

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**



**B.C.A.DEGREE EXAMINATION –COMPUTER APPLICATIONS**

**THIRD SEMESTER – APRIL 2018**

**16UCA3MC03– DATA STRUCTURES**

Date: 08-05-2018  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

**PART- A**

**ANSWER ALL THE QUESTIONS:**

**( 10 X 2 = 20 )**

1. Define data structure.
2. What are multidimensional arrays?
3. What are the operations on stack?
4. Define recursion.
5. Define Linked List.
6. State any one advantage of doubly linked list.
7. Define Binary Trees.
8. What is adjacency matrix?
9. What is binary search?
10. What is bubble sort and why it is named so?

**PART - B**

**ANSWER ALL THE QUESTIONS:**

**( 5 X 8 = 40 )**

11. (a) Explain conditional statements with an example.  
**(OR)**  
(b) Explain inserting and deleting in the linear arrays with an example.
12. (a) Describe the different operations on queues with an example.  
**(OR)**  
(b) Explain in detail about transforming infix expression into postfix expression with an example.
13. (a) Discuss traversing a linked list with an example.  
**(OR)**  
(b) Describe insertion algorithm in a Linked list with an example.

14. (a) Explain representation of binary trees in memory with an example.

**(OR)**

(b) Explain the Preorder, Inorder and Postorder traversal of a tree.

15. (a) Discuss insertion sort with an example.

**(OR)**

(b) Describe Binary search with an example.

### **PART -C**

**ANSWER ANY TWO QUESTIONS:**

**( 2 X 20 = 40 )**

16. (a) Explain in detail about traversing linear arrays and their operations.

(b) Describe the Towers of Hanoi problem with an example.

17. (a) Discuss doubly linked lists and its operations with an example.

(b) Explain sequential representation of graphs with an example.

18. (a) Describe Breadth first search and Depth first search .

(b) Explain selection sort algorithm with an example

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