6230

BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DCME - THIRD SEMESTER EXAMINATION

DATA STRUCTURES THROUGH C

Time : 3 Hours]　　　　　　　　　　　　　　　　　　[*Total Marks* : 80

PART—A　　　　　　　　　　　　3×10=30

Instructions :　(1) Answer **all** questions.

　　　　　　　　(2) Each question carries **three** marks.

　　　　　　　　(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. What are data type, data structure and abstract data types?

2. Define linear data structure and give an example.

3. What do you meant by dummy header?

4. Define queue, circular queue and priority queue.

5. What is postfix expression? Give an example.

6. List any three applications of queue.

7. List various tree traversal techniques.

8. List any three applications of trees.

9. Write the principle of bubble sort.

10. What is searching and what are the methods of searching?
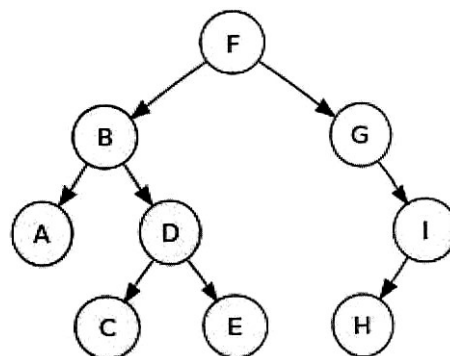
PART—B   10×5=50

Instructions :   (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. What is stack? Write a C program to implement stack using array representation.   10

12. Write a C program to insert, delete elements in a singly linked list.   10

13. Explain how to create and display elements in a singly linked circular list.   10

14. Write a C program to insert, delete elements in a queue using array representation.   10

15. Write a C program to create and traverse elements in a binary tree.   10

16. *(a)* Write inorder, preorder and postorder traversal for the given binary tree :   7

(b) Write the importance of binary trees over general trees.   3

17. *(a)* Write a C program for sorting the elements using selection sort. 5

(b) Write a C program for linear search and mention its time complexity. 5

18. Write a C program to implement merge sort technique. 10

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