C09-CM-305/C09-IT-305

3231

BOARD DIPLOMA EXAMINATION, (C-09)

OCT / NOV-2015

DCM – THIRD SEMESTER EXAMINATION

DATA STRUCTURES THROUGH - C

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

PART - A 10 X 3 = 30

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

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

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

1. What are the different data types?

2. Write the classification of data structures.

3. Write how to insert a node into a singly linked list.

4. List the operations on a stack.

5. Write the concept of a Circular Queue.

6. What is an infix expression? Give an example.

7. Define (a) Root, (b) Leaf and (c) Sub tree.

8. What are the applications of trees?

9. Write the time complexities for the following :

(a) Selection sort (b) Insertion sort (c) Bubble sort

10. Define searching.

PART - B

10 X 5 = 50

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

11. (a) Write how to reverse a singly linked list.

(b) Write a function program for reversing of the singly linked list.

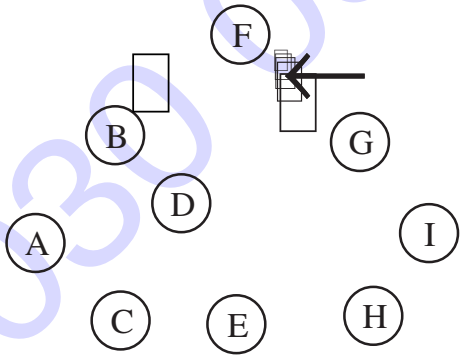
12. (a) Write how a node is inserted in a doubly linked list.

(b) Write how a node is deleted from a doubly linked list.

13. Write a program for implementing queue operations using linked lists.

14. Explain the porcess of representing a sparse matrix.

15. Draw the in-order, pre-order and post-order traversals for the following tree:



16. Explain how to construct a tree for the given in-order post-order traversal output

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

17. Explain the method of insertion sort.

18. (a) Sort the list 5, 8, 3, 7, 2, 9, 1 using the quick sorting method.

(b) Write about the method of binary search with an example.

* * *