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BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 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. How an algorithm is analyzed? Explain briefly.
2. What is primitive data structure? Give examples.
3. What is reverse polish notation? Give example?
4. Write self-referential structure of a node in doubly linked list?
5. Define Queue. List operations of Queue.
6. Write various advantages and disadvantages of linked lists.
7. Define Sibling nodes, internal nodes, External nodes.
8. List the operations of binary tress.
9. What is sorting? State the need of sorting?
10. What is searching and what are the methods of searching?

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. (a) Explain how doubly Linked List is different from singly Linked List

    (b)Write a C program to create and display elements in a doubly linked list

12. Write an algorithm to search and replace the elements in a singly Linked List?
13. Write a program for implementing a Circular Queue using arrays.
14. Write an algorithm to push and pop elements in a stack?

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 how a binary tree can be created and displayed with algorithms

17. Write the algorithm for Bubble sort? Define its complexity?

18A. Write the algorithm for insertion sort and define its complexity?

B. Write the algorithm for Binary Search and its complexity?

- xxx -

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