.   5
    c) What is binary search tree? Explain with an example.   5
    d) What is data structure? List out the areas in which data structures are 5
        applied extensively?

Q2 a) Write a program in C to implement the quick sort algorithm   8
    b) Define traversal of binary tree. Explain different types of traversals of 6
        Binary tree with examples. muADDA.com
    c) Explain infix, postfix and prefix expressions with examples.   6

Q3 a) What is a circular queue? Write a program in C to implement circular   10
        queue.
    b) Explain linear and non-linear data structures with examples.   5
    c) Explain the term recursion with an example.   5

Q4 a) Write a C program to convert infix expression into postfix expression. 10
    b) What is an AVL tree? Construct AVL tree for the following data.   10
        Mention the type of rotation for each case.
        50, 25, 10, 5, 7, 3, 30, 20, 8, 15

Q5 a) Write a C program to implement doubly linked list.   10
        Provide following operations.
        i)Insert at beginning
        ii)Insert at location
        iii)Remove from beginning
        iv)Remove from Location
    b) What is Indexed Sequential Search? Write program in C to implement   10
        it.

Q6 a) What is heap? Consider the following list of numbers: 10
        15, 19, 10, 7, 17, 16
        Sort these numbers using heap sort.
    b) Explain Huffman Algorithm with an example   5
    c) What is a file? Explain various file handling operations in C.   5

JP-Con.: 10645-15.