

JK Lakshmipat University, Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY
Mid Term Exam II, October 2024
BCA, Semester III

Subject: Data Structures (CS1102)

Time: 2:00 hours

Roll No. 2023 BCA 018

Max. Marks: 30

Instructions to students:

1. Assume suitable data wherever required and mention it clearly.

- | | | |
|-----|---|----------|
| Q.1 | Write an algorithm or C program to merge two sorted arrays into a single sorted array. Ensure that the resulting array maintains sorted order. | 4
CO1 |
| Q.2 | Write the Binary Search algorithm and discuss its advantages/limitations with an example. | 4
CO1 |
| Q.3 | Given Infix Expression: $(A + B) * (C - D) / E$
Covert it into the Postfix and Prefix form and evaluate the expression if the values of $A = 5$, $B = 3$, $C = 8$, $D = 2$, and $E = 4$. | 4
CO2 |
| Q.4 | Write an algorithm or C program to implement a stack using a linked list. Write functions to: <ul style="list-style-type: none">• Push an element onto the stack.• Pop an element from the stack. | 6
CO2 |
| Q.5 | Write an algorithm or C program to implement a queue using an array or linked list. Perform the following operations: <ul style="list-style-type: none">• Enqueue (insert) an element.• Dequeue (remove) an element. | 6
CO3 |
| Q.6 | Write a program to implement following operations on the doubly Linked List. <ul style="list-style-type: none">• Insert a node such that List will be in ascending order. (According to info. Field)• Delete a node before specified position. | 6
CO3 |

All the best