Math 131 Test II (051: Fall 2005) Chapters 3.3-3.6.

Dr. Raja Mohammad Latif Time: 20 Minutes, Marks: 20.Oct. 19, 2005. Sec:_____

Name: _____, I.D.#_____

NOTE: 1. The questions are not in any order of difficulty at all.

2. Please provide complete solution for all the problems for full credit.

3. Only nonprogramable calculators are allowed.

4. Any type of mobiles or pagers are not allowed during the examination.

5. Please count that you have exactly 3 questions.

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Q.1. 147TB34.$(Marks: 5)$ $(Height\ of\ Ball)$ **Suppose that the height, s, of a ball thrown vertically upward from the ground is given by**

$$s = -4.9t^2 + 56.8t,$$

where s is in meters and t is elapsed (passed) time in seconds.

(a) **After how many seconds will the ball reach its maximum height?**

Time: = _____ **Seconds.**

(b) **What is the maximum height?**

Maximum Height: = _____ **meters.**

Q.2. 166AL39.$(Marks: 5)$ $(Market\ Equilibrium\ and\ \mathrm{Re}venue)$. **The supply and demand equations for a certain product are**

$$2p - x = 10$$

and $p = \dfrac{8000}{x + 370}$ **where p is the price per uniti in thousands of dollars and x is the number of units sold per month.**

(a) **Find the equilibrium point.**

Quantity : $x =$ _____

Price : $p =$ _____ **Dollars.**

(b) **Determine the total revenue received *by* the manufacturer at the equilibrium point.**

Revenue : $R = (xp) =$ _____ **Dollars.**

Q3. 114Anton34. ($Marks: 10$)**Nutrition. A dietician** *wishes* **to plan a meal around** (*consisting of*) *three* **foods.**

The meal is to include 8800 units of vitamin A,
3380 **units of vitamin** C,
and 1020 **units of calcium.**

The number of units of the vitamins and calcium in each ounce of the foods is summarized in th eaccompanying table,

	Food I (x)	**Food II** (y)	**Food III** (z)	**Exact** Requirement
Vitamin A	**400**	**1200**	**800**	**8800**
Vitamin B	**110**	**570**	**340**	**3380**
Calcium	**90**	**30**	**60**	**1020**
	x	**y**	**z**	

Determine the amount of each food the dietitian should include in the meal in order to meet the vitamin and calcium requirements.

System of Equations:

$$\begin{cases} \_\_\_\_\_ \\ \_\_\_\_\_ \\ \_\_\_\_\_ \end{cases}$$

Complete Solution of System of Equations:

Complete Solution.

$x =$ _____

$y =$ _____

$z =$ _____.