Code: CS3T2

II B.Tech - I Semester – Regular / Supplementary Examinations
November 2016

DATA STRUCTURES
(COMPUTER SCIENCE AND ENGINEERING)

Duration: 3 hours   Max. Marks: 70

PART – A

Answer *all* the questions.   All questions carry equal marks

11x 2 = 22 M

1.
   a) Differentiate linear from non-linear data structure.
   b) What is a bubble sort and how do you perform it?
   c) Define stack and list its applications.
   d) Convert the following infix expression to prefix and postfix : (A + B) * (C + D) * (E/F)
   e) Write a function to display the contents of a circular linked list.
   f) Differentiate singly linked and doubly linked list.
   g) List out few of the application of tree data-structure.
   h) Write a recursive algorithm for postorder.
   i) How do you insert a new item in a binary search tree?
   j) Define a graph. List different ways of representing graphs.
   k) Define a spanning tree.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks.

3 x 16 = 48 M

2. Explain merge sort and its analysis in detail with an example.   16 M

3.

   a) Define queue and explain its operations.   8 M

   b) Explain in detail evaluating postfix expression with an example.   8 M

4.

   a) Explain about application of single linked list to represent polynomial expressions.   8 M

   b) Give an algorithm to reverse a singly linked circular list in place.   8 M

5.

   a) Write an algorithm to perform deletion operation in Binary Search Tree.   8 M

   b) List the differences between binary tree and binary search tree.   8 M

6.

   a) Explain the graph traversal methods with suitable examples.   8 M

   b) Write an algorithm to find the minimum cost spanning tree of an undirected weighted graph.   8 M