|  |
| --- |
| **P.V.P Siddhartha Institute of Technology** |
| **Department of Computer Science and Engineering** |
| **Course: B. Tech** | **Year: II** | **Semester: I** | **Slip Test: II** | **A.Y:2023-24** |
| **Subject Code: 20ES1305** | **Subject Name: Data Structures** | **Regulation:PVP20** |
| **Duration: 40 min** | **Maximum Marks:10 Marks** | **Date:20/09/23** | **Session: F.N** |
| **Answer all the Questions. Each Question carries 10 Marks 1×10M=10M** |

**SET-1**

1. Write algorithms to perform the following operations on a doubly linked list. (i) Insert a node with data ‘y’ after a node whose data is ‘x’. (ii) Delete a node whose data is ‘s’. (iii) Insert a node with data ‘a’ as the 1st node of the list. Discuss the time complexity for each operation. [CO3,L3]

**SET-2**

 1. Compare singly and circular linked list while performing insertion and deletion operations. Discuss the time and space complexity. [CO3,L3]

**SET-3**

1. Explain the insertion and deletion operations in a sorted single linked list with source code and suitable node diagrams. Discuss the time and space complexity. [CO1,L2]

**SET-4**

1. Make use of search function to find the name and cgpa of a student based on the roll number in a single linked list which contains student details such as roll number, name and cgpa. Discuss the time and space complexity.[CO2,CO3,L3]