University of Central Punjab

Faculty of Information Technology

Assignment No. 1

Program	BS Software Engineering	Semester	Spring 2023
Course Title	Linear Algebra	Course Code	CSSS2753
Course Instructor	Aniqa Naeem	Section	
Date		Time Slot	
Student Name		Registration No.	
Total Marks	30	Submission Day	Wednesday 5-04-2023

1. Determine whether the given system of equations is equivalent or not.

$$x_1 - x_3 - x_4 = 0$$
$$-x_1 + x_2 + x_4 = 1$$
$$x_3 - x_4 = 1$$
$$x_1 + x_2 + x_4 = -1$$

And

$$x_1 - 2x_4 = 1$$
$$2x_1 + x_2 - x_3 = -1$$
$$x_1 - x_3 - x_4 = 0$$
$$-x_1 + x_2 + x_3 = 2$$

2. A fruit seller has apples, bananas, and oranges. Altogether he has 1500 pieces of fruit. On average, each apple weighs 120 grams, each banana weighs 140 grams, and each orange weighs 160 grams. He can sell apples for 25 cents each, bananas for 20 cents each, and oranges for 30 cents each. If the fruit weighs 208 kilograms, and the total selling price is $380, how many of each kind of fruit does the fruit seller have?

3. A student is taking courses in algebra, calculus, and physics at a college where grades are given in percentages. To determine her standing for a physics prize, a weighted average is calculated based on 50% of the student's physics grades, 30% of her calculus grade, and 20% of her algebra grade; the weighted average is 84. For an applied mathematics prize, a weighted average based on one-third of each of the three grades is calculated to be 83. For a pure mathematics prize, her average based on 50% of her calculus grade and 50% of her algebra grade is 82.5. What are her grades in the individual courses?

Note:

1. For Question 1 solve the both system of equations by Gauss Elimination or Gauss Jordan Method and then compare the solution of both systems.
2. For Question 2 Use 1kg=1000 g
   And 1 dollar =100 cents