DIPLOMA ENGINEERING
DECVI / ACECVI

Term-End Examination

December, 2012

OIEL-002 : DATA STRUCTURES

Time : 2 hours   *Maximum Marks : 70*

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

1. **Choose the correct option :**   2

    (a) A program is a collection :

    (i) Lines

    (ii) Instruction

    (iii) Software

    (iv) None

        2

    (b) '&' is a :

    (i) Value at address operator

    (ii) Address operator

    (iii) Both

    (iv) None

(c) Which of the following is dynamic memory   **2**
     allocation function ?

     (i)   Size of ( )

     (ii)   Prinf ( )

     (iii) Scanf ( )

     (iv)   Malloc ( )

(d) A data structure in which insertion and   **2**
     deletion operations are perform at same end
     is called :

     (i)   Queue

     (ii)   Stack

     (iii) Link list

     (iv)   Array

(e) Which one is single source shortest path   **2**
     algorithm ?

     (i)   Dijkstra Algorithm

     (ii)   Prim's Algorithm

     (iii) Kruskal's Algorithm

     (iv)   Floyd - Warshall Algorithm.

(f) A record is a collection of _____.   **2**

     (i)   related fields

     (ii)   files

     (iii) data base

     (iv)   none of above

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(g) Void takes _____ to store a variable. **2**

  (i)   1 Byte

  (ii) 2 Byte

  (iii) 0 Byte

  (iv) None of above

2. (a) Write an algorithm for binary search. **7**

   (b) What is circular Queue? Write a C program **7**
       to implement it.

3. (a) Write an algorithm for quick sort. Also **7**
       explain in detail.

   (b) Write a C program to insert a element in a **7**
       stock.

4. (a) What is recursion? Write a C program to **7**
       print N Natural number using recursion.

   (b) Write a C program to short the following **7**
       data.

       10, 15, 5, 7, 8, 25, 30.

5. (a) Write a C program to print the transpose of **7**
       a matrix.

   (b) What is scope of a variable? Explain various **7**
       scope rules in detail.

6. (a) What is function? Write a C program to   7
calculate the area of a square using function.
Explain the various advantages of using
function.

(b) What is Link List? How Link List is differ   7
from doubly Link List ? Explain with the
help of C program.

7. (a) Create your own binary tree, perform in   7
order, pre order and post order traversal of
tree.

(b) How random access file is differ from   7
sequentia files? Explain in detail.

8. Write short notes on :   4x3.5=14

(a) Array

(b) Structure

(c) Union

(d) Stack