LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc., & B.C.A. DEGREE EXAMINATION – **COMPUTER SCI. & APP.**

THIRD SEMESTER – **NOVEMBER 2017**

16UCS3MC01/16UCA3MC03 – DATA STRUCTURES

Date: 06-11-2017   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART – A

Answer ALL questions   (10 x 2 = 20 marks)

1. How data structures are classified?
2. What are the uses of Pointers?
3. What are the postfix and prefix forms of the expression?
4. What are the types of queues?
5. Give the fields of the linked list with diagram.
6. What is a doubly linked list?
7. What is a Binary tree?
8. What are the different types of traversing?
9. Write the types of searching.
10. Give the purpose of quick sort.

PART – B

Answer ALL the questions: (5 x 8 = 40 marks)

11. a) Explain the variables and data types with example.

               (OR)

   b) Write short notes on: (i) Pointers with example   (ii) Record structures with example.

12. a) Write an algorithm to convert infix to postfix expression and explain it with example.

               (OR)

   b) Explain the towers of Hanoi algorithm with example.

13. a) Write and explain the algorithm for insertion of linked list with example.

               (OR)

   b) Explain the algorithm for deletion of doubly linked list with example.

14. a) Discuss about the terminology used in tree.

               (OR)

   b) Explain about the graph representation in detail.

15. a) Explain insertion sort algorithm with example.

               (OR)

   b) Discuss about the binary search algorithm with example.

PART – C

(2 x 20 = 40 marks)

16. a) Explain about the control structures in detail.

    b) What is stack? Elucidate the algorithm for all operations in the stack with suitable example.

17. a) Explain the algorithm for traversing the linked list and searching with algorithm.

    b) Discuss about the breadthfirst and depthfirst search with example.

18. a) Illustrate the selection and merge sort with example

    b) Discuss about the linear array operations in detail.

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