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OIEL-002

DIPLOMA – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (DECVI) / ADVANCED LEVEL CERTIFICATE COURSE IN ELECTRONICS AND COMMUNICATION ENGINEERING (ACECVI)

00276

Term-End Examination

December, 2014

OIEL-002 : DATA STRUCTURES

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions in all. Question no. **1** is **compulsory**. All questions carry equal marks.*

1. Choose the correct answer. *7×2=14*

(a) Execution of C program begins with the execution of the following function :

(i) scanf( )

(ii) main( )

(iii) getc( )

(iv) None of the above

(b) The process of finding the location of a particular record is

(i) Indexing

(ii) Sorting

(iii) Searching

(iv) None of the above

(c) Which of the following data structures is linear ?

(i) Trees

(ii) Graphs

(iii) Arrays

(iv) None of the above

(d) Linear order in the linked list is provided by

(i) Index number

(ii) Pointer

(iii) Both (i) and (ii)

(iv) None of the above

(e) 'PUSH' and 'POP' is related to

(i) array

(ii) lists

(iii) stacks

(iv) None of the above

(f) Which of the following steps is performed first for inorder traversal of a binary tree ?

(i) Traversal of the left subtree in postorder

(ii) Processing of the root node

(iii) Traversal of the left subtree in inorder

(iv) None of the above

(g) Breadth first search

(i) scans adjacent unvisited vertex as soon as possible

(ii) scans all incident edges before moving to other vertex

(iii) is same as Depth-first

(iv) None of the above

2. (a) Explain the concept of sequential and random access files.

(b) Define arrays and pointer in C language. *7+7*

3. (a) Define the following :

(i) Algorithm

(ii) Data structure

(b) Explain the operation of Sequential search. *7+7*

4. Write a program to delete the last node in a linked list. *14*

5. (a) Explain the difference between stack and queue.

(b) Define priority queue. What are its various types ? *4+10*

6. (a) What is a binary tree ? What are the applications of a binary tree ?

(b) What do you mean by edges and vertices of a graph ? *7+7*

7. (a) Define hash functions. List out various techniques of hashing.

(b) Define the following :

(i) Singly linked list

(ii) Doubly linked list 7+7

8. Write short notes on any ***four*** of the following :

$4 \times 3\frac{1}{2} = 14$

(a) Selection sort

(b) Pointers

(c) Program to convert infix to postfix

(d) Storage representation

(e) Traversal

(f) Arrays as ADT