SRI KRISHNA INSTITUTE OF TECHNOLOGY

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Department of Artificial Intelligence and Machine Learning

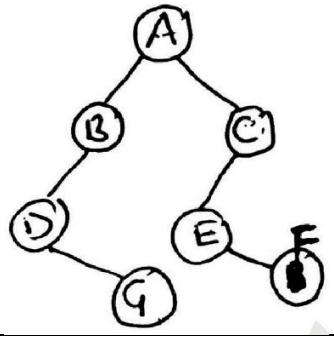
Subject Name: Data Structures and Applications **Subject Code: BCS304**

SEM: 3rd **DIV: A**

Faculty: Prof. Manzoor Ahmed

Module-3 Question Bank

SL#	Question	CO	Level	Marks
1.	Write a program to perform additional operations on Single Linked List such as: i) Concatenation of 2 Single Linked List ii) Reversing of Single Linked List With sample input and output	**CO3**	**L2**	**8**
2.	Define Double Linked List. Write the functions for inserting a node into a doubly linked circular list and deleting a node from a doubly linked circular list	**CO3**	**L2**	**8**
3.	Write a C function to read sparse matrix using single linked list	**CO3**	**L2**	**8**
4.	Write a C function to write and erase a sparse matrix using single linked list	**CO3**	**L2**	**8**
5.	Write a C function for finding and length of Single Linked List and Circular Single Linked List.	**CO3**	**L2**	**8**
6.	Implement addition and deletion of a NODE on a Doubly Linked List with required C-statements.	**CO3**	**L2**	**8**
7.	Develop a menu driven Program in C for the following operations on Doubly Linked List (DLL) of Employee Data with the fields: *SSN, Name, Dept, Designation, Sal, PhNo* a. Create a DLL of N Employees Data by using *end insertion*. b. Display the status of DLL and count the number of nodes in it c. Perform Insertion and Deletion at End of DLL d. Perform Insertion and Deletion at Front of DLL e. Demonstrate how this DLL can be used as Double Ended Queue. f. Exit	**CO3**	**L2**	**10**
8.	Develop a Program in C for the following operations on Singly Circular Linked List (SCLL) with header nodes a. Represent and Evaluate a Polynomial P(x,y,z) = 6x2y2z-4yz5+3x3yz+2xy5z-2xyz3 b. Find the sum of two polynomials POLY1(x,y,z) and POLY2(x,y,z) and store the result in POLYSUM(x,y,z) Support the program with appropriate functions for each of the above operations	**CO3**	**L2**	**10**
9.	What is a tree? With suitable example, define: i) Binary Tree	**CO4**	**L2**	**8**

	ii) Level of the binary tree iii) Extended binary tree iv) Degree of the tree			
10.	Explain the following with suitable example: i) Binary Tree ii) Binary Search Tree iii) Complete Binary Tree iv) Skewed Tree	**CO4**	**L2**	**8**
11.	Construct a tree using the given tree traversals: In-order: GDHBAEICF Post-order: GHDBIEFCA	**CO4**	**L2**	**5**
12.	Define a binary tree. Explain how do you construct and add a NODE to binary tree using C statements. Also explain how you represent a binary tree using arrays.	**CO4**	**L2**	**8**
13.	Write a program to insert an element in to binary tree.	**CO4**	**L2**	**5**
14.	Write a function to traverse the tree using i) Pre-order ii) Post-order iii) In-order traversal	**CO4**	**L2**	**6**
15.	Find the INORDER, PREORDER and POSTORDER for the following: 	**CO4**	**L2**	**6**
16.	Explain Threaded Binary Tree in detail.	**CO4**	**L2**	**5**
17.	What is the advantage of the threaded binary tree over binary tree? Explain the construction of threaded binary tree for 10, 20, 30, 40 and 50.	**CO4**	**L2**	**6**

Faculty Signature