BRAC University (Department of Computer Science and Engineering)

CSE 220 (Data Structures) for Fall 24

Quiz 1

Student ID: **Section:**   **Full Marks: 15**

Name: **Duration: 30 minutes**

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1. You are given an array, **A** of size **4 x 6 x 8 x 5**. Please answer the following questions:
   a. Convert the following **multi-dimensional index** into corresponding **linear index**:

   ### A[2][3][1][4]

   b. Convert the following **linear index** into corresponding **multi-dimensional index:**

   ### L = 277

2. You are required to design a function which takes a **linear (one dimensional) array** and **rotate** the elements in **even indices** to the **left**. To make life easier, you can assume the given array has **odd length.**

5	2	**3**	7	**1**	4	**6**

$\longrightarrow$

3	2	**1**	7	**6**	4	**5**

3. You will be given a **matrix** of size **N x N.** Your task is to reverse both the **primary** and **secondary** diagonals. Primary diagonal starts from the top left corner and goes down-right to bottom right corner. Second diagonal starts from the top right corner and goes down-left to bottom left corner.

1	2	3	**4**
5	**6**	**7**	8
9	**10**	**11**	12
13	14	15	**16**

$\longrightarrow$

16	2	3	**13**
5	**11**	**10**	8
9	**7**	**6**	12
4	14	15	**1**