

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

Term-End Examination

00587

June, 2014

OIEL-002 : DATA STRUCTURES

Time : 2 hours

Maximum Marks : 70

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

1. Choose the correct answer in the following questions : 7×2=14

- (a) Which of the following types of data structure is a collection of homogeneous data items ?
- (i) Union
 - (ii) Pointer
 - (iii) Arrays
 - (iv) Functions

- (b) Which of the following types of sort uses divide and conquer methodology ?
- (i) Merge sort
 - (ii) Bubble sort
 - (iii) Insertion sort
 - (iv) None of the above
- (c) The data type defined by user is called
- (i) Build in data type
 - (ii) Abstract data type
 - (iii) Logical data type
 - (iv) None of the above
- (d) Header linked list in which last node point to the header node is called
- (i) Circular linked list
 - (ii) Singly linked list
 - (iii) Doubly linked list
 - (iv) None of the above
- (e) A data structure into which a new element is added and removed duly from one end, is known as
- (i) In-built data structure
 - (ii) Pointer
 - (iii) Abstract data type
 - (iv) Stack

- (f) Queue follows the rule
- (i) First in first out
 - (ii) First in last out
 - (iii) Last in first out
 - (iv) None of the above
- (g) A suitable structure for breadth first and depth first traversal of graphs
- (i) Edge listing
 - (ii) Adjacency matrix
 - (iii) Adjacency list
 - (iv) None of the above
2. (a) Define union and its implementation with example.
- (b) Explain concept of recursive functions. $7 \times 2 = 14$
3. Explain ADT operation and its implementation. 14
4. How does the quick sort work ? Explain with a suitable example. 9+5
5. Explain how deletion can be done in singly linked list with an example. 14

6. Explain Prefix, Infix and Postfix expressions with example. 14
7. Write a program in C for depth first search/breadth first search of a graph. 14
8. Write short notes on any **four** of the following : $3\frac{1}{2} \times 4 = 14$
- (a) Sequential searching
 - (b) Arrays
 - (c) Generalized list
 - (d) Circular queue
 - (e) Binary tree
 - (f) Hash table
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