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Total No. of Pages : 02

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B.Sc.(CS) (2013 & Onwards) (Sem.–3)

DATA STRUCTURES

Subject Code : BCS-305

M.Code : 71777

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and a student has to attempt any FOUR questions.**

SECTION-A

1) Answer briefly :

a) Explain different types of data structures available.

b) What is complexity in data structures?

c) Define Big O Notation.

d) Explain Arrays.

e) What are pointers? Why they are used?

f) What do you know about Recursion? How it is implemented?

g) What are circular queues?

h) Define the terms: data, field, record & file

i) What is Garbage collection? How it is being done?

j) What are binary trees? How they are represented?

SECTION-B

2) Explain the term data structures. Differentiate linear *vs.* Non-linear data structures and also explain various operations performed on different data structures in detail.

3) How Stacks & Queues are implemented in data structures? Write operations & their algorithms which are performed on both of them?

4) Explain with algorithms for the following :

   a) Linear Search

   b) Selection Sort

5) What are linked lists? Explain different types of linked lists available in data structures with the help of suitable examples.

6) What are trees in data structure? How binary trees are represented in data structure? Explain with the help of example.

7) Explain the following with examples :

   a) Binary Tree Traversal

   b) Dynamic Storage Management

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