

4235**BOARD DIPLOMA EXAMINATION, (C-14)****JUNE-2019****DCME - THIRD SEMESTER EXAMINATION****DATA STRUCTURES THROUGH C**

Time: 3 hours

Max.Marks: 80M

PART-A**10x3=30**

Instructions:

- 1) Answer **all** questions.
- 2) Each question carries **three** marks.
- 3) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1) Define data structure
- 2) Classify different data structures.
- 3) Write briefly about singly linked list.
- 4) What are the advantages of double linked list?
- 5) Define stack and list the operations of a stack.
- 6) Write briefly about circular queue.
- 7) Define binary tree.
- 8) Write the applications of tree.
- 9) Define sorting.
- 10) Write the need of searching.

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PART-B

5x10=50

Instructions: 1) Answer any **five** questions.
2) Each question carries **ten** marks.
3) Answer should be comprehensive and the criteria for valuation are the content but not the length of the answer.

- 11) Explain how to reverse a singly linked list.
- 12) Explain how to insert elements in a doubly linked list.
- 13) Explain the process of converting infix expression to postfix with an example.
- 14) Define queue and explain in detail about priority queue.
- 15) Write a program to create and display a binary tree.
- 16) Construct a tree using the following inorder and postorder traversals
 - a) inorder traversal → gdefabc
postorder → gfedcba
 - b) inorder traversal → A+B*C-D
postorder → AB+CD-*
- 17) Write the algorithm for selection sort.
- 18) a) Write a program to implement insertion sort. 5
b) Explain about binary search. 5

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