

JK Lakshmipat University Jaipur

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination-, December 2023 (Backlog)

BCA Semester III

Roll No.....

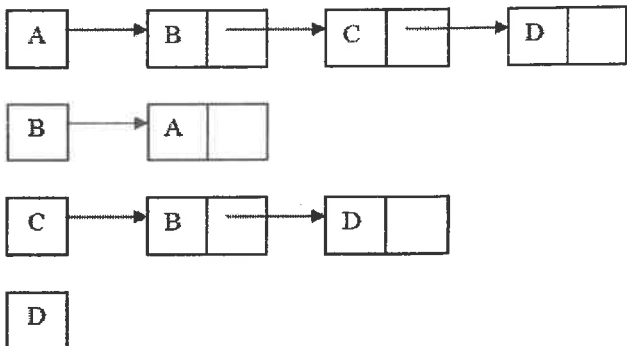
CS1122: C ++ Programming and Data Structures

Time: 2:00 hours

Max. Marks: 30

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	The following postfix expression S and the initial values of the variables are. $S = A B - C + D E F - + ^$ Assume that A=3, B=2, C=1, D=1, E=2, F=3 What would be the final output of the stack?	04 Marks CO2
Q.2	How will you reverse a singly link list explain with algorithm? Write an algorithm for it?	04 Marks CO3
Q.3A	Here is an adjacency list representation of a directed graph where there are no weights assigned to the edges).  (a) Draw a picture of the directed graph that has the above adjacency list representation. (b) Another way to represent a graph is an adjacency matrix. Draw the adjacency matrix for this graph.	04 Marks CO3
Q.3B	Show the series of steps taken by the Bubble Sort algorithm while sorting this list. 09, 20, 06, 10, 14, 08, 60, 11 Also write algorithm and time complexity of the Bubble sort algorithm	04 Marks CO2
Q.4A	Write a C++ program to calculate sum of distance and display the result using friend function?	04 Marks CO5

Q.4B	Given below the in order and preorder traversals of a binary tree respectively- In Order: C, D, S, M, P, B, L, I, Q, N, E, M, J Pre Order: L, D, C, B, M, S, P, I, E, Q, N, M, J Find the post order of the given binary tree?	04 Marks CO4
Q.5A	Here is a small binary tree: <pre> graph TD 14 --> 2 14 --> 11 2 --> 1 2 --> 3 11 --> 10 11 --> 30 10 --> 7 30 --> 40 </pre> A. What are all the leaves? C. What are the ancestors of the node 10? D. What are the descendants of the node 11? E. Is the tree a binary search tree (BST) (true/false)? F. Print the tree when visited in post-order manner?	03 Marks CO5
Q.5B	Construct a binary tree whose nodes in order and preorder are given as follows: Preorder Traversal: 1 2 4 8 9 10 11 5 3 6 7 Inorder Traversal: 8 4 10 9 11 2 5 1 6 3 7 Also find out its post order.	03 Marks CO2, CO5

*****ALL THE BEST*****