

**Part I:**

1. If a monopolist sets her output such that marginal revenue, marginal cost and average total cost are equal, economic profit must be:
  - a) negative.
  - b) positive.
  - c) zero.
  - d) indeterminate from the given information.
  
2. A multiplant monopolist can produce her output in either of two plants. Having sold all of her output she discovers that the marginal cost in plant 1 is \$30 while the marginal cost in plant 2 is \$20. To maximize profits the firm will
  - a) produce more output in plant 1 and less in the plant 2.
  - b) do nothing until it acquires more information on revenues.
  - c) produce less output in plant 1 and more in plant 2.
  - d) produce less in both plants until marginal revenue is zero.
  - e) shut-down plant 1 and only produce at plant 2 in the future.
  
3. Monopoly power results in the ability to
  - a) set price equal to marginal cost.
  - b) equate marginal cost to marginal revenue.
  - c) set price above average variable cost.
  - d) set price above marginal cost.
  
4. Suppose that the competitive market for rice in Japan was suddenly monopolized. The effect of such a change would be:
  - a) to decrease the price of rice to the Japanese people.
  - b) to decrease the consumer surplus of Japanese rice consumers.
  - c) to decrease the producer surplus of Japanese rice producers.
  - d) a welfare gain for the Japanese people.
  - e) increase the consumption of rice by the Japanese people.
  
5. Which of the following statements about natural monopolies is true?
  - a) Natural monopolies have natural barriers to entry.
  - b) Natural monopolies are in the markets for natural resources (like crude oil and coal).
  - c) For natural monopolies, marginal cost is always below average cost.
  - d) For natural monopolies, average cost is always increasing.
  - e) Natural monopolies cannot be regulated.
  
6. Suppose that the marginal cost of an additional ton of steel produced by the Japanese is the same 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 in Japan than they will sell abroad.
  - b) The Japanese will sell steel at a lower price abroad than they will charge domestic users.
  - c) The Japanese will sell steel at a higher price abroad than they will charge domestic users.
  - d) Insufficient information exists to determine whether the price or quantity will be higher or lower abroad.

7. Season ticket holders for the St. Louis Rams received a surprise when they received their applications to renew their season tickets. In order to get your season ticket to the Rams' home games, you had to buy tickets to the preseason games. Many season ticket holders grumbled about this practice as an underhanded way for the St. Louis Rams to get more money from its season ticket holders. This practice is an example of:

- a) peak-load pricing.
- b) intertemporal price discrimination.
- c) two-part tariff.
- d) bundling.

For question #8, consider the following game:

		ABC Inc.	
		Offer Rebate	No Rebate
XYZ Corp.	Offer Rebate	20, 10	30, 0
	No Rebate	12, 16	20, 4

XYZ's payoff is the first number, ABC's payoff is the second number.

8. Which of the following is true about the above game?

- a) ABC's dominant strategy is to offer a rebate.
- b) ABC's dominant strategy is to offer no rebate.
- c) XYZ's dominant strategy is to offer a rebate.
- d) XYZ's dominant strategy is to offer no rebate.
- e) Both ABC and XYZ have rebate as a dominant strategy.

9. Nash equilibria are stable because

- a) they involve dominant strategies.
- b) they involve constant-sum games.
- c) they occur in noncooperative games.
- d) once the strategies are chosen, no players have an incentive to negotiate jointly to change them.
- e) once the strategies are chosen, no player has an incentive to deviate unilaterally from them.

For the question #10, consider the following game:

		Lawrence LLP	
		Put Poison Pill in Turbo Tech	Dump Cash Assets of Zamboni Tech
ERS Corporation	Buy Turbo Tech	-\$100, -\$1	\$2, -\$0.5
	Buy Zamboni Tech	\$1, -\$1	-\$0.5, -\$0.5

ERS's payoff is the first number, Lawrence's payoff is the second number.

10. In the above game, what is the Nash equilibrium?

- a) The strategy pair associated with -\$100, -\$1.
- b) The strategy pair associated with \$2, -\$0.5.
- c) The strategy pair associated with \$1, -\$1.
- d) The strategy pair associated with -\$0.5, -\$0.5.
- e) There is no Nash equilibrium in pure strategies.

**Part II: Answer all questions.**

11. Megan and Amanda are both 7 years old and operate lemonade stands. Megan lives on the east side of Welch while Amanda resides on the west side of the north-south street. Each morning, the girls must decide whether to place their stand on Welch Avenue or Lincoln Avenue. When they set their stand-up, they don't know what the other will do and can't relocate. If both girls put their stand on Welch, both girls receive \$175 in profits. If both girls put their stand on Lincoln, they each receive \$75 in profits. If one girl sets her stand on Welch while the other operates on Lincoln, the stand on Welch earns \$300 in profits while the stand on Lincoln earns \$225.

- a) Diagram the relevant pay-off matrix.
- b) Does either girl have a dominant strategy?
- c) Does the game have a Nash equilibrium?

Briefly explain your answer for each part.

12. Bookstores often offer annual memberships that allow customers to purchase books at a 10% discount. Explain why this may increase profits of the bookstore.

13. Marge's Beauty Salon sells shampoo and conditioner. Marge has two types of customers. Their willingness-to-pay for shampoo and conditioner are given in the table below. If Marge bundles the shampoo and conditioner, could she increase revenue? Show all relevant calculations.

	Shampoo	Conditioner
Type 1	\$8	\$5
Type 2	\$6	\$8

14. CableComm has a monopoly providing cable TV to the local community. The following information is relevant, where Q measures the number of households served:

The demand for cable TV is  $P = 70 - 2Q$ .

CableComm's marginal revenue function is  $MR = 70 - 4Q$ .

CableComm's marginal cost of providing cable TV is  $MC = 10 + Q$ .

CableComm's average cost function is  $AC = 10 + 0.5Q$ .

- a) What price and output would CableComm set as an unregulated, single-price, monopolist? How much profit will CableComm earn? What is consumer surplus equal to? What does social welfare equal? Show all calculations. Illustrate the situation with the appropriate graph.
- b) Suppose CableComm is able to perfectly price discriminate. What output will CableComm produce? What is the lowest price that CableComm will offer charge to one of its customers? What happens to your social welfare calculations from above? Is society better off? Explain.