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Roll No. ....

**MCA-06/PGDCA-06/M.Sc. IT-06**

**Data Structure through C  
Language**

Master of Computer application/Post-  
Graduate diploma in Computer  
Application/Master of Science in Informa-  
tion Technology  
(MCA/PGDCA/M.Sc. IT-11/12/16/17)

**Second Semester  
Examination, 2019**

*Time : 3 Hours*

*[Maximum Marks : 80*

**Note :** This paper is of Eighty (80) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

**Section–A**

**(Long Answer Type Questions)**

**Note :** Section A contains Five (05) long-answer-type questions of Fifteen (15) marks each.

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P.T.O.

**(2)**

Learners are required to answer any three (03) questions only. **(3×15=45)**

1. Define Data Structure? What is the different category of Data Structure Explain? What are the benefit of Data Structure?
2. A double ended queue is a linear list where additions and deletions can be performed at either end. Represent a double ended queue using an array to store elements and write modules for additions and deletions?
3. Write a PUSH & POP operation for a STACK of minimum size 10. Print minimum & maximum number of element stored in the STACK.
4. What is binary Search Tree? Write an algorithm to delete a particular node from binary search tree. Trace your algorithm to delete a node from the given tree.
5. What is sorting? Which of the sorting technique has best performance in terms of storage and time complexity? Justify your answer.

**Section–B**

**(Short-Answer-Type Questions)**

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**(3)**

**Note :**Section 'B' contains Eight (08) short-answer-type questions of Seven (07) marks each. Learners are required to answer any Five (05) questions only. **(5×7=35)**

1. Write an algorithm to count number of nodes in the circular linked list.
2. Explain selection sort and give a suitable example of selection sort.
3. What is the difference between tree and graph?
4. Explain Depth First search in graph with the help of an example.
5. What is sequential search? Explain by giving suitable example.
6. What do you understand by address translation function for one dimensional and two dimensional arrays?
7. What are the different application of stack and queue? Explain.
8. What is the difference between general tree and binary tree? Explain.