

**Internal Assessment Test 1 – April 2019**

<b>Sub:</b>	<b>Data Structures using C++</b>						<b>Code:</b>	18MCA22	
<b>Date:</b>	15-04-19	<b>Duration:</b>	90 mins	<b>Max Marks:</b>	50	<b>Sem:</b>	II A	<b>Branch:</b>	MCA

**Note:** Answer any full 5 questions. All questions carry equal marks. Total marks: 50

1. What is Data Structure? Explain the classification of Data Structures with an example. Give any four applications of Data Structures.  
**(OR)**
2. What is abstract data type give an example? Describes Stack ADT and write the algorithms.
3. What is an array? Write an algorithm to Insert and Delete an element from an array.  
**(OR)**
4. Describe Quicksort algorithm and sort the following set of items showing the items at each stage: 65,70,75,80,85,60,55,50,45
5. Explain the algorithm to convert infix expression to postfix expression? Illustrate with the example.  $A+(B*C-(D/E-F)*G)*H$   
**(OR)**

Marks	OBE	
	CO	RBT
10	CO1	L1
10	CO1	L1
10	CO2 CO3	L2
10	CO2 CO3	L2 L3
10	CO2 CO3	L3

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10	CO1	L1
10	CO1	L1
10	CO2 CO3	L2
10	CO2 CO3	L2 L3
10	CO2 CO3	L3

6. Write an algorithm to evaluation of a postfix expression . Explain with an example.
- 7 : a. What is recursion? Explain the process of recursion  
 b)Write a recursive algorithm to find the nth term if Fibonacci series. Give the recursion tree.  
**(OR)**
- 8 Write an algorithm to convert Prefix expression to Postfix expression? Illustrate with an example..
- 9 a)Write an algorithm for selection sort. Explain with an example  
 b) Write a recursive algorithm to find the GCD of two numbers.  
**(OR)**
- 10 a)Write an algorithm to search an item in a given list using binary search . Illustrate with an example  
 b) Write an algorithm for Bubble sort. Explain with an example

10	CO4	L3
4	CO2	L1
6	CO4	L2
10	CO4	L3
5	CO2	L2
5	CO4	L3
5	CO2	L2
5	CO3	

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5	CO3	

