

Test 8 - Monopoly 2

Name _____

Group _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) Which of the following strategies are used by business firms to capture consumer surplus? 1) _____
A) price discrimination. B) two-part tariffs.
C) bundling. D) all of the above.
- 2) Rather than charging a single price to all customers, a firm charges a higher price to men and a lower price to women. By engaging in this practice, the firm: 2) _____
A) is attempting to convert producer surplus into consumer surplus.
B) is engaging in an illegal activity that is prohibited by the Sherman Antitrust Act.
C) is attempting to convert consumer surplus into producer surplus.
D) is trying to reduce its costs and therefore increase its profit.
E) both A and C are correct.
- 3) Under perfect price discrimination, marginal profit at each level of output equal 3) _____
A) $P - AR$. B) 0 C) $P - AC$. D) $P - MC$.
- 4) The maximum price that a consumer is willing to pay for a good is called: 4) _____
A) the reservation price.
B) the choke price.
C) the first-degree price.
D) the block price.
E) the market price.
- 5) Second-degree price discrimination is the practice of charging 5) _____
A) different prices for different blocks of the same good or service.
B) different groups of customers different prices for the same products.
C) the reservation price to each customer.
D) each customer the maximum price that he or she is willing to pay.
- 6) A firm setting a two-part tariff with only one customer should set the entry fee equal to 6) _____
A) marginal revenue. B) consumer surplus.
C) marginal cost. D) price.

- 7) Some grocery stores are now offering customers coupons which entitle them to a discount on certain items on their next visit when they go through the check-out line. This practice is an example of: 7) _____
- A) a two-part tariff.
 - B) bundling.
 - C) intertemporal price discrimination.
 - D) third degree price discrimination.
 - E) none of the above.
- 8) The manager of a firm is attempting to practice third degree price discrimination. She has equated the marginal revenue in each of her markets. By doing this her 8) _____
- A) costs are minimized given her level of output.
 - B) revenues are maximized given her level of output.
 - C) profits are maximized.
 - D) all of the above.
- 9) An electric power company uses block pricing for electricity sales. Block pricing is an example of 9) _____
- A) second-degree price discrimination.
 - B) first-degree price discrimination.
 - C) Block pricing is not a type of price discrimination.
 - D) third-degree price discrimination.
- 10) In 1994, the Walt Disney Corporation ran a special promotion on tickets to Disneyland. Residents of southern California were offered admission at the special price of \$22. Other visitors to Disneyland were charged about \$30. This practice is an example of: 10) _____
- A) bundling.
 - B) two-part tariff.
 - C) tying.
 - D) price discrimination.
 - E) collusion.
- 11) In third-degree price discrimination a firm faces two markets. In the first market the firm charges \$30 per unit, and in the second market it charges \$22 per unit. Which of the following represents the ratio of elasticities of demand in the two markets? 11) _____
- A) $E_2 = (22/30)E_1$.
 - B) $E_2 = (21/29)E_1$.
 - C) $E_2 = E_1$.
 - D) $E_2 = (29/21)E_1$
 - E) none of these.

- 12) When a monopolist engages in perfect price discrimination, 12) _____
- A) marginal cost becomes zero.
 - B) the marginal revenue curve becomes horizontal.
 - C) the demand curve and the marginal revenue curve are identical.
 - D) the marginal revenue curve lies below the demand curve.
- 13) Suppose that the marginal cost of an additional ton of steel produced by the Japanese is the same 13) _____
whether the steel is set aside for domestic use or exported abroad. If the price elasticity of demand
for steel is greater abroad than it is in Japan, which of the following will be correct?
- A) The Japanese will sell more steel abroad than they will sell in Japan.
 - B) Insufficient information exists to determine whether the price or quantity will be higher or
lower abroad.
 - C) The Japanese will sell steel at a higher price abroad than they will charge domestic users.
 - D) The Japanese will sell more steel in Japan than they will sell abroad.
 - E) The Japanese will sell steel at a lower price abroad than they will charge domestic users.
- 14) An amusement park charges an entrance fee of \$75 per person, then \$2.50 per ride. This is an 14) _____
example of
- A) bundling.
 - B) tying.
 - C) second-degree price discrimination.
 - D) a two-part tariff.
 - E) first-degree price discrimination.
- 15) A firm is charging a different price for each unit purchased by a consumer. This is called 15) _____
- A) first-degree price discrimination.
 - B) second-degree price discrimination.
 - C) fourth-degree price discrimination.
 - D) fifth-degree price discrimination.
 - E) third-degree price discrimination.
- 16) When a firm charges each customer the maximum price that the customer is willing to pay, the 16) _____
firm
- A) engages in second-degree price discrimination.
 - B) charges the average reservation price.
 - C) engages in a discrete pricing strategy.
 - D) engages in first-degree price discrimination.

- 17) Under perfect price discrimination, consumer surplus 17) _____
- A) is greater than zero. B) is less than zero.
C) equals zero. D) is maximized.
- 18) A firm sells an identical product to two groups of consumers, A and B. The firm has decided that 18) _____
third-degree price discrimination is feasible and wishes to set prices that maximize profits. Which
of the following best describes the price and output strategy that will maximize profits?
- A) $MRA = MRB = MC$. B) $(MRA - MRB) = (1 - MC)$.
C) $MRA = MRB$. D) $PA = PB = MC$.
- 19) The maximum price that a consumer is willing to pay for each unit bought is the _____ price. 19) _____
- A) reservation
B) choke
C) consumer surplus
D) auction
E) market
- 20) In peak load pricing, 20) _____
- A) marginal revenue in the peak period is less than in the off-peak period.
B) marginal revenue in the peak period is greater than in the off-peak period.
C) marginal revenue is equal in both periods.
D) the sum of the marginal revenues is greater than the sum of the marginal costs.
- 21) A local restaurant offers "early bird" price discounts for dinners ordered from 4:30 to 6:30 PM. This 21) _____
is an example of
- A) tying.
B) second-degree price discrimination.
C) peak-load pricing.
D) a two-part tariff.
E) none of the above.
- 22) A local theater prices every ticket in the theater at \$5.00 for matinees. During the evening, ticket 22) _____
prices are much higher. This is an example of
- A) bundling.
B) peak-load pricing.
C) second-degree price discrimination.
D) a two-part tariff.
E) none of the above.

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 23) Merriwell Corporation has a virtual monopoly in the ultra high speed computer market. Merriwell has recently introduced a new computer that will be used by satellite installations around the world. The installations have identical demands for the computers. Merriwell's managers have decided to lease rather than sell the computer, but they have been unable to decide whether to use a single hourly rental charge or a two-part tariff. Under the two-part tariff, users would be levied an "access charge" plus an hourly rental rate. Merriwell's marketing staff estimates the demand and marginal revenue curves below for each potential user:

$$P = 45 - 0.025Q$$

$$MR = 45 - 0.05Q,$$

where P = price per hour of computer time, and Q = the number of hours of computer time leased per month. Merriwell offers their users extensive maintenance assistance and technical support. The firm's engineers estimate that marginal cost is \$30 per computer hour.

- a. Assuming that Merriwell chooses to set a single price, what will the firm's price and output be?
 - b. Assuming that Merriwell uses a two-part tariff, what "access charge" and hourly rental fee should the firm set? Compare the firm's revenues under the options in (a) and (b).
 - c. Briefly describe how differing demand curves among the various buyers would alter the two-part tariff.
- 24) Calloway Shirt Manufacturers sells knit shirts in two sub-markets. In one market, the shirts carry Calloway's popular label and breast logo and receive a substantial price premium. The other sub-market is targeted toward more price conscious consumers who buy the shirts without a breast logo, carrying the name Archwood. The retail price of the shirts carrying the Calloway label is \$42.00 while the Archwood shirts sell for \$25. Calloway's market research indicates a price elasticity of demand for the higher priced shirt of -2.0 , and an elasticity for the Archwood shirts of -4.0 . Moreover, the research suggests that both elasticities are constant over broad ranges of output.
- a. Are Calloway's current prices optimal?
 - b. Management considers the \$25 price to be optimal and necessary to meet the competition. What price should the firm set for the Calloway label to achieve an optimal price ratio?

- 25) The local zoo has hired you to assist them in setting admission prices. The zoo's managers recognize that there are two distinct demand curves for zoo admission. One demand curve applies to those ages 12 to 64, while the other is for children and senior citizens. The two demand and marginal revenue curves are:

$$PA = 9.6 - 0.08QA$$

$$MRA = 9.6 - 0.16QA$$

$$PCS = 4 - 0.05QCS$$

$$MRCS = 4 - 0.10QCS$$

where PA = adult price, PCS = children's/senior citizen's price, QA = daily quantity of adults, and QCS = daily quantity of children and senior citizens. Crowding is not a problem at the zoo, so that the managers consider marginal cost to be zero.

- a. If the zoo decides to price discriminate, what should the price and quantity be in each market? Calculate total revenue in each sub-market.
- b. What is the elasticity of demand at the quantities calculated in (a) for each market. Are these elasticities consistent with your understanding of profit maximization and the relationship between marginal revenue and elasticity?

Answer Key

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- 1) D
- 2) C
- 3) D
- 4) A
- 5) A
- 6) B
- 7) D
- 8) B
- 9) A
- 10) D
- 11) E
- 12) C
- 13) E
- 14) D
- 15) A
- 16) D
- 17) C
- 18) A
- 19) A
- 20) B
- 21) C
- 22) B
- 23) *a.*

As a simple monopolist, the firm would set $MR = MC$

$$\begin{aligned}45 - 0.05Q &= 30 \\ -0.05Q &= -15 \\ Q &= 300\end{aligned}$$

$$P = 45 - 0.025(300)$$

$$P = 45 - 7.5$$

$$P = 37.50$$

$$TR = 37.50 \times 300 = \$11,250$$

b.

Under a two-part tariff with identical consumers, price and output are determined where $P = MC$.

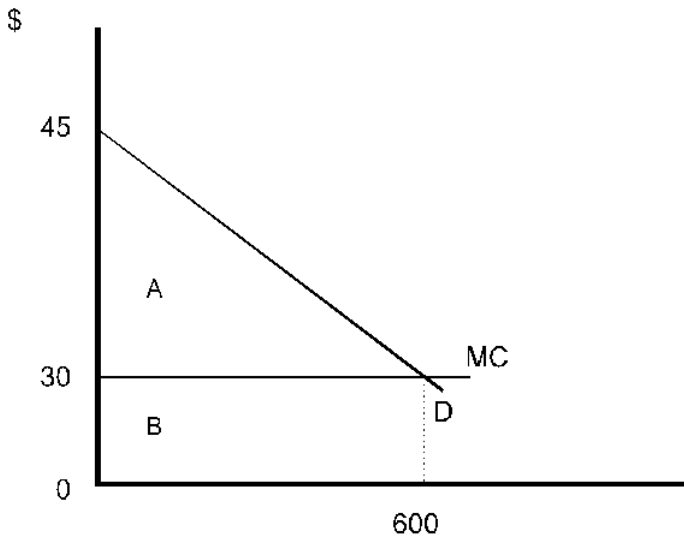
$$\begin{aligned}45 - 0.025Q &= 30 \\ -0.025Q &= -15 \\ Q &= 600\end{aligned}$$

$$P = 45 - 0.025(600)$$

$$P = 30$$

Answer Key

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To find access charge, must find the consumer surplus which is area A.

$$\text{Area A} = \text{CS} = (0.5)(15)(600) = 4,500$$

Set access charge of \$4,500 and a \$30 hourly fee.

Total revenue under this option is the area under demand curve or \$22,500. Total revenue doubles with a two-part tariff as compared with the single hourly rental charge option.

c.

With differing demands, the firm should set prices slightly above MC. The access charge should then be set to capture all consumer surplus from the buyer with the smallest demand.

Answer Key

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24) Let P_C = Calloway price

P_A = Archwood price

E_C = Calloway elasticity

E_A = Archwood elasticity

a.

For an optimal price ration the following conditions must hold.

$$\frac{P_C}{P_A} \text{ must} = \frac{\left(1 + \frac{1}{E_A}\right)}{\left(1 + \frac{1}{E_C}\right)}$$

$$\frac{P_C}{P_A} \text{ must} = \frac{42}{25} = 1.68$$

$$\frac{\left(1 + \frac{1}{E_A}\right)}{\left(1 + \frac{1}{E_C}\right)} = \frac{\left(1 + \frac{1}{-4}\right)}{\left(1 + \frac{1}{-2}\right)} = \frac{\frac{3}{4}}{\frac{1}{2}} = \frac{3}{2} = 1.5$$

The current price is not optimal.

b.

If the elasticities are constant $\frac{P_C}{P_A}$ should equal 1.5.

$P_A = \$25$, P_C should be $\$37.50$

25) a.

Optimal price discrimination requires the zoo to set $MRA = MRCS = MC$.

Setting $MRA = 0$

$$9.6 - 0.16Q_A = 0$$

$$9.6 = 0.16Q_A$$

$$Q_A = 60$$

$$P_A = 9.6 - 0.08(60)$$

$$P_A = \$4.8$$

$$MRCS = 4 - 0.10Q_{CS} = 0$$

$$4 = 0.10Q_{CS}$$

$$Q_{CS} = 40$$

$$P_{CS} = 4 - 0.05(40) = \$2$$

$$P_{CS} = \$2$$

$$TRA = P_A \cdot Q_A$$

$$TRA = 4.8 \cdot 60 = \$288$$

$$TRCS = P_{CS} \cdot Q_{CS}$$

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$$TR_{CS} = 2 \cdot 40 = \$80$$

$$TR = 288 + 80 = \$368$$

b.

To calculate elasticities, solve for Q.

$$P_A = 9.6 - 0.08Q_A$$

$$P_A - 9.6 = -0.08Q_A$$

$$Q_A = 120 - 12.5P_A$$

$$Q_A = 120 - 12.5P_A$$

$$E_A = \frac{\Delta Q_A}{\Delta P_A} \cdot \frac{P_A}{Q_A}$$

$$E_A = -12.50 \cdot \frac{4.8}{60}$$

$$E_A = \frac{-60}{60} = -1.0$$

$$P_{CS} = 4 - 0.05Q_{CS}$$

$$P_{CS} = 4 - 0.05Q_{CS}$$

$$P_{CS} - 4 = -0.05Q_{CS}$$

$$Q_{CS} = 80 - 20P_{CS}$$

$$E_{CS} = -20 \cdot \frac{2}{40}$$

$$E_{CS} = -1$$

Yes it is consistent. When $MC = 0$, profit maximization requires that $MR = 0$.