Exercise Session 9

(1) Price discrimination is the business practice of

a. bundling related products to increase total sales.

b. selling the same good at different prices to different customers.

c. pricing above marginal cost.

d. hiring marketing experts to increase consumers' brand loyalty

(2) The general term for market structures that fall somewhere between monopoly and perfect competition is

a. incomplete markets.

b. imperfectly competitive markets.

c. oligopoly markets.

d. monopolistically competitive markets.

(3) Which of the following can eliminate the inefficiency inherent in monopoly pricing?

a. arbitrage

b. cost-plus pricing

c. price discrimination

d. regulations that force monopolies to reduce their levels of output

(4) If a monopolist is able to perfectly price discriminate,

a. consumer surplus is always increased.

b. total surplus is always decreased.

c. consumer surplus and deadweight losses are transformed into monopoly profits.

d. the price effect dominates the output effect on monopoly revenue

(5) We must be knowledgeable of how people behave in strategic situations if we are to understand

a. perfectly competitive markets.

b. oligopolistic markets.

c. monopolistically competitive markets.

d. All of the above are correct.

(6) In the language of game theory, a situation in which each person must consider how others might respond to his or her own actions is called a

a. quantifiable situation.

b. cooperative situation.

c. strategic situation.

d. tactical situation.

(7) As a group, oligopolists would always be better off if they would act collectively

a. as if they were each seeking to maximize their own individual profits.

b. in a manner that would prohibit collusive agreements.

c. as a single perfectly competitive firm.

d. as a single monopolist.

(8) The primary purpose of antitrust legislation is to

a. protect small businesses.

b. protect the competitiveness of markets.

c. protect the prices of American-made products.

d. ensure firms earn only a fair profit.

(9) The practice of requiring someone to buy two or more items together, rather than separately, is called

a. resale maintenance.

b. product fixing.

c. tying.

d. free-riding.

(10) Suppose a firm has a monopoly on the sale of widgets and faces a downward-sloping demand curve. When selling the 100th widget, the firm will always receive

a. less marginal revenue on the 100th widget than it received on the 99th widget.

b. more average revenue on the 100th widget than it received on the 99th widget.

c. more total revenue on the 100 widgets than it received on the first 99 widgets.

d. a lower average cost per unit at 100 units of output than at 99 units of output.

(11) For a monopolist, marginal revenue is

a. positive when the demand effect is greater than the supply effect.

b. positive when the monopoly effect is greater than the competitive effect.

c. negative when the price effect is greater than the output effect.

d. negative when the output effect is greater than the price effect.

(12) When a certain monopoly sets its price at $8 it sells 64 units. When the monopoly sets its price at $10 it sells 60 units. The marginal revenue for the firm over this range is

a. $11.

b. $22.

c. $33.

d. $44.

TR at 8$ is 512

TR at 10$ is 600

MR=$\frac{\Delta TR}{\Delta Q}$=88/4=22

(13) If a monopolist has zero marginal costs, it will produce

a. the output at which total revenue is maximized.

b. in the range in which marginal revenue is still increasing.

c. at the point at which marginal revenue is at a maximum.

d. in the range in which marginal revenue is negative

(14) Suppose when a monopolist produces 50 units its average revenue is $8 per unit, its marginal revenue is $4 per unit, its marginal cost is $4 per unit, and its average total cost is $3 per unit. What can we conclude about this monopolist?

a. The monopolist is currently maximizing profits, and its total profits are $200.

b. The monopolist is currently maximizing profits, and its total profits are $250.

c. The monopolist is not currently maximizing its profits; it should produce more units and charge a lower price to maximize profit.

d. The monopolist is not currently maximizing its profits; it should produce fewer units and charger a higher price to maximize profit.

(15) Which of the following statements is correct?

a. The benefits that accrue to a monopoly's owners are equal to the costs that are incurred by

consumers of that firm's product.

b. The deadweight loss that arises in monopoly stems from the fact that the profit-maximizing monopoly firm produces a quantity of output that exceeds the socially-efficient quantity.

c. The deadweight loss caused by monopoly is similar to the deadweight loss caused by a tax on a product.

d. The primary social problem caused by monopoly is monopoly profit.

(16)   Consider a profit-maximizing monopoly pricing under the following conditions. The profit-maximizing price charged for goods produced is $12.The intersection of the marginal revenue and marginal cost curves occurs where output is 10 units and marginal cost is $6. The socially efficient level of production is 12 units. The demand curve and marginal cost curves are linear. What is the value of the deadweight loss created by the monopolist?

a. $4

b. $6

c. $12

d. $16

(17)   In the market for "home heating" consumers typically have several options (e.g., electricity, heating fuel, natural gas, propane, etc.), yet we often think of firms in this industry as behaving like monopolists. Discuss the context in which your electricity provider is a monopolist. Is this characterization universally applicable? Explain your answer.

Answer: In this case, the firms are monopolists in the short run when consumers are unable to change their "home heating" systems. In the long run, consumers can change from electric appliances to natural gas appliances and thus lessen the monopoly power of utility providers. As long as consumers are able to substitute, in the long run the monopoly pricing power is reduced

(18)   The concert promoters of a heavy-metal band, WeR2Loud, know that there are two types of concert-goers: die- hard fans and casual fans. For a particular WeR2Loud concert, there are 1,000 die-hard fans who will pay $150 for a ticket and 500 casual fans who will pay $50 for a ticket. There are 1,500 seats available at the concert venue. Suppose the cost of putting on the concert is $50,000, which includes the cost of the band, lighting, security, etc.

(a) How much profit will the concert promoters earn if they set the price of each ticket at $150?
$$\pi = 150 * 1000 - 50000 = 100000\$$$

(b) How much profit will the concert promoters earn if they set the price of each ticket at $50?
$$\pi = 50 * 1500 - 50000 = 25000\$$$

(c) How much profit will the concert promoters earn if they engage in price discrimination?
$$\pi = 150 * 1000 + 500 * 50 - 50000 = 125000\$$$

(19) Vincent operates a scenic tour business in Boston. He has one bus which can fit 50 people per tour and each tour lasts 2 hours. His total cost of operating one tour is fixed at $450. Vincent's cost is not reduced if he runs a tour with a partially full bus. While his cost is the same for all tours, Vincent charges each passenger his/her willingness to pay: adults $18 per trip, children $10 per trip, and senior citizens $12 per trip. At those rates, on a typical day Vincent's demand is:

Passenger Type	Willingness to Pay	Demand per day
Adults	$18	70
Children	$10	25
Senior Citizens	$12	55

Assume that Vincent's customers are always available for the tour; therefore, he can fill his bus for each tour as long as there is sufficient total demand for the day.

(a) What is Vincent's total revenue on a typical day?
$$TR = 18 * 70 + 10 * 25 + 12 * 55 = 2170$$

(b) What is Vincent's profit on a typical day?
$$\pi = 18 * 70 + 10 * 25 + 12 * 55 - 3 * 450 = 820$$

(c) Vincent is considering changing his pricing strategy. Which of the following options results in the highest profit per day?

   a. Charge a single price of $10 to all passengers.

   b. Charge a single price of $12 to all passengers.

   c. Charge a single price of $18 to all passengers.

   d. Continue charging each buyer his/her willingness to pay.

(20) Analyze the following figure and answer the questions:
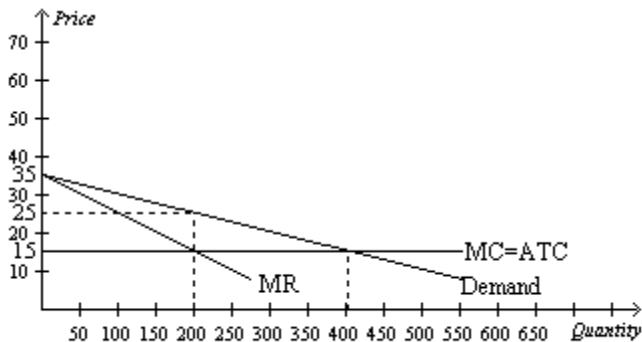
(a) If the monopoly firm is not allowed to price discriminate, how much the consumer surplus amounts to? **CS=200*(35-25)/2=1000$**

(b) If the monopoly firm perfectly price discriminates, then how much consumer surplus amounts to? **0$**

(c) If the monopoly firm is not allowed to price discriminate, then how much the deadweight loss amounts to? **DWL=(400-200)*(25-15)/2=1000$**

(d) If there are no fixed costs of production, how much monopoly profit without price discrimination equals to? $\pi = 200 * (25 - 15) = 2000$$

(e) If there are no fixed costs of production, how much monopoly profit with perfect price discrimination equals to? $\pi = 400 * (35 - 15)/2 = 4000\$$

(21) A monopolist faces the following demand curve:

Price	Quantity
$30	0
$25	2.5
$20	5
$15	7.5
$10	10
$5	12.5
$0	15

(a) If the monopolist produces 10 units, what is its average revenue? Marginal revenue? **10$, -5$**

(b) The monopolist will *not* produce

   a. 5 units or fewer under any circumstances.

   b. 7.5 units or fewer under any circumstances.

   c. 7.5 units or more under any circumstances.

   d. 10 units or more under any circumstances.

(c) In order to maximize total revenues, how much should the monopolist produce? **7.5 units**

(d) In order to maximize profits, the monopolist should produce

   a. 7.5 units.

   b. 10 units.

   c. **where marginal revenue equals marginal cost.**

   d. Both a and c are correct.

(22)   Based on the table below, how many workers will the firm employ in order to maximize profits?

Workers	Output	Product Price	Wage Rate
1	40	$14	$500
2	90	$14	$500
3	160	$14	$500
4	230	$14	$500
5	290	$14	$500
6	340	$14	$500
7	380	$14	$500
8	410	$14	$500

Calculate MC. MC=wage/MPL.

Workers	MPL	MC
1		
2	50	10
3	70	7
4	70	7
5	60	8
6	50	10
7	40	13
8	30	17

When hiring 7 workers MC<p

When hiring 8 workers MC>p, therefore, firm should hire 7 workers

(23)   Fill in the following table for a monopoly:

Quantity	Price	Total Revenue	Average Revenue	Marginal Revenue
1	$35	$35		
2		$64	$32	$29
3	$29			
4				$17
5	$23			$11
6		$120		
7	$17			$-1
8				$-7
9		$99	$11	$-13
10		$80	$8	

(24)   What is the deadweight loss due to profit-maximizing monopoly pricing under the following conditions: The price charged for goods produced is $10. The intersection of the marginal revenue and marginal cost curves occurs where output is 100 units and marginal revenue is $5. The socially efficient level of production is 110 units. The demand curve is linear and downward sloping, and the marginal cost curve is constant.

1/2*(110-100)*($10-$5) = $25

(25)   In many countries, the government chooses to "internalize" the monopoly by owning monopoly providers of goods and services. (In some cases these firms are "nationalized," and the government actually buys or confiscates firms that operate in monopoly markets). What would be the advantages and disadvantages of such an approach to ensure that the "best interest of society" is promoted in these markets? Explain your answer

Answer: As long as the government "owner" pursues a production and pricing policy that approaches a competitive outcome, social well-being can be enhanced. In this case the government ownership would benefit society. However, in most cases, government owners operate much like private sector monopolists. The political economy of government institutions

does not ensure that government owners will pursue socially optimal policy. Also, governments have no incentive to reduce costs or innovate.

(26)   What type of monopoly is shown in the figure?
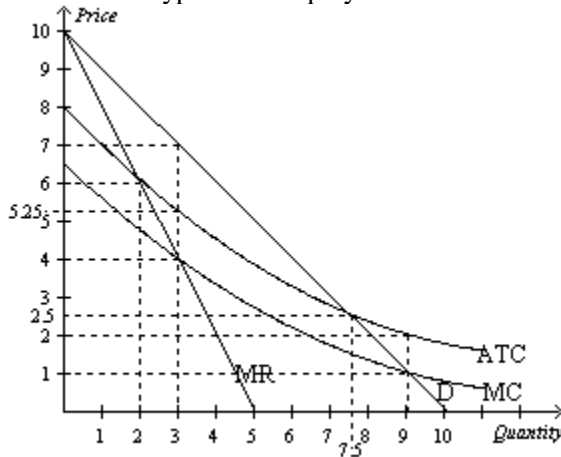
Natural monopoly, since the ATC is downward sloping curve

(27) The following table shows the total output produced by the top six firms as well as the total industry output for each industry.

| Firm	Industry J	Industry K	Industry L	Industry M
1	14,288	7,878	1,554	22,987
2	12,128	7,242	1,486	21,444
3	11,192	5,321	1,294	18,787
4	3,245	4,900	1,287	16,454
5	2,442	4,526	911	12,890
6	1,004	3,800	745	10,045
Total	*55,050*	*70,250*	*7,340*	*198,400*

(a) What is the concentration ratio for Industry J?

$$\frac{14288 + 12128 + 11192 + 3245}{55050} = 74\%$$

(b) Which industry has the highest concentration ratio? **L**

(c) Which industry is the least competitive? **L**

(28)   The figure is drawn for a monopolistically competitive firm
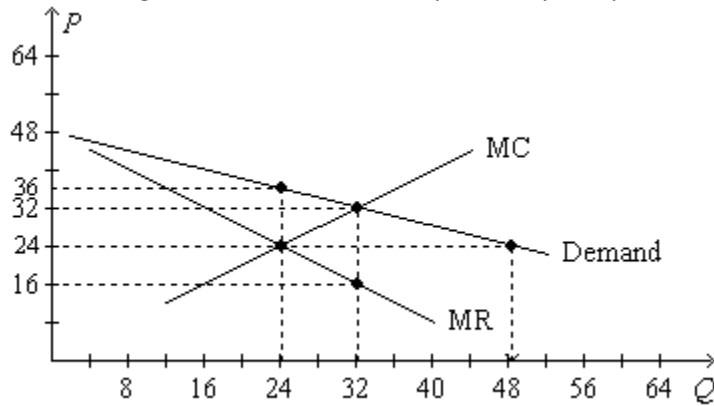
(a) What is the firm's profit-maximizing level of output? **24**

(b) Suppose that average total cost is $36 when Q=24. What is the profit-maximizing price and resulting profit? **36; 0**

(c) If the average variable cost is $24 at the profit-maximizing quantity, and if the firm's fixed costs amount to $60, then the firm's maximum profit is
   a. $-60.
   b. $196.
   c. $228.
   d. $288.

(d) If the average variable cost is $26 at the profit-maximizing quantity, and if the firm's profit is $40 at that quantity, then its fixed costs amount to

   a. $12.
   b. $152.
   c. $200.
   d. $240.

(e) Suppose ATC = $36 when Q = 24. Then the

   a.   **firm is in a long-run equilibrium when it produces 24 units of output.**
   b.   firm is in a long-run equilibrium when it produces 32 units of output.
   c.   best the firm can do is sustain a loss of $48.
   d.   best the firm can do is earn a profit of $96.

(29) Consider the problem facing two firms, YumYum and Bertollini, in the frozen food market. Each firm has just come up with an idea for a new "frozen meal for two" which it would sell for $9. Assume that the marginal cost for each new product is a constant $2, and the only fixed cost is for advertising. Each company knows that if it spends $12 million on advertising it will get 1.5 million consumers to try its new product. YumYum has done market research which suggests that its product does not have any "staying" power in the market. Even though it could get 1.5 million consumers to buy the product once, it is unlikely that they will continue to buy the product in the future. Bertollini's market research suggests that its product is very good, and consumers who try the product will continue to be consumers over the ensuing year. On the basis of its market

research, Bertollini estimates that its initial 1.5 million customers will buy one unit of the product each month in the coming year, for a total of 18 million units.

(i)   If YumYum decides to advertise its product it can expect to

    I.   incur a loss of $15 million.

    II.   **incur a loss of $1.5 million.**

    III.   earn a profit of $1.5 million.

    IV.   earn a profit of $13.5 million.

(ii)   If Bertollini decides to advertise its product it can expect to

    I.   earn a profit of $162 million per year.

    II.   earn a profit of $147 million per year.

    III.   **earn a profit of $114 million per year.**

    IV.   earn a profit of $48 million per year.

(iii)   Suppose YumYum has an opportunity to create a cheaper advertising campaign in newspapers rather than on television for its new product. This campaign will cost $8 million and is expected to result in the same 1.5 million one-time customers. YumYum should

    I.   **invest in the cheaper campaign because they will earn a profit.**

    II.   invest in the cheaper campaign because they will signal the high quality of their product.

    III.   not invest in the cheaper campaign because they will incur a loss.

    IV.   not invest in the cheaper campaign because their brand name will be negatively affected

(iv)   By its willingness to spend money on advertising, Bertollini

    I.   **signals the quality of its new product to consumers.**

    II.   signals that it is not a profit maximizer.

    III.   is detracting from the efficiency of markets.

    IV.   will drive YumYum out of the market.

(30)   Hector and Bart are roommates. On a particular day, their apartment needs to be cleaned. Each person has to decide whether to take part in cleaning. At the end of the day, either the apartment will be completely clean (if one or both roommates take part in cleaning), or it will remain dirty (if neither roommate cleans). With happiness measured on a scale of 1 (very unhappy) to 10 (very happy), the possible outcomes are as follows:

Hector's Decision

	Clean	Don't clean
Clean	Hector's happiness = 6 Bart's happiness = 7	Hector's happiness = 10 Bart's happiness = 2
Don't clean	Hector's happiness = 2 Bart's happiness = 10	Hector's happiness = 5 Bart's happiness = 4

(Bart's Decision — row labels on left)

(a) Does Hector have a dominant strategy? Which one? **Yes, not to clean**

(b) If this game is played only once, then the most likely outcome is that

      (i)   Hector and Bart both clean.

      (ii)   Hector cleans and Bart does not clean.

      (iii)   Bart cleans and Hector does not clean.

      (iv)   neither Hector nor Bart cleans.

(c) The possible outcome in which both Hector and Bart clean is analogous to which of the following outcomes of the duopoly game?

    a. The duopolists collude to achieve the monopoly outcome.

    b. The duopolists collude to achieve the monopolistically-competitive outcome.

    c. The outcome is the one that is most preferable for consumers of the duopolists' product.

    d. The outcome is the one that is least preferable for both the duopolists and for the consumers of their product.

(31)   Suppose that two poker players believe that they are superior players to the rest of the people at their table. Further suppose that the two players make an agreement to concede hands to each other in order to drive the other players from the game first. Economists would model such behavior as

    a.   monopolistic competition.

    b.   game theory.

    c.   predatory pricing.

    d.   a dominant strategy.

(32)   After initial success, the OPEC cartel saw the price of oil and the revenues of its members decline due, in part, to

    a. the low elasticity of demand for oil in the short run.

    b. the large number of buyers from each member nation.

    c. surging demand for oil in the early 1980s.

    d. OPEC members failing to produce their agreed-upon production levels.

(33) Two firms are considering going out of business and selling their assets. Each considers what happens if the other goes out of business. The payoff matrix below shows the net gain or loss to each firm.

		Firm A	
		Stays in business	*Sells business*
Firm B	*Stays in business*	A gains $9 million B gains $7million	A gains $7 million B gains $15 million
	Sells business	A gains $15 million B gains $8 million	A gains $1 million B gains $3 million

(a) Which firm's dominant strategy is to sell? **None of them**

(b) Which firms have a dominant strategy? **A only**

(c) What is the Nash equilibrium? **B sells A stays**

(34)　　　　Assume that demand for a product that is produced at zero marginal cost is reflected in the table below.

Quantity	Price
0	$36
200	$33
400	$30
600	$27
800	$24
1000	$21
1200	$18
1400	$15
1600	$12
1800	$ 9
2000	$ 6
2200	$ 3
2400	$ 0

a. What is the profit-maximizing level of production for a group of oligopolistic firms that operate as a cartel? **1200**

b. Assume that this market is characterized by a duopoly in which collusive agreements are illegal. What market price and quantity will be associated with a Nash equilibrium? **Q = 1600, P = 12$**

(35)　　　　Ford and General Motors are considering expanding into the Vietnamese automobile market. Devise a simple prisoners' dilemma game to demonstrate the strategic considerations that are relevant to this decision.

The answer should present two strategies for each company, such as "Expand" and "Don't Expand." To be a prisoner's dilemma, each firm needs a dominant strategy, but each firm choosing its dominant strategy results in an outcome that is jointly worse than if they both chose their other strategy. A possible payoff table with payoffs (Ford, GM) is

		GM	
		Expand	*Don't Expand*
Ford *Expand*		(2, 2)	(4, 1)
Don't Expand		(1, 4)	(3, 3)

(36)   When labor is the only input a firm uses, the marginal cost of a unit of output can be defined as the
   a.   marginal revenue multiplied by the wage.
   b.   marginal product of labor multiplied by the wage.
   c.   marginal product of labor divided by the wage.
   d.   None of the above is correct.

(37)   Suppose medical research provides evidence that eating bananas provides far greater health benefits than was previously thought. The resulting increase in the demand for bananas
   a.   increases the marginal product of banana pickers for any given number of banana pickers.
   b.   increases the value of the marginal product of banana pickers for any given number of banana pickers.
   c.   increases the supply of banana pickers.
   d.   All of the above are correct.

(38)   Assume the market for handkerchiefs is competitive. A new invention leads to labor-augmenting technological progress in the production of handkerchiefs. This development
   a.   decreases the demand for workers who make handkerchiefs and decreases their equilibrium wage.
   b.   increases the demand for workers who make handkerchiefs and increases their equilibrium wage.
   c.   increases the supply of workers who make handkerchiefs and decreases their equilibrium wage.
   d.   increases the supply of workers who make handkerchiefs and increases their equilibrium wage.

(39)   Suppose that the labor market for life guards is initially in equilibrium. Whistles are an important safety tool that life guards use as a part of their jobs. A fire destroys the largest factory that produces whistles. In the market for life guards the equilibrium wage
   a.   increases because the marginal productivity of life guards increases.
   b.   decreases because the marginal productivity of life guards decreases.
   c.   increases because the supply of life guards increases.
   d.   decreases because the supply of life guards decreases.

(40)   Suppose that a rare virus infects and kills a significant percentage of the population. Assuming that land and labor are complements in a farming production function, what would happen to the wages earned by workers and the rents earned by landowners?
   a.   Both wages and rents would increase.
   b.   Both wages and rents would decrease.
   c.   Wages would increase, and rents would decrease.
   d.   Wages would decrease, and rents would increase.

(41)   Wally owns a dog whose barking annoys Wally's neighbor, Corrine. Suppose that the benefit of owning the dog is worth $700 to Wally and that Corrine bears a cost of $500 from the barking. Assuming Wally has the legal right to keep the dog, a possible private solution to this problem is that
   a.   Wally pays Corrine $600 for her inconvenience.
   b.   Corrine pays Wally $400 to give the dog to his parents who live on an isolated farm.

c. Corrine pays Wally $550 to give the dog to his parents who live on an isolated farm.

d. The current situation is efficient.

(42) Karen's cat causes Danny to sneeze. Karen values her cat's companionship at $300 per year. The cost to Danny of tissues and her allergy medication is $350 per year. Based on the Coase theorem,

    a.   Karen should pay Danny $400 so that she may keep her cat.

    b.   Karen should pay Danny $350 for tissues and allergy medication.

    c.   Danny should pay Karen $325 to give away her cat.

    d.   Danny should move.