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**Course Name:** *Data Structures and Algorithms* **Topic:** *Linked list*

**Assignment #***1* **Total Marks:** *25*

***Note :***  
Do as directed and attempt all the questions. Your answers must be to the point. Paste the screenshots of every program and its output. Copy Paste will be marked zero.

**Question # 01. CLO1 05 Marks**

Imagine you have a busy day ahead, and you want to create a program to manage your tasks for the day using a singly linked list. Write a C++ program to add, delete, and display tasks on your to-do list using a linked list.

**Question # 02. CLO1 05 Marks**

You are implementing a game where players take turns in a circular order. Use a circular linked list to keep track of the players. Write C++ code to:

* Add players to the game
* Display the update list of all players
* Delete a player from the game when eliminated

**Question # 03. CLO1 05 Marks**

Implement a C++ function to find the midpoint (middle node) of a circular linked list. Consider two cases: when the list has an even number of nodes and when it has an odd number of nodes.

**Question # 04. CLO1 05 Marks**

Suppose you are building a school management system and you want to maintain a list of students in a particular class. You want to be able to add new students to the list, remove students who have left the class, and display the list of students in alphabetical order by name. You also want to be able to search for a student by name and display their information. (Use Double Linked List).

**Question # 05. CLO1 05 Marks**

You are building a music playlist manager and need to implement a double linked list to represent the playlist. Write a C++ program to add a new song to the end of the playlist, delete a song and display the updated playlist in both forward and backward directions.