



C09-IT-305

3303

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2013

DIT—THIRD SEMESTER EXAMINATION

DATA STRUCTURES THROUGH C

Time : 3 hours]

[Total Marks : 80

PART—A

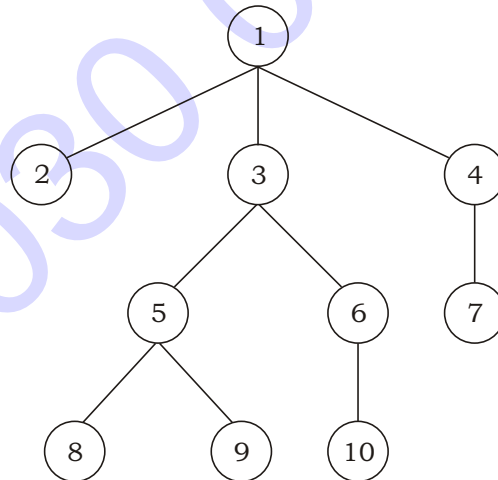
Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answer should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define linear data structure and give an example.
2. List the properties of an algorithm.
3. Write the purpose of a dummy header.
4. Write the advantages of sparse matrix.
5. What do you mean by a circular queue?
6. What is a postfix expression? Give an example.
7. List the tree traversals methods.
8. How is a binary tree represented using linked list?
9. Write the principle of selection sort.
10. Write the differences between linear search and binary search.

PART—B

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

11. (a) Write how the operations are done on a stack.
 (b) Write the program code required for PUSH and POP operations.
12. Describe the queue data structure.
13. (a) Write how to reverse a singly-linked list.
 (b) Write a function program for reversing of the singly linked list.
14. Explain how insertion and deletions are performed on a doubly linked list.
15. Convert the following tree into the equivalent binary tree :



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

In-order : H D I B J E A F K C L G M

Pre-order : A B D H I E J C F K G L M

17. Write the program to implement merge sort on two sorted list.
18. (a) Write about bubble sorting.
 (b) Write a program for implementing linear search.
