

EQUATIONS YOU MAY NEED FOR EXAM III

Depreciation = (Purchase price - salvage value) / years of useful life

Average Value = (Purchase price + salvage value) / 2

Marginal revenue = change in total revenue / change in control variable

Marginal cost = change in total cost / change in control variable

Slope = change in Y / change in X

Percent change in Qd = $[(Q_1 - Q_0) / Q_0] \times 100$

Percent change in P = $[(P_1 - P_0) / P_0] \times 100$

E_d = percent change in Q_d / percent change in P

E_d = (change in Q_d / change in P) * (P_0 / Q_0)

Percent change in P = percent change in Q_d / E_d

Percent change in Q_d = percent change in P * E_d

Percent change in TR = $(1 - |E_d|) \times$ percent change in price

E_I = Percent change in Q_d / percent change in I_d

E_S = Percent change in Q_S / percent change in P

Average Relative Price_i = (Nominal Price_i/CPI_i) X 100 Where i = year
in 1982-84 dollars

EXPLANATION OF TERMINOLOGY USED

Graph = accurately scaled, precisely plotted, accurately drawn to scale, and labeled.

Rough sketch or illustrate = not scaled or precisely plotted, but completely labeled.

EXAM #3 ARE 012, FALL 1994

Answer the five (5) questions below. Do all parts of each question. Use a separate sheet of paper to answer each number questions, and arrange your answers in numerical order when finished with the exam. Write the number of each question and your name on the top of each sheet of paper you use. You must show all work to receive full credit. The price of all parts of each question is provided in the left hand margin so that you may make an informed management decision regarding the production of this exam. **DO NOT** write answers on the test sheets.

Be thorough and complete in ALL your responses. **RETURN THE TEST SHEET !!!** No test sheet: F for the exam.

Please read and sign the Honor Pledge that follows:

I have neither given or received unauthorized aid on this exam. _____

Student's Signature

- (20) 1. List the determinants of **DEMAND**; **INDICATE** which determinants cause a parallel shift of the demand curve, which determinants affect the slope of the demand curve, and which do neither.

*(Do this quickly, if they don't come to you quick, **MOVE ON!** Don't waste time staring in space)*

- (10) 2. Using any commodity as an example you wish, illustrate a persistent **SHORTAGE** by using a rough sketch. Label your axis, all prices and quantities, and the curves you draw. Does not need to be drawn to scale.

(5) a. What must a government do to create a persistent **SHORTAGE**?

(5) b. What price action should the government take to eliminate the **SHORTAGE**?

3. In 1980 the average nominal price of gasoline was \$1.25 per gallon. At this price, 71.9 billion gallons of gasoline were consumed in the U.S. that year. In 1988, the average nominal price of gasoline was \$.95 per gallon. At this price, 71.0 billion gallons of gasoline were consumed in the U.S.

(CPI₁₉₈₀ = 82.4; CPI₁₉₈₈ = 118.3)

- (10) a. Calculate the 1980 average relative price of gasoline, and the 1988 average relative price of gasoline.

- (10) b. **Graphically illustrate what happened in the market over this time period.**
- (10) 4. Sketch a demand curve and label the three sections of elasticity. Directly below this demand curve, sketch **THE APPROPRIATE total revenue curve. REMEMBER TO LABEL THE AXIS OF EACH GRAPH AND ALL CURVES !**
- (5) a. If total revenue increases when price is increased, in which section of the demand curve is the commodity currently priced?
- (5) b. If total revenue decreases when price is increased, in which section of the demand curve is the commodity currently priced?
5. In 1989, the Division of Motor Vehicles of N.C. increased the fee charged for personalized tags from \$30 to \$40. The increased fee was to pay for a new program; planting wildflowers along our highways. However, the total revenue received by the state from the sale of personalized tags decreased, and the wildflower program was scaled back.

$$\text{CPI}_{1988} = 118.3; \text{CPI}_{1989} = 124.0$$

- (10) a. Why did total revenue from the sale of personalized tags fall ?
- (10) b. What price action, **ceteris paribus**, should DMV have taken in 1989 to increase total revenue from the sale of personalized tags?

BONUS QUESTIONS: Each bonus question below is worth ten (10) points

- (5) 1. **Illustrate AND explain** in detail why a producer with pricing power would normally want to price his product or service in the elastic portion of a negatively sloped demand curve.
- (5) a. Provide a written explanation of a strategic marketing example that is an exception to this rule.
- (5) 2. In the past, when the annual wheat harvest has decreased by 10 percent, wheat prices have increased 20 percent. What is the price elasticity of demand for wheat based on this historical relationship?
- (5) a. Using the price elasticity computed above, how much will the quantity of wheat

raise purchased by consumers decrease if the government uses a price floor to the price of wheat by 40 percent?

3. Determine the income elasticity of demand given the information below:

SHOW ALL YOUR WORK !!!!!

(5) a) $I_0 = \$48,000$ $I_1 = \$144,000$
 $Q_0 = 100$ $Q_1 = 40$

(5) b) What commodity classification is illustrated here ?

(6) 4. List the determinants of a relatively inelastic demand curve ?

(2) a. Provide a written interpretation of the following price elasticity of demand estimate:

$$E_d = - .50 ?$$

(2) b. Is the above elasticity of demand estimate elastic, or inelastic?