

1. a. During a five year period the ticket sales of a city's professional basketball team have increased by 30% while at the same time average ticket prices have risen by 50%. Do these changes allow you to conclude that the own price demand curve is upward sloping?

b. In 1996 Prilosec was the best selling anti-ulcer drug in the world. The marginal cost of the drug was around \$0.60 per dose while the price it was sold for was \$3.00 per dose which is a tremendous markup. The estimates of price elasticities for the drug ranged from -1.2 to -1.4. Comment on the degree to which the price seems sensibly chosen.

2. A fast food company did a study and found that the weekly demand for their tacos at any given specific store was on average

$$Q = 400 - 1200p + .8a + 55Y + 800p_c \quad (1)$$

where  $p$  refers to the price of the shops own tacos,  $a$  is level of advertising (in thousands),  $Y$  is the size of the local population (in thousands) and  $p_c$  refers to the price of their most relevant competitor. For the average franchise,  $p = 1.50$ ,  $a = 1,000$ ,  $Y = 40$  and  $p_c = 1$ .

- What is the average weekly sales for a franchise?
- Calculate the elasticity relative to own price and to advertising.
- Is there any indication, given only this information, on whether the firm should raise or lower its taco prices? Explain.

3. a. Explain the difference between the terms "diminishing returns," "returns to scale" and "returns to scope."

b. Explain the difference between "long run" and "short run" costs. Explain the types of decisions a firm might make that distinguishing between these two contexts is important.

4. The market for rice in an East Asian country is described by the following:

$$Q_D = 28 - 4p \quad (2)$$

$$Q_S = -12 + 6p \quad (3)$$

a. Assume the market is perfectly competitive. Find the market equilibrium. Calculate producer and consumer surplus. *(For the PS and CS calculations in all sections of this question, if you can't do them numerically, partial credit will be given if you clearly describe what calculations need to be performed and demonstrate the considerations graphically.)*

b. Suppose there are no trade barriers and the world price of rice is \$3. Will this country import or export rice? How much? Calculate producer and consumer surplus now. Is society better or worse off? Explain your answer carefully.

c. Assume that the government receives pressure to subsidize domestic producers by \$1 per unit of rice. Show the effect of this on the economy. Will the

subsidy be effective at making the society better off? Think through the total social welfare calculation very carefully.

5. Assume you work for a cable TV company facing the following demand for three different channels. Assume the marginal cost of providing each channel to a consumer is \$1.

Consumer Type	CNN	BBC	HIS
1	\$11	\$2	\$3
2	\$11	\$2	\$6
3	\$2	\$11	\$3
4	\$2	\$11	\$6

- Assume that each channel will be priced separately. What price should the firm charge? What is the total profit?
- Assume that there will only be a single bundle with all three options included. Find the profit maximizing price and accompanying profit.
- Can you find alternative pricing options which generate higher revenue involving two item bundles with the third item sold separately or a mixture of bundles with individual channels priced separately?

6. A firm's long run total cost function is  $C = 360 + 40Q + 10Q^2$ .

- Sketch the shape of the long run average cost curve.
- Find the output level that minimizes long run average cost.
- Assume the firm is in a perfectly competitive market facing a demand price of \$140/unit. What should this firm do in regard to its production decision?

7. A producer of photocopiers makes profits from two sources: the sale of the photocopiers and then from selling additional services over the lifetime of the copiers. Assume the firm has set an optimal price accounting for the profits from the immediate sale of the photocopiers. The firm then estimates that for each copier sold, the firm could generate an additional \$300 per copier sold from the additional services they can sell over the lifetime of each copier.

There is disagreement among the management of this company about pricing behavior. One group argues that this extra profit should have no impact on the firm's pricing and quantity decisions regarding the sales of copiers. A second group argues that this is incorrect and these additional profits should be taken into account during pricing decisions. Explain both sides of this argument and argue in favor of whichever you see as correct. If the latter, how would the additional profit figure into the pricing decision? Why might the side making the incorrect argument have made that mistake?

8. The market for round trip airline travel from Austin to whatever bowl game the UT football team ends up in this year consists of at least two market segments; students and non-students. Let  $x_s$  denote the demand for airline tickets by students, and let  $x_n$  denote the demand for airline tickets by non-

students. Each group exhibits different demand and we can describe the demand functions for the two groups as follows:

$$\begin{aligned}x_s &= 12000 - 40p_x \\x_n &= 50000 - 100p_x\end{aligned}$$

Assume the airline flies “magic” planes that are costless to operate so there is no cost to the airline of flying people to the bowl game.

a. Suppose that the airline is currently charging a single price which both students and non-students would pay. At this price, suppose that the price-elasticity of demand by students is -2. What is the price-elasticity of demand by non-students? What does this suggest about what adjustments the airline might make to raise revenue?

b. Now assume that the airline could charge each group a different price. What prices would the airline charge to the two groups to maximize revenue? Calculate that total revenue.

c. Now assume that the airlines charge the same price regardless of who buys a ticket. Construct a market demand function. (*hint: be very careful in how you set this up*)

d. At what price is the total revenue (for the entire market) maximized? How does this revenue compare to the revenue achieved with different prices for the two groups?