

**SDM COLLEGE OF ENGINEERING & TECHNOLOGY, DHARWAD**

**Department of Computer Science and Engineering**  
**Internal Assessment - II**

Course. Title & Code : Data Structures and Applications (22UCSC300)  
Semester : III (A & B) Date : 13-12-2023  
Max. Marks : 20 Duration : 1 Hr.  
Course Teachers : Prof. Sandhya S V & Prof. Dr. J C Karur

**Note:** Answer any 2 full questions. QNo3 is compulsory

**Q.No 1**

- a. Write a C function, `append(struct node *list1, struct node *list2)` to concatenate two doubly linked lists and show the appended list2 to list1. Marks: 6  
CO:3
- b. Explain how the polynomials with 2 variables are represented using linked list. [Example:  $9x^4y^3 + x^3y^2 - 17xy + 20$ ] Marks: 4  
CO:3

**Q.No 2**

- a. Write a C function `sumlist (struct node *)` which return the sum of integers in a given list. Marks: 5  
CO:3
- b. Write a C function to delete an element in a singly linked list from a given position. Marks: 5  
CO:3

**Q.No 3**

- a. What are the advantages and disadvantages of representing a group of items as an array versus a linear linked lists? Marks: 5  
CO:3
- b. Construct the Binary Search Tree for the given data; 14,15,4,9,7,18,3,5,16,20,17. Write inorder, preorder and postorder traversal of the constructed tree. Marks: 2+3=5M  
CO:4