6E3113

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B.Tech VI Sem. (Main & Back) Exam. May/June 2013

Electrical Engg.

6EE 5 Data Structures In C

Time: 3 Hours **Maximum Marks: 80**

Min. Passing Marks: 24

Instructions to Candidates:

*Attempt any **five questions,** selecting **one question** from **each unit.** All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.

1._____ 2._____

UNIT – I

Q.1 Write an Algorithm to find largest number in a sorted list. Find its best, average and worst case complexities. [16]

OR

Q.1 (a) What do you understand by Asymptotic notation of an Algorithm. Explain various asymptotic notations. [8]

(b) Discuss Advantages and Disadvantages of Link list over Arrays. Also discuss various types of Link lists. [8]

UNIT – II

Q.2 Define two matrix of identical size and write Algorithm for following operations

a) Element by element matrix Addition [4]

b) Transpose of a matrix [6]

c) Matrix Multiplication [6]

OR

Q.2 Derive and Explain formula for calculating the address of any specified member of 2D matrix if matrix is represented in memory as

a) Row major mapping [8]

b) Column major mapping [8]

UNIT – III

Q.3 (a) Discuss any two Applications of stack in detail. [8]

(b) Write and discuss Algorithm for basic operations in stack. [8]

OR

Q3. Write a C Program to implement a priority Queue using link list. [16]

UNIT – IV

Q4. Write and discuss Algorithm for Pre, post and In – order binary tree traversal. [16]

OR

Q.4 Discuss following tree with the help of suitable Example

a) AVL Tree rtuonline.com [8]

b) B-Tree [8]

UNIT – V

Q.5 Write short Notes on following: -

a) Graph Representation Methods

b) Minimum Spanning tree [8x2=16]

OR

Q.5 Write short Notes on following: -

a) Heap sort

b) Merge sort

c) Selection sort

d) Insertion sort [4x4=16]
