



C14-CM-305/C14-IT-305

4235

BOARD DIPLOMA EXAMINATION, (C-14)
OCT/NOV—2015
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.

1. Define data type and give an example.
2. Define linear data structure and give an example.
3. Write a short note on dummy header.
4. List any three differences between single-linked list and double-linked list.
5. Write short notes on stack overflow and stack underflow conditions.
6. Differentiate between stacks and queues.
7. Differentiate between parent and child nodes.
8. List any three applications of trees.

- * 9. Write a short note on merge sort.
10. Define searching and list any two methods of searching.

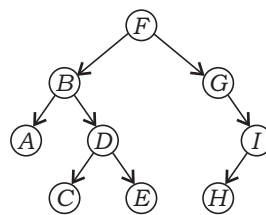
PART—B

10×5=50

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

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

11. Write an algorithm for reversal of a single-linked list.
12. Write a C-program to perform insertion operations in a double-linked list as a head, in the middle and at the end.
13. Write the steps to convert an infix expression to postfix form.
14. Define a queue. List the operations that can be performed on queue. List any five applications of queues.
15. Construct a binary tree for the given inorder = {4, 2, 5, 1, 6, 3, 7} and postorder = {4, 5, 2, 6, 7, 3, 1}.
16. (a) Write the recursive algorithms for tree traversals.
(b) Write preorder, postorder and inorder traversals for the given tree.



17. Write the algorithm for bubble sort and explain with an example.
- * 18. (a) Write the algorithm of quicksort.
(b) Compare between linear search and binary search.
