National University of Computer and Emerging Sciences, Lahore Campus				
	Course:	**Linear Algebra**	**Course Code:**	**MT-1004**
	Program:	**BS(CS)/BS(DS)/ BS(SE)**	**Semester:**	**Fall 2022**
	Submission Date:	**To be announced by Instructors**	**Weight**	3%
	Section:	**All**	**Page(s):**	2

CLO-01:

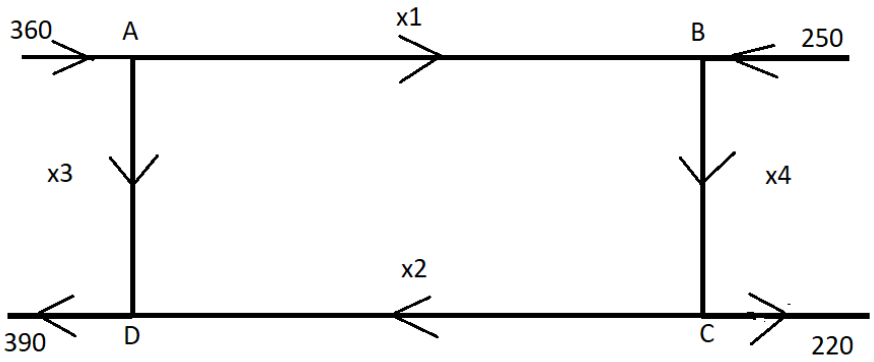
Attempt the following problems from Elementary Linear Algebra by Howard Anton and Chris Rorres (12th Edition)

Exercise: 1.1

Q:3 (b, c), Q:4 (b, c), Q:9 (b, e), Q:11 (a, b, c), Q:13 (a, c), Q:15 (a), Q:17 (b), Q:21
Exercise: 1.2
Q:1 (c, g), Q:3 (c, d), Q:4 (c), Q:7, Q:9, Q:13, Q:14, Q:21, Q:22, Q:25, Q:36
Exercise: 1.3
Q:1 (c, f), Q:2 (d, f), Q:3(d, e), Q:5 (g, i), Q:11 (a, b), Q:14 (a), Q:15, Q:23, Q:24, Q:36
Exercise: 1.4
Q:2 (b, d), Q:5, Q:7, Q:10, Q:13, Q:17, Q:21 (b), Q:25, Q:43 (a) Q:45 (a, b), Q:46 (a, b)
Exercise: 1.5
Q: 2(d), Q:4 (d), Q:6 (c), Q:9 (a), Q:10 (b), Q:13, Q:21
Exercise: 1.6
Q:1, Q:3, Q:15
Exercise: 1.7
Q:1, Q:5, Q:19, Q:21, Q:26, Q:28

Word Problem

Q#1: A part of Lahore`s road network for traffic is as shown by arrows in the following diagram



1. Write down the equations indicating the traffic flow given in the diagram.
2. Show that the traffic flow along AB, CD can be expressed in terms of the traffic flow along AD.
3. If the area AD or CD is closed, then show that the solution to the problem is unique

Q#2: Consider the traffic flow described by the following diagram. The letters A through E label intersections. The arrows indicate the direction of flow (all roads are one-way) and their labels indicate flow in cars per minute. Write down a linear system describing the traffic flow, i.e., all constraint on the variables xi, i = 1,2, ..,8. Solve the given linear system of equations.