Malla Reddy University

I B.Tech II Semester – CSE/AIML/CS/DS/IT/IOT

Question Bank

Data Structures and Its Applications

Course Code: MR22-1CS0105

<u>UNIT-I</u>

1. What is an array? How do arrays differ from lists? Explain the types of an arrays with a suitable example for each one.
2. What is the difference between a data type and a data structure? Can you classify data structures based on their characteristics.
3. Explain linear search technique with an example program?
4. Define Binary search? Explain with an example program?
5. Explain the quick sort algorithm. Write a python program to implement a quick sort for an array using input method.
6. Explain the Merge sort algorithm. Write a python program to implement a Merge sort for an array using input method.
7. Explain the Bubble sort algorithm. Write a python program to implement a Bubble sort for an array using input method.

<u>UNIT-II</u>

1. a) What are stacks, and what are the main characteristics of a stack.
   b) What are some of the key operations that can be performed on stack? Explain with examples.
2. Discuss the principle of Stack data structure. Implement stack data structure using python program.
3. Discuss the principle of Queue data structure. Implement Queue data structure using python program.
4. What are queues, and how do they differ from stacks in terms of their structure and operations?
5. What are circular queues, and how do they differ from regular queues?

UNIT-III

1. What is a linked list, and how does it differ from other linear data structures like arrays and stacks?
2. Write about the characteristics of a Linked list. Explain operations on a singly linked list with a python program.
3. Implement singly linked list using python program.