

S-758

Total Pages : 3

Roll No. -----

MIT(CS)-401

Data Structure

M.Sc. Cyber Security (MSCCS)

4th Semester, Examination 2022(Dec.)

Time: 2 Hours

Max. Marks: 70

Note : This paper is of Seventy (70) marks divided into two (02) Sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

Section – A

(Long Answer – type questions)

Note: Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

[2 x 19 = 38]

P.T.O.

- Q.1. What is data structure? Discuss different types of data structures with suitable example.
- Q.2. Define an algorithm. What are the algorithmic complexities?
- Q.3. What are the basic asymptotic notations? Explain each.
- Q.4. What is QUEUE? Write an algorithm for addition and deletion of an item in a queue.
- Q.5. Explain the concept of bubble sort. Sort the following elements using bubble sort and explain each pass. 13 32 20 62 68 52 38 46. How many passes are required to sort the elements?

Section – B

(Short-answer-type questions)

Note: Section 'B' contains Eight (08) short-answer-type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

[4 x 8 = 32]

- Q.1. What is abstract data type? Give example.
- Q.2. Write an algorithm to find whether a given number is prime number or not.
- Q.3. What do you mean by overflow and underflow in a queue?
- Q.4. What is linked list? What are the advantages of using a linked list over array?
- Q.5. Write the concept of binary search. What are the preconditions of binary search technique?
- Q.6. Write a program to sort the given list using insertion sort. The list is 2, 32, 45, 67, 89, 4, 3, 8, 10.
- Q.7. Distinguish between tree and graph.
- Q.8. Define an AVL tree. State whether the following statement is true or false? "The AVL tree is a binary search tree that's always in balance".
