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KC-8067

B. E. II (Sem. III) (Comp.) Examination

November/December – 2012

Data & File Structures

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. II (Sem. III) (Comp.)**

Name of the Subject :

☛ **Data & File Structures**

☛Subject Code No. : **8 0 6 7** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Make assumption whenever required.

(3) Figures on the right indicate maximum marks.

1 (a) Define following terms : **10**

(i) Abstract data type

(ii) Strictly binary tree

(iii) Pointer

(iv) AVL tree

(v) Sparse matrix

(b) Write algorithm or program to perform breath first traversal on graph. **10**

2 (a) Write an algorithm to convert general tree into binary tree. **8**

(b) Write an algorithm to insert node into binary search tree. **7**

OR

2 (a) Write an algorithm to delete any node from binary search tree. **8**

(b) Write a C routine for the nonrecursive in order traversal. **7**

(c) Write short notes on following : (any three) **15**

(i) Structure

(ii) Applications of tree

(iii) Weight Balanced Tree

(iv) Depth first Traversal

(v) Application of Graph

3 Attempt any ten from following : **10**

(i) Define : Time Complexity

(ii) Define : Sparse matrix

(iii) Define : Stack

(iv) Define : Recursion

(v) What is meaning of Queue overflow ?

(vi) Define : Double ended Queue.

(vii) Define : Link list.

(viii) Define : Record

(ix) What is use of fread () ?

(x) Header node of link list contains address of the first node of link list. True/False.

(xi) While we remove elements from array randomly, memory fragmentation occurs - state True/False.

(xii) Define : ascending priority queue.

4 (a) Write a program that add and delete elements to circular queue. **7**

(b) Convert following infix expression to postfix expression. **3**

(i) (a+b*c)/d-e

(ii) a*b*(c+d-e/f)

OR

(a) Implement Stack with primitive functions such as – PUSH, POP and display. Write a program to convert decimal number to binary using STACK. **7**

(b) Explain various asymptotic notations used for denoting time complexity. **3**

(c) Explain hashing in detail. Also discuss hash collision and collision resolution techniques in detail. **10**

5 Attempt any four : **20**

(i) Explain Primitive and non-primitive data structures and give examples of them.

(ii) Define Array. Explain row major and column major representations of array in detail.

(iii) Write Algorithm for Infix to Postfix conversion.

(iv) Explain circular Queue in detail.

(v) What are the advantages of using link list ? Explain doubly link list in detail.

(vi) List different types of files. Explain sequential file in detail.
