Code No. 6033 / S

FACULTY OF INFORMATICS

B.E. 2/4 (IT) I – Semester (Suppl.) Examination, July 2014

Subject: Data Structures

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1 Convert the infix expression to postgix and prefix forms.

A + B / C∗D – E

2 Differentiate between complete and full binary tree.

3 Differentiate between arrays and linked lists.

4 Differentiate between trees and graphs.

5 What is space complexity?

6 What are sparse matrices?

7 Give applications of queues.

8 What is hashing? List out few hash functions.

9 List and explain the representations of graphs.

10 Differentiate between singly and doubly linked lists.

PART – B (50 Marks)

11 a) Define an ADT. 2

b) Write a C++ program for implementing a string ADT. 8

12 Write a C++ function for evaluating a postfix expression. Evaluate the expression 2+5∗6/n using the function. Show all steps of evaluation. 10

13 Write a C++ program for implementing linked queue. 10

14 a) What are minimum cost spanning trees? Write an algorithm for minimum cost spanning trees using Prim's. 6

b) Write algorithms for DFS graph traversal. 4

15 Write C++ function for quick sort. Trace the algorithm for the elements: 14 5 1 6 4 . Specify its timing complexity. 10

16 a) Write algorithm for insertion into an AVL tree. 8

b) What are B-trees? 2

17 Write short notes on:

a) Splay trees 6

b) Heaps 4

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