

Even Semester Examination, 2017-18

BCA (SEMESTER-II)

## DATA STRUCTURE AND FILE ORGANIZATION

(First Paper)

Time: 03:00 Hours

Max Marks : 70

Note : Attempt all five from following each question carry equal marks.

Q1. Attempt the following :

[7×2=14 Marks]

(a) What is circular Queue? Write a function to insert and delete an element in Circular Queue.

(b) Perform Quick Sort

10 20 5 40 45 15 8 25 35 18

(c) What is searching? Write a program of Binary Searching.

[4 × 3.5 = 14 Marks]

Q2. Short notes (any four) ;

(a) Hashing

(b) Huffman's Tree

(c) Complete Binary Tree

(d) Priority Queue

(e) Collision Technique

(f) Tree Terminology

[7 × 2 = 14 Marks]

Q3. Attempt the following :

(a) What is Data Structure? Explain the type of Data Structure with general syntax

[P.T.O.]

- (b) Consider an array AAA[-1:10], BBB[2:20], CCC[-5:15]
- (i) Calculate the number of elements in each array
- (ii) Base address of AAA is 1000 and w=2 find the address of A[5], A[7]
- (c) What is Stack? Explain all its operations

Q4. Attempt the following : [7 × 2=14 Marks]

- (a) What is sparse matrix. Write a program to find element from sparse matrix.
- (b) Write an Algorithm to traverse Binary Search Tree [ inorder , preorder and postorder]
- (c) What is Linked List? Explain the types of Linked List with the help of graphical representation.
- (d) Write a function to insert a node at the last location in a singly linked list.

Q5. Attempt the following : [7 × 2=14 Marks]

- (a) What is Stack? Write an Algorithm to perform push and pop operation in Stack.
- (b) Convert Infix to postfix using Stack :

$$a + b * c - d ^ e \% f * g + h - i$$

- (c) What is queue. What are the basic operations performed by a queue.

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