6230
BOARD DIPLOMA EXAMINATION
JUNE - 2019
DIPLOMA IN COMPUTER ENGINEERING/INFORMATION TECHNOLOGY
DATA STRUCTURES THROUGH C
THIRD SEMESTER EXAMINATION

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

PART - A   (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. List the ways to analyze algorithms?

2. Define data structure.

3. What is a stack? List operations of stack.

4. List the advantages of queue.

5. What is the advantage of doubly linked list compared to singly linked list?

6. List the operations of Linked list.

7. Write the importance of Binary Trees over General Trees?

8. Define following:

   (a) Degree of node   (b) Siblings   (c) Degree of Tree

9. What is sorting? State the need of sorting?

10. Differences between Linear Search and Binary Search?

PART - B   (10m x 5 = 50m)

Note 1:Answer any five questions and each question carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. Write a C program to convert given infix expression to postfix expression?

12. Write a program for implementing a Circular Queue using arrays.

13. Write a C program to create and display elements in a singly circular linked list.

14. (a) Explain how to find and replace node in a singly linked list.

    (b) Explain how to insert elements in a singly linked list.

15. Construct a binary tree for the given inorder and postorder traversal?

   In order : D G B A H E I C F

   Post order: G D B H I E F C A

16. Explain inorder, preorder and postorder traversals for the given Binary tree?
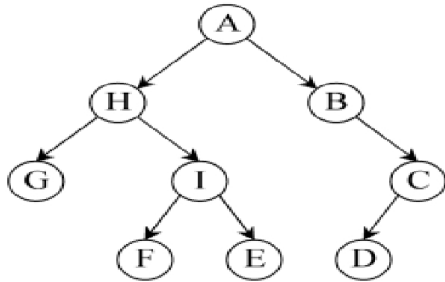
17. Write the algorithm for Bubble sort? Define its complexity?

18A. Trace the operation of Insertion sort on the following list:

   55, 17, 32, 95, 46

 B. Explain an algorithm for linear search?

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