

Roll No.

Total No. of Pages: 02

Total No. of Questions: 09

M.Sc. (IT) / Post-Graduate Diploma in Computer Applications (Sem. – 2)

DATA STRUCTURES

Subject Code: PGCA-1913

M Code: 77842

Date of Examination : 21-12-2022

Time: 3 Hrs.

Max. Marks: 70

INSTRUCTIONS TO CANDIDATES:

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each, carrying TEN marks each.
3. Attempt any FIVE questions from SECTION B & C, selecting atleast TWO questions from each of these SECTIONS B & C.

SECTION-A

1. Write briefly:

- a) What are the fundamental principle of recursion? Explain.
- b) What do you understand by polish notation. Explain.
- c) What do the terms LIFO means. Explain.
- d) Give an example that shows how a stack is used by a computer system.
- e) How Graph is represented?
- f) What is a heap?
- g) What is a circular queue?
- h) What is degree of a tree?
- i) Is there a header node in a circular link list?
- j) How a tree is represented?

SECTION-B

2. Show how to implement a stack efficiently by using a link list as a data structure.
3. What is a QUEUE? Write an algorithm to insert and delete elements in a QUEUE.

4. What are the various binary tree traversal techniques? Discuss with example.
5. What is a threaded binary tree? What are the possible operation on that? Explain.

SECTION-C

6. Explain the following with example:
 - a) Degree of a Graph
 - b) Null Graph
 - c) Weighted graph
7. Explain the following:
 - a) Depth first search
 - b) Breadth first search
8. Suppose a sequence of numbers is given like: 1,5,6,7,9,22,10,55,45
How this numbers will be sorted in
 - a) Insertion Sorting
 - b) Bubble sorting
9. Explain the Kruskal's Algorithm for graph

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.