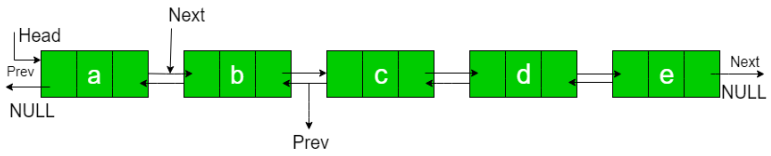
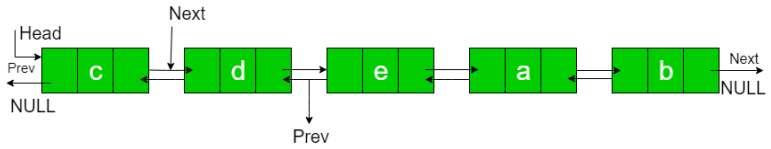
EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Mid Term I Examination, Spring 2022

Course: CSE 207- Data Structures, Section-1
Instructor: Dr. Maheen Islam, Associate Professor, CSE Department
Full Marks: 40 (20 will be counted for final grading)
Time: 1 Hour and 30 Minutes

1.	Given a linked list and two keys in it, **write** a function to swap nodes for two given keys. Nodes should be swapped by changing links. Swapping data of nodes may be expensive in many situations when data contains many fields. It may be assumed that all keys in linked list are distinct. **Example:** Input: 10->15->12->13->20->14, x = 12, y = 20 Output: 10->15->20->13->12->14 Input: 10->15->12->13->20->14, x = 10, y = 20 Output: 20->15->12->13->10->14 Input: 10->15->12->13->20->14, x = 12, y = 13 Output: 10->15->13->12->20->14	[Mark: 8]
2	Suppose that, you are given a doubly linked list containing integer values. **Write** a function to rotate the linked list counter-clockwise by N nodes. Here N is a given positive integer and is smaller than the count of nodes in linked list. **Example**: List:  N = 2 Rotated List: 	[Mark: 8]
3.	Given an expression string exp , **write** a function to examine whether the pairs and the orders of "{","}","(",")","[","]" are correct in exp. For example, the program should print true for exp = "[()]{}{[()()]()}" and false for exp = "[(])"	[Mark: 8]
4.	**Apply** the algorithmic method to change the *(X – A * (Y + Z) – P * Q) * R* expression in postfix expression using stack. Show each step of the conversion including stack contents and postfix expression.	[Mark: 8]
5.	Write a program that dynamically allocates memory to store n number of integers and deletes the duplicate values from the list. For example, if the list contains - 10, 6, 2, 10, 9; after deleting duplicate elements you will get the list - 10, 6, 2, 9. You have to write a	[Mark: 8]

	function, called DeleteDuplicate (int n, int *p), where n is the total array size and p is a pointer variable that have array address to solve the problem.	