

# MATH 131 TEST I (051: FALL 2005) CHAPTERS 3.3-3.6.

Dr. Raja Mohammad Latif      Time: 20 Minutes, Marks: 20.Oct. 17, 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. 147TB35.**(Marks : 10) A boy standing on a hill shoots an arrow straight up with an initial velocity of 85 feet per second. The height,  $h$ , of the arrow in feet,  $t$  seconds after it was released, is described by the function

$$h(t) = -16t^2 + 85t + 22.$$

(a) How many seconds after release does it take to reach this maximum height?

Time: = \_\_\_\_\_ Seconds.

(b) How many seconds after release does it take to reach this height?

**Q.2. 166AL42.**(Marks : 10) (Market Equilibrium). The demand and supply equations of a certain commodity are given by  $p + x^2 = 20$  and  $3p - 8 = x$  respectively, where  $p$  is the price in dollars and  $x$  is the quantity sold in units of thousands. Find the equilibrium price and quantity.

Quantity :  $x =$  \_\_\_\_\_

Price :  $p =$  \_\_\_\_\_ Dollars.

Maximum Height: = \_\_\_\_\_ feet.

**Q3. 81MS71. (Marks : 10)Diet Preparation.** A hospital dietician is planning a meal consisting of three foods whose ingredients are summarized as follows:

Complete Solution.

	Chicken (12 – oz. Serving)	Potatoes (1/2 – cup serving)	Spinach (1 – cup serving)	Re quired No. of ingredients
Grams of Protein	14	1	6	30
Grams of Carbohydrates	0	18	8	38
Grams of Fat	4.5	0	1	7
Number of Servings	x	y	z	

Determine the number of servings of each food needed to create a meal containing exactly 30 grams of protein, exactly 38 grams of carbohydrates, and exactly 7 grams of fat.

System of Equations:

$$\left\{ \begin{array}{l} \text{-----} \\ \text{-----} \\ \text{-----} \end{array} \right.$$

Complete Solution of System of Equations:

$$x = \text{-----}$$

$$y = \text{-----}$$

$$z = \text{-----}.$$