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OIEL-002

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

Term-End Examination

June, 2016

00806

OIEL-002 : DATA STRUCTURES

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt any* ***five*** *questions. Question no.* ***1*** *is* ***compulsory.***

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

(a) In post-fix notation, a + b is written as

(i) + ab

(ii) ab +

(iii) a + b

(iv) a – b

(b) A stack supports the following on pattern :

(i) FIFO

(ii) LIFO

(iii) Both (i) and (ii)

(iv) None of the above

(c) Array is a collection of

(i) Similar data items

(ii) Different data items

(iii) Both (i) and (ii)

(iv) None of the above

(d) Flow chart is

(i) a program

(ii) a problem

(iii) a diagrammatic representation of an algorithm

(iv) None of the above

(e) LIFO is used for

(i) List

(ii) Queue

(iii) Stack

(iv) Tree

(f) '*' refers to

(i) Value at address operator

(ii) Address operator

(iii) Scope operator

(iv) None of the above

(g) BFS and DFS are

(i) Traversal methods of graph

(ii) Traversal methods of tree

(iii) Both (i) and (ii)

(iv) None of the above

2. (a) Write a program in 'C' to reverse a string using a stack. 7

(b) Write a recursive function to generate N natural numbers. 7

3. (a) Explain bubble sort with the help of an example. 7

(b) Write an algorithm to search an element in a doubly linked list. 7

4. (a) Write an algorithm for binary search. 7

(b) What do you mean by collisions in hashing ? How are they handled ? 7

5. (a) What is link list ? Write a program to delete the first node of link list ? 7

(b) Create your own binary tree. Perform in-order, pre-order and post-order traversals of the tree. 7

6. (a) How are polynomials represented by using arrays ? Illustrate with an example. 7

(b) Write short notes on the following : $2 \times 3\frac{1}{2} = 7$

(i) Depth First Search

(ii) Breadth First Search

7. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) calloc( )

(b) malloc( )

(c) Queue

(d) Union

(e) Graph

(f) Structure