

IInd SEMESTER
MID SEMESTER EXAMINATION

B.Tech.(CSE)
(March-2024)

Paper Code: CO-104

Title of the subject: Data Structures

Time: 1:30 Hours

Max. Marks: 20

Note: Answer all questions.
Assume suitable missing data, if any.

1. With suitable diagram(s) explain an efficient way of storing a symmetric matrix A of the order (say $n \times n$) in memory using minimum possible space. Write formula to compute address of $A[i][j]$, $i \leq j$. (5)
2. Given two singly linked lists L1 and L2 (not circular). Write an algorithm to concatenate two lists into a single circular linked list L. Remember smaller linked list appears before longer linked list when list L is printed. (5)
3. A recursive list is defined as collection of items or recursive lists. For example (a,b,c) is a list, (a,(b,c),(d,e,(f,g),h)) is also a list. Write an algorithm to check if given list is recursive or not. Note: input may be a string with commas and no space like "(a,(b,c),(d,e,(f,g),h))". All items are single alphabets. (5)
4. Given a postfix expression, write an algorithm to check if postfix expression is valid or not. (5)