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OICS-001

DIPLOMA – VIEP – COMPUTER SCIENCE AND ENGINEERING (DCSVI) / ADVANCED LEVEL CERTIFICATE COURSE IN COMPUTER SCIENCE AND ENGINEERING (ACCSVI)

00452

Term-End Examination

December, 2014

OICS-001 : DATA STRUCTURES AND FILES

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt any* ***five*** *questions.* ***First*** *question is* ***compulsory.*** *All questions carry equal marks.*

1. Choose the correct option :

(a) An array is _____ type of data structure. *2*

(i) linear

(ii) dynamic

(iii) non-linear

(iv) linear and dynamic

(b) When a function calls itself, it is called *2*

(i) recursion

(ii) function

(iii) iteration

(iv) None of the above

(c) When an element is inserted in the queue, the position of rear 2

(i) increases

(ii) decreases

(iii) remains unchanged

(iv) None of the above

(d) Exchange sort is known as 2

(i) Bubble sort

(ii) Selection sort

(iii) Insertion sort

(iv) Merge sort

(e) Traverse the left subtree in inorder, Traverse the right subtree in inorder, Visit root node.

The above sequence of traversing is called 2

(i) Inorder

(ii) Preorder

(iii) Postorder

(iv) Pre-postorder

(f) The process of arranging records in an ordered manner is called 2

(i) sorting

(ii) indexing

(iii) searching

(iv) None of the above

(g) In which type of searching must the records be sorted ? 2

(i) Linear search

(ii) Selection search

(iii) Binary search

(iv) None of the above

2. (a) Write a program to enter a four digit number using array and arrange it in the reverse order. 7

(b) Explain Tower of Hanoi problem with a suitable example. 7

3. (a) Convert the following infix expression into postfix form : 7

(i) A && B || !(A > B)

(ii) (A + B – C) | (D + E)

(b) What do you mean by stack overflow and underflow ? How can it be avoided ? 7

4. (a) Write a program to implement queue using array. 7

(b) What is a linked list ? Explain each type of linked list with example. 7

5. (a) Write a program to create a singly circular linked list. 7

(b) Construct a Binary tree for the following : 7

Preorder : A E F D J H I G B C

Inorder : F E A H J I D B G C

6. (a) Explain the Heap sort with a suitable example. 7

(b) Write an algorithm for binary search. 7

7. (a) Explain Prim's algorithm with a suitable example. 7

(b) Write an algorithm for depth first search of graph. 7