No. of Printed Pages : **4**

OIEL-002

00120

DIPLOMA ENGINEERING
DECVI / ACECVI
Term-End Examination
June, 2013
OIEL-002 : DATA STRUCTURES

Time : 2 hours *Maximum Marks : 70*

*Note : Question No.1 is **compulsory**. Attempt **any four** questions from the rest. Assume suitable missing data if any.*

1. State whether **True/False.**

   (a) A dangling pointer is that pointer which has been allocated but does not point to any entity. 2

   (i) True (ii) False

   (b) A function is a subprogram that can be defined by the user in his/her program. 2

   (i) True (ii) False

   (c) The set of corresponding parameters sent by the calling function are called dummy parameter. 2

   (i) True (ii) False

   (d) The term structure can be precisely defined as : A group of related data items of arbitrary types. 2

   (i) True (ii) False

(e) Collection of records are known as : 2

(i) row (ii) column

(iii) files (iv) tuple

(f) Choose the correct answer. 2

'f gets' function can be used for :

(i) close a stream

(ii) read an string from a stream

(iii) read a character from a stream

(iv) open an stream

(g) The length of the longest path from root to any node is knolwn as : 2

(i) long path (ii) depth

(iii) weight (iv) none of them

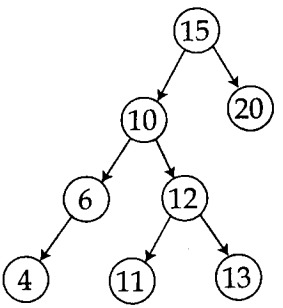
2. (a) State the advantages and disadvantages of using singly linked list and doubly linked list. 7

(b) Write an algorithm for "linked implementation of queues". 7

3. (a) Compare linked list with array in respect of both advantages and disadvantages. 7

(b) Define the terms : null graph, simple graph, DAG and adjacency matrix representation at graph. 7

4. (a) Consider the following tree and redraw the tree after deleting item 13, 6, 15, 10, 11 from the tree. 7



(b) Define ADT with suitable examples. 7

5. (a) Write different file operations with examples. 7

(b) Compare selection sort and insertion sort in terms of time and space complexity. 7

6. (a) What do you mean by a perfect hash function ? Explain two callision resolution techniques. 7

(b) Differentiate between Depth first search and Breadth first search with examples. 7

7. (a) Consider the array : 50 40 10 15 5 20 35. Show the content of the array after applying bubble sort. 7

(b) Write a program to evaluate a post fix expression. 7

8. Write short notes on ***any four*** of the following : **3.5x4=14**

(a) Minimal spanning tree

(b) Merge sort and its complexity

(c) Indexed sequential search

(d) Non linear data structure

(e) Random access files

(f) Recursion