

Total No. of Printed Pages : 4

Roll No.....

MCA-06/PGDCA-06/M.ScIT-06
DATA STRUCTURE THROUGH
C LANGUAGE

Master of computer application/Post-Graduate
Diploma in Computer Application/Master of Science
in Information Technology

(MCA/PGDCA/MSc.IT-11/12/16/17)

Second Semester, Examination-2020

Time Allowed : 2 Hours

Maximum Marks : 80

Note : This paper is of Eighty (80) marks divided into Two (02) sections A and B. Attempt the question 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 Twenty (20) marks each. Learners are required to answer any two (02) questions only. (2×20=40)

1. What is circular queue? Explain the addition and deletion operation performed on a circular queue with necessary algorithm.
2. What is binary tree? A binary tree T has 9 nodes. The inorder and preorder traversals of T are following :

Inorder : E A C K F H D B G

Preorder: F A E K C D H G B

Construct the tree.

3. What is the best case complexity of quick sort and outline why it is so? How the quick sort processes the list 42, 34, 75, 24, 19, 18, 103, 72 in order to sort it in the descending order.
4. Write an algorithm to create a Linked List. Also write a function to delete a node in the linked list.
5. Write an algorithm for binary search. And also explain its limitations and advantages binary search algorithm over linear search algorithm.

Section-B

(Short answer type questions)

Note: Section-B Contains Eight (08) short answer type questions of Ten (10) marks each. Learners are required to answer any four (04) questions only. (4×10=40)

1. Define data structure. List the three distinct ways of looking at a Data Structure.
2. Write algorithm to sort the number by using bubble sort.
3. What is the difference between prefix and postfix notations?
4. Explain breadth First search in graph with the help of an example.
5. What is bucket and radix sort? Explain.
6. How will you represent adjacency matrix and adjacency list? Define with suitable examples.

7. What is Big Oh 'O' notation? Explain with suitable examples.
8. What is priority queue? Explain its benefits over Priority queue.
