

Code No. : B-413(A)**Annual Examination - 2017****BCA-II****BCA-201****THEORETICAL FOUNDATION OF COMPUTER SCIENCE****Paper - III****DATA STRUCTURE****Max.Marks : 50****Time : 3 Hrs.****Min Marks : 20**

Note :Section 'A' is objective type, containing 10 questions, is compulsory. Section 'B' consists of short answer type questions and Section 'C' consists of long answer type questions. Section 'A' has to be solved first.

(Section-'A')

(Very short answer type questions. Answer in one or two lines.) **(1x10=10)**

- Q.1 What is data structure?
- Q.2 Write the different operations of Data structure.
- Q.3 What is Sorting?
- Q.4 What is Pointer?
- Q.5 What is linked list?
- Q.6 What is Stack?
- Q.7 What is Tree?
- Q.8 What is Record?
- Q.9 What is Array?
- Q.10 What is Merging?

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(Section-'B')

(Short answer type questions with word limit 150-200)
(3x5=15)

Q.1 Write the different applications of Data Structure.

OR

Write an algorithm for inserting an element ITEM into the Kth position of a linear array of N elements.

Q.2 Write an algorithm for finding the smallest element in an array of N elements.

OR

Write an algorithm for performing binary search of an element in a linear array of N elements.

Q.3 What is pointer? Explain the pointer with an example.

OR

Write the significance of linked list with an example.

Q.4 Explain the different types of tree in brief.

OR

Explain the different types of traversing in a tree.

Q.5 What is merging? Explain with an example.

OR

Write an algorithm for sorting an linear array of N elements in ascending order.

(Section-'C')

(Long answer type questions with word limit 300-350)
(5x5=25)

Q.1 Write an algorithm for performing linear search of an element ITEM in an array of N elements.

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OR

Explain the significance of Record data structure with an example.

Q.2 Write an algorithm to count the number of elements in a linked list.

OR

Explain overflow and underflow condition in stack.

Q.3 What are the operations that can be done on a Queue?

OR

What are the different ways in which stack can be represented?

Q.4 Explain the different types of traversing in a binary tree.

OR

Write an algorithm for inserting in a Binary tree.

Q.5 Write an algorithm for Insertion Sort.

OR

Write an algorithm for selection sort.

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