Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 07

B.Sc. (G & W.D / I.T) / BCA (Sem–3)
DATA STRUCTURES
Subject Code : UGCA1915
M.Code : 78181
Date of Examination : 08-06-2023

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 students have to attempt any FOUR questions.**

SECTION-A

1. **Write briefly :**

   a. Define algorithm. Give an example.

   b. Differentiate between linear and non-linear data structure.

   c. How is memory allocated to 2-D Array?

   d. Explain the concept of de-queue.

   e. Explain the various operations performed on stack.

   f. What is a binary search tree? Give an example.

   g. List the different types of graphs.

   h. What is collision in hashing?

   i. What is the time complexity of binary search algorithm? How it performs better then linear search?

   j. List the various applications of stack.

SECTION-B

2. Write the algorithms for bubble sort. Explain it with the help of an example.

3. What is hash function? Explain different types of hash functions with the help of an example of each.

4. Write algorithm for depth first search and explain it with the help of an example.

5. Define data structure. Explain the different types of data structures.

6. What is a queue? Explain different operations that can be performed on a queue with the help of an-example of each.

7. **Write short note on :**

   a. Algorithm complexity.

   b. Circular linked list.

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.