Q. No	Part-A (2 X 5 = 10 Marks) (Answer all the questions)
1	Differentiate between Array-Based and Linked List Based Implementation of List ADT.
2	Represent the following polynomial as a Singly Linked List.$2x^3 + 12x^3 - 4x^2 + 6x + 8$
3	What is the need for the header of a linked list?
4	How do you count the number of nodes in a singly linked list?
5	What is a data structure? Give examples of data structures.

Q. No	Part- B (16 X 2 = 32 Marks), (8 X 1 = 8 Marks) (Answer all the questions)	C
6 A	What is Singly linked list? Write a C++ program that uses functions to perform the following operations on Singly Linked list creation with suitable diagrammatic representations. Consider all cases a) Insert an element into a list at the beginning. b) Insert an element into a list at the end position. c) Insert an element into a list at given position. d) Insert an element before a given node. e) Insert an element after a given node.	C
	(OR)	
6 B	What is an Abstract Data Type in C++? Is array an ADT? Justify your answer.	C
	Compare Singly linked list, Doubly linked list and Circular linked list with suitable examples and diagrams.	C
7 A	Write C++ program that implements and demonstrates circularly linked list operations such as insertion, deletion, and traversal.	C
	(OR)	
7 B	What is Doubly linked list? Write a C++ program that uses functions to perform the following operations on Doubly Linked list with suitable diagrammatic representations. Consider all cases a. Delete an element into a list at the beginning. b. Delete an element into a list at the end position. c. Delete an element into a list at given position. d. Delete an element by value e. Traversal operation	C
8A	What is a Polynomial? Write a function to add two polynomials stored using linked list implementation of Singly Linked Lists. Display the contents of the two Polynomials and the Resultant polynomial using Singly Linked List Traversal routine. Consider the following polynomials for the inputs: $6x^3+9x^2+7x+1$ and $8x^4+4x^2 12$	C