

Paper Code & Roll No. to be filled in your Answer Book

Roll No.

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## BCA (II - Sem.)

Even Semester Examination - 2016

### DATA STRUCTURE & FILE ORGANIZATION

*Time : 3 Hours]*

*[Maximum Marks : 70]*

**Note :** Attempt all question.

Q1. Attempt the following question: (5×3=15)

(a) Find the frequency count for the following code.

```
for (i=1;i<=n;i++)
{
    for(i=1;i<=n;i++)
    {
        for(i=1;i<=n;i++)
        {
            sum=sum+I;
        }
    }
}
```

- (b) Write a function for selection sort using templates.
- (c) What is ADT? Write an ADT for Deques.
- (d) Explain different Asymptotic notations.
- (e) What is collision? What Are different collision resolution techniques?

Q2. Give answer of the following: (5x3=15)

- (a) Define a binary tree.
- (b) Explain with suitable example the various storage structures for the graph.
- (c) How do you push and pop elements in a linked stack?
- (d) What is Recursion? Explain with an example. Write a recursive function for Binary Search.
- (e) List out the various techniques of hashing.

Q3. Attempt **any two** of the following: (2x10=20)

- (a) Give the tree T, find the inorder and postorder traversals.
- (b) Implement typical stack operation when stacks are represented using

- (i) Arrays and
- (ii) using singly linked lists.
- (c) What is a B+ tree? Give structure of its internal node. What are the order of B+ tree & Characteristics of B+ tree.

Q4. Attempt **any two** of the following: (2x10=20)

- (a) State the algorithmic technique used in merge sort. Write a parallel algorithm for odd-even merge sort.
- (b) Explain the quick sort algorithm and implementation with example.
- (c) Write at least three differences between a Circularly linked list and a Doubly linked list. Write an algorithm for the creation and insertion operations on a Doubly list.

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