

Economics 101  
Professor Brown  
May 9, 2004

Final Exam  
**Version 1**

Please do not open this exam until instructed to do so. All 40 questions are multiple choice, to be answered on the bubble sheet provided. Please use a number two pencil on the bubble sheet. Fill in your answers completely.

You may write on the exam question sheet, but anything you write on this exam will not be graded. **You may keep this exam booklet; please hand in your scantron sheet only.**

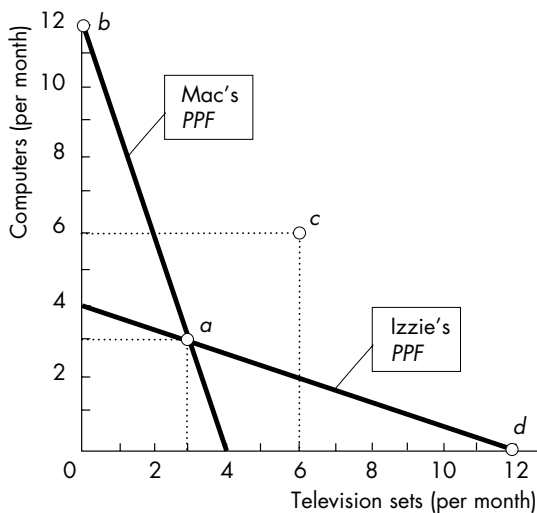
Please... no calculators or scratch paper. If you have a question, please raise your hand and a proctor will assist you.

On the bubble sheet, please be sure to include your name, ID number, section number (special codes ABC), and the correct version number of your exam (found at the top of this page) in special codes DE.

You have 120 minutes to complete this exam.

Good luck and have a great summer!

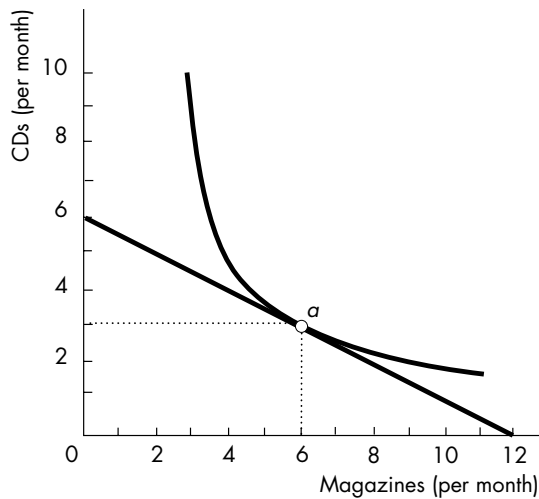
1. The ABC Music club charges a price of \$8 for a cassette and \$16 for a CD. For an ABC Music Club member, the opportunity cost of a CD is
- A) 2 cassettes.
  - B) 2 cassettes plus \$16.
  - C) 1/2 a cassette.
  - D) None of the above answers are correct.



2. In the figure above, suppose that Mac and Izzie specialize and trade to reach point c. Mac sends Izzie
- a. 6 computers in exchange for 6 TVs.
  - b. 12 computers in exchange for 6 TVs.
  - c. 6 computers in exchange for 12 TVs.
  - d. 12 computers in exchange for 12 TVs.

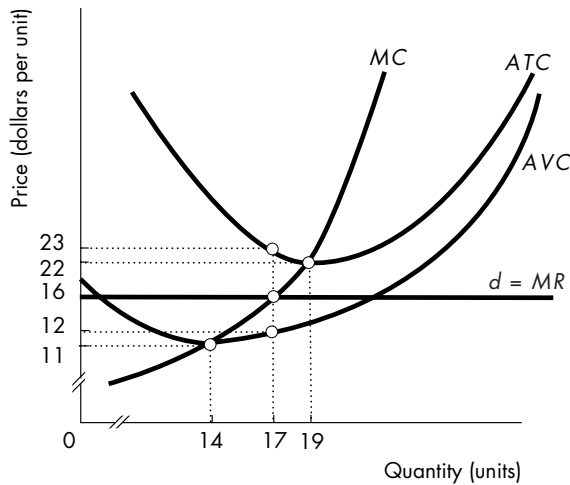
3. If the price of chocolate chip cookies rose, then
- A) the demand curve of cookies would shift rightward.
  - B) the demand curve of cookies would shift leftward.
  - C) there would be a movement down and to the right along the demand curve of cookies.
  - D) there would be a movement up and to the left along the demand curve of cookies.

4. Oatmeal is an inferior good and cold cereal is a substitute for oatmeal. Raisins are a complement for oatmeal. Which of the following increases the demand for oatmeal?
- A) An increase in the price of raisins.
  - B) An increase in income.
  - C) A decrease in population size.
  - D) An increase in the price of cold cereal.
5. Taco Bell's economists determine that the price elasticity of demand for their tacos is 2.0. So, if Taco Bell raises the price of its tacos by 6.0 percent, the quantity demanded will decrease by \_\_\_\_ percent.
- A) 2.0
  - B) 3.0
  - C) 6.0
  - D) 12.0
6. If demand is inelastic, an increase in the price will
- A) decrease total revenue.
  - B) increase total revenue.
  - C) not change total revenue.
  - D) increase the quantity demanded.
7. The marginal rate of substitution is
- A) the rate at which the consumer will give up one good to get an additional unit of another good while remaining on the same indifference curve.
  - B) the rate at which utility increases as the consumer increases purchases of a good, holding purchases of the other good constant.
  - C) the rate at which a consumer will exchange a good for income holding prices constant.
  - D) None of the above answers is correct.

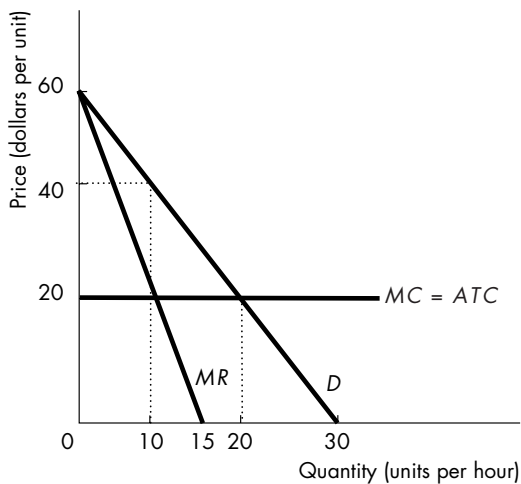


8. The above figure shows the tangency between a consumer's indifference curve and her budget constraint. What is the absolute value of the marginal rate of substitution (*MRS*) of CDs for magazines at point *a*?
- A)  $1/2$   
 B) The rate at which the consumer will give up magazines to purchase more CDs while preferring the new combination to the old.  
 C) 2  
 D) The question cannot be answered without more information.
9. When a firm is considered to be a "price taker" that means that it
- A) can charge any price that it wants to charge, that is, "take" any price it wants.  
 B) pays a fixed price for all of its inputs.  
 C) will accept ("take") the lowest price that its customers offer.  
 D) cannot influence the market price of the good that it sells.
10. Which of the following statements is correct about a perfectly competitive firm?
- A) The firm's marginal revenue curve and average revenue curve are the same.  
 B) The marginal revenue curve always lies above the firm's demand curve.  
 C) The marginal revenue curve always lies below the firm's demand curve.  
 D) The firm's average revenue curve is always below the market price.

11. If marginal revenue exceeds marginal cost, to increase its profit a firm will
- A) decrease its output.
  - B) increase its output.
  - C) keep its output the same.
  - D) decrease its output if it is a monopolist; increase its output if it is a perfect competitor.

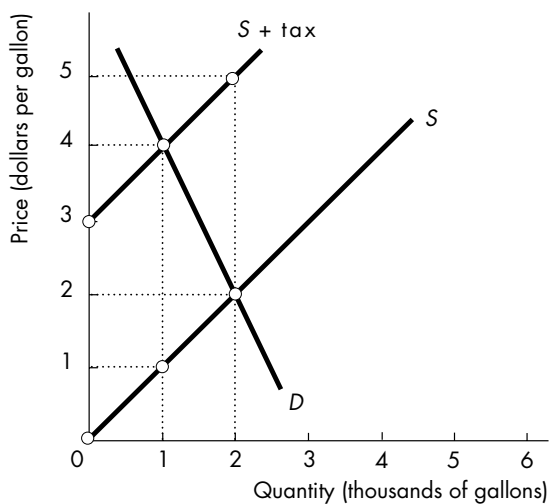


12. Consider the perfectly competitive firm in the above figure. The profit maximizing level of output for the firm is equal to
- A) 0 units.
  - B) 14 units.
  - C) 17 units.
  - D) 19 units.
13. Suppose firms in a perfectly competitive industry are incurring an economic loss. As firms exit, the price \_\_\_\_ and the economic loss of the surviving firms \_\_\_\_.
- A) rises; increases
  - B) rises; decreases
  - C) falls; increases
  - D) falls; decreases



14. The above figure shows the demand and cost curves for a single-price monopolist. What is the maximum economic profit this firm can earn?

- A) zero
- B) \$400
- C) \$100
- D) \$200



15. The above figure shows the market for anti-freeze. The government imposes a sales tax on anti-freeze. Using the figure, what is the total tax revenue?

- A) 2 (thousand dollars).
- B) 1 (thousand dollars).
- C) 4 (thousand dollars).
- D) 3 (thousand dollars).

16. The demand for aluminum is given by  $P = 100 - 2Q_D$ . The private cost curve of the aluminum producer is  $P = 3Q_S$ . The social cost of each unit of aluminum produced is 25. The private equilibrium quantity of aluminum exchanged is \_\_\_\_\_. The socially optimal quantity of aluminum produced and sold in the market is \_\_\_\_\_.
- A) 20, 20.  
 B) 10, 20.  
 C) 20, 15.  
 D) 20, 12.
17. Suppose the government would like to achieve the socially optimal quantity exchanged in the above market for aluminum. It could
- A) impose a Pigouvian tax on aluminum suppliers of \$15 per unit sold.  
 B) impose a price ceiling on aluminum of \$70 per unit.  
 C) impose a Pigouvian tax on aluminum suppliers of \$25 per unit sold.  
 D) impose an import quota on aluminum of 30 units.

		Firm B	
		R&D	No R&D
Firm A	R&D	15,25	60,-3
	No R&D	-3,60	35,50

18. Firms A and B can conduct research and development (R&D) or not conduct it. R&D is costly but can increase the quality of each firm's product and thus possibly increase sales. The entries in the above payoff matrix represent the economic profits of the two firms in millions of dollars under each possible R&D arrangement. A's dominated strategy is
- A) do not conduct R&D.  
 B) conduct R&D.  
 C) conduct R&D only if B conducts R&D.  
 D) A does not have a dominated strategy.
19. In the above game, the predicted outcome based on the removal of dominated strategies is \_\_\_\_\_; the Nash equilibrium is \_\_\_\_\_.
- A) {conduct R&D, conduct R&D}; {conduct R&D, conduct R&D}.  
 B) {do not conduct R&D, do not conduct R&D}; {conduct R&D, conduct R&D}.  
 C) not unique; {conduct R&D, conduct R&D}.  
 D) {conduct R&D, conduct R&D}; {do not conduct R&D, do not conduct R&D}.

20. A natural monopoly occurs when
- the product is sold in its natural state (such as water or diamonds).
  - average fixed cost decreases over the relevant range of output.
  - the firm is characterized by a rising marginal cost curve.
  - there are economies of scale over the relevant range of output.
21. When a firm operates under conditions of monopoly, its price is
- not constrained.
  - constrained by demand.
  - constrained by marginal cost.
  - constrained by demand and competitive pressures.
22. For a single-price, profit-maximizing monopolist,
- $P > MR = MC; P = ATC$ .
  - $P > MR = MC; P > ATC$ .
  - $P = MR = MC; P > ATC$ .
  - $P = MR = MC; P = ATC$ .

Use the following information to answer the two questions below: Suppose annual demand for cable television in Madison is given by the equation  $Q_D = 500 - P$ . Assume there is no satellite television in Madison. Total costs of providing cable are  $TC = 10,000 + 100Q$ .

23. What would a cable company be willing to pay the town of Madison for the legal right to act as a single price monopoly in the Madison cable market?
- 30,000.
  - 20,000.
  - 15,000.
  - Nothing, since the monopoly would make losses.
24. What quantity would a perfectly price discriminating monopolist produce? Is this quantity less than or equal to the socially efficient quantity?
- 300; less than.
  - 300; equal to.
  - 400; equal to.
  - 400; less than.

		Yvette	
		L	R
Monie	U	(99,99)	(4,100)
	D	(100,9)	(5,11)

25. The Nash equilibrium of the preceding game is:

- {U, L} and Monie has a dominant strategy to play Down.
- {U, L} and each player has a dominant strategy.
- {D, R} and both players have dominant strategies.
- {U, L} and there are no dominant strategies.

		Bill		
		<u>I</u> ado	<u>J</u> u Jitsu	<u>K</u> ung Fu
Beatrix	<u>A</u> ikido	(x, 6)	(2,7)	(1,8)
	<u>B</u> aguazhan g	(0,0)	(5,1)	(4,7)
	<u>C</u> apoeira	(10,y)	(4,-5)	(8,14)

26. Beatrix and Bill are choosing fighting styles. What must variables x and y satisfy in order for { C, I } to be a Nash equilibrium? Is { C, I } the only Nash equilibrium at these values?

- x must be less than or equal to 10; y must be greater than or equal to 14; yes if  $y > 14$  and no if  $y = 14$ .
- x must be less than or equal to 10; y must be greater than or equal to 14; yes if  $x > 10$  and no if  $x = 10$ .
- x can take any value; y must be greater than or equal to 6; no.
- x can take any value; y must be greater than or equal to 6; the number of equilibria cannot be determined.

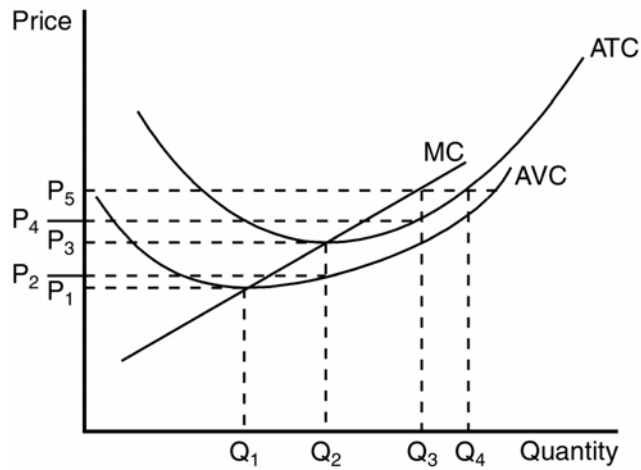
27. Dell and Gateway are selling identical desktop PCs. Market demand for the desktop PCs is given by  $Q_d = 1500 - P$ . Dell and Gateway both have fixed marginal costs per computer of 750. Suppose Dell and Gateway are the only producers of desktop PCs and they compete by choosing prices. What price does Dell charge in the Nash equilibrium of the pricing game? What price does Gateway charge? How many desktop computers are bought & sold in total in the market?

- a. 750, any price, 750
- b. 750, 750, 1000
- c. 750, 749, 1001
- d. 750, 750, 750

28. Now suppose that, in a market identical to the one described above, Dell's marginal cost of producing a desktop is 500. What price does Gateway charge for a computer in equilibrium? How many computers does Gateway sell to the market?

- a. 500, 750
- b. 750, 0
- c. 499, 1001
- d. 0, 0

The figure below depicts the cost structure of a firm in a competitive market. Use the figure to answer the following two questions.



29. When market price is  $P_5$ , a profit-maximizing firm's profits can be represented by the area
- $P_5 \times Q_3$ .
  - $(P_5 - P_3) \times Q_2$ .
  - $(P_5 - P_4) \times Q_3$ .
  - $(P_5 - P_3) \times Q_3$ .
30. Firms would be encouraged to enter this market for all prices that exceed
- $P_1$ .
  - $P_2$ .
  - $P_3$ .
  - None of the above.

31. In the market for low-skilled workers' labor hours, demand for worker hours is  $H_D = 30 - w$ . Supply of worker hours is  $H_S = 2w$ . What are the equilibrium wage, hours worked and workers' surplus from participating in the market?

- a.  $w = 10, H = 10$ , workers' surplus = 100
- b.  $w = 15, H = 15$ , workers' surplus = 75
- c.  $w = 15, H = 20$ , workers' surplus = 75
- d.  $w = 10, H = 20$ , workers' surplus = 100

32. The government imposes a minimum wage of \$20/hour in the above labor market. What is the surplus gained by workers who remain employed after the minimum wage is imposed? What is the surplus lost by workers who are fired when the minimum wage is imposed? Is total surplus to low-skilled workers in this market increased, decreased, or unchanged by the minimum wage?

- a. gain = 100, loss = 25, total worker surplus is increased
- b. gain = 25, loss = 200, total worker surplus is decreased
- c. gain = 200, loss = 25, total worker surplus is increased
- d. gain = 75, loss = 75, total worker surplus is unchanged

33. Like the Prisoners' Dilemma, the Friend or Foe game (assuming that being "foe'd" in response to saying "friend" on national TV is embarrassing) provides insights into the

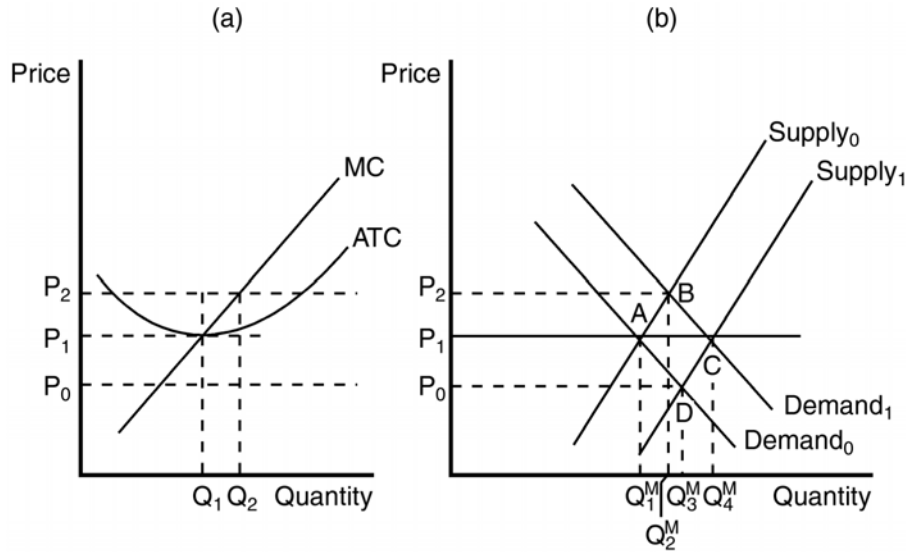
- a. ease with which oligopoly firms can imitate a monopoly.
- b. complete trustworthiness of oligopolists' promises to price high.
- c. social benefit of self-interested actions.
- d. difficulty of maintaining cooperation.

34. When measuring income distribution, the income share of the top fifth of all U.S. families is

- a. over 70 percent.
- b. around 25 percent.
- c. about 10 times the income share of the bottom fifth.
- d. not much different from the income of the top 5 percent.

35. In 2000, the poverty line for a family of four was (approximately)
- \$12,500.
  - \$17,600.
  - \$22,330.
  - \$29,400.
36. In our in-class experiment involving contribution to the public good, a volunteer participants' best strategy for maximizing her own candy was to \_\_\_\_\_; the socially efficient strategy (maximizing the group's total candy) was to \_\_\_\_\_.
- contribute **half of her candy** to the public good; contribute **all candy** to the public good.
  - contribute **none of her candy** to the public good; contribute **no candy** to the public good.
  - contribute **none of her candy** to the public good; contribute **all candy** to the public good.
  - contribute **all of her candy** to the public good; contribute **all candy** to the public good.
37. Equilibrium quantities in markets characterized by oligopoly are
- higher* than in monopoly markets and *higher* than in perfectly competitive markets.
  - higher* than in monopoly markets and *lower* than in perfectly competitive markets.
  - lower* than in monopoly markets and *higher* than in perfectly competitive markets.
  - lower* than in monopoly markets and *lower* than in perfectly competitive markets.
38. Equilibrium profits in markets characterized by oligopoly are
- higher* than in monopoly markets and *higher* than in perfectly competitive markets.
  - higher* than in monopoly markets and *lower* than in perfectly competitive markets.
  - lower* than in monopoly markets and *higher* than in perfectly competitive markets.
  - lower* than in monopoly markets and *lower* than in perfectly competitive markets.

Use the figures below to answer the subsequent two questions.



39. When the market is in long-run equilibrium at point A in panel (b), the firm represented in panel (a) will
- have a zero economic profit.
  - have a negative accounting profit.
  - exit the market.
  - All of the above are correct.
40. An increase in market supply from Supply<sub>0</sub> to Supply<sub>1</sub> is most likely the result of
- existing firms changing their cost structure.
  - existing firms in the market increasing their level of production beyond  $Q_1$ .
  - the entrance of new firms in the market.
  - All of the above are correct.