

**McMaster University**  
**Department of Economics**

**ECON 1B03      DAY SECTIONS**

Midterm Test #2

Saturday November 10, 2007

**VERSION 1**

Instructor: Professor H Holmes

Duration: 2 hours; 2:00 – 4:00pm

Total Number of Pages: 15

**INSTRUCTIONS:**

Answer all questions on the scan sheets. USE AN HB PENCIL ONLY. Make sure you carefully fill in the bubbles. YOU MUST FILL IN YOUR STUDENT NUMBER, VERSION NUMBER AND SECTION NUMBER ON THE SCAN SHEET OR YOUR GRADE WILL NOT BE RECORDED.

You may use the Casio FX calculator.

Hand in the scan sheet, your rough work paper and this test copy.

**TOTAL MARKS AVAILABLE:** 60

NAME: \_\_\_\_\_

STUDENT #: \_\_\_\_\_

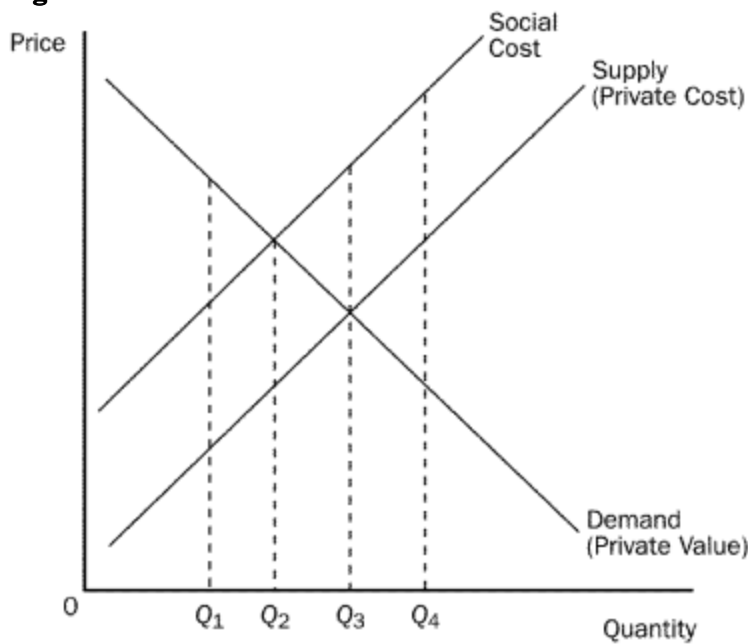
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SECTION: Circle One: C01 (9:30-10:20) C02 (12:30-1:20) EC01 (Wednesday night)

**Multiple Choice**

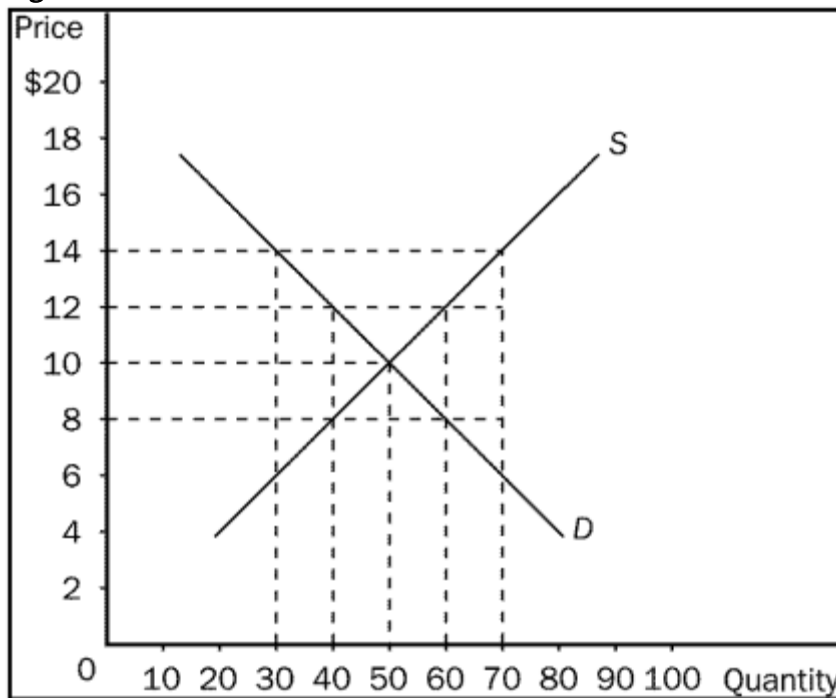
Identify the choice that best completes the statement or answers the question.

- \_\_\_\_ 1. When a negative externality exists in a market the cost to producers
- is greater than the cost to society.
  - will be the same as the cost to society.
  - will be less than the cost to society.
  - and society will be different regardless of whether an externality is present.

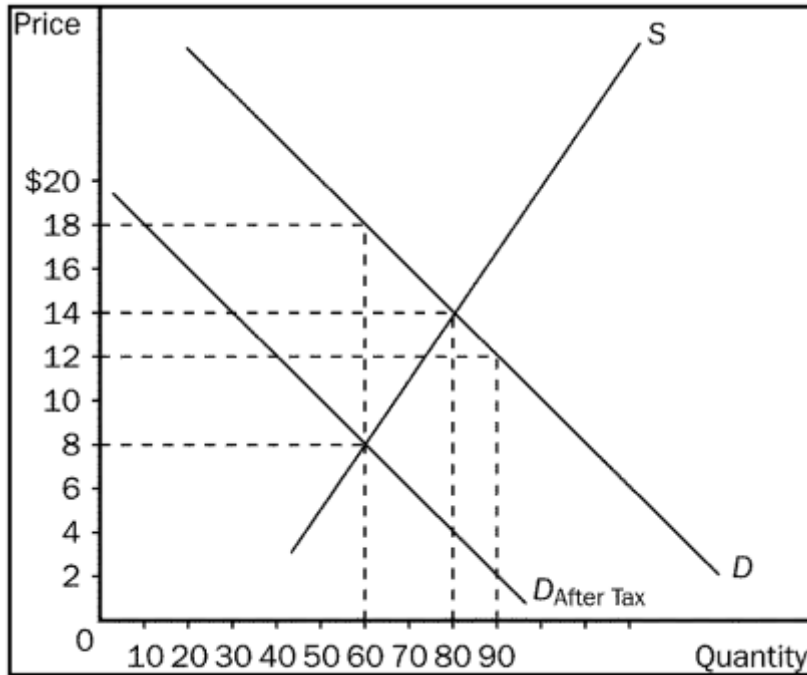
**Figure 1**

- \_\_\_\_ 2. **Refer to Figure 1.** The optimum amount of this product from society's standpoint would be
- $Q_1$ .
  - $Q_2$ .
  - $Q_3$ .
  - $Q_4$ .
- \_\_\_\_ 3. **Refer to Figure 1.** If this market currently produces  $Q_3$ , total economic well-being would be increased if
- production decreased to  $Q_2$ .
  - production increased to  $Q_4$ .
  - this product were no longer produced.
  - Since well-being is maximized at  $Q_3$  it cannot be increased.
- \_\_\_\_ 4. **Refer to Figure 1.** If this market is currently producing at  $Q_4$ , then total economic well-being would increase if output
- increased.
  - decreased to  $Q_2$ .
  - decreased to zero.
  - stayed at  $Q_4$ .

5. Internalizing a positive externality will cause the supply curve of an industry to
- shift to the right.
  - shift to the left.
  - become more elastic.
  - remain unchanged.
6. A price ceiling
- is a legal maximum on the price at which a good can be sold.
  - is a legal minimum on the price at which a good can be sold.
  - occurs when the price in the market is temporarily above equilibrium.
  - will usually result in a market surplus.
7. A price ceiling that is not binding will
- cause a surplus in the market.
  - cause a shortage in the market.
  - cause the market to be less efficient.
  - have no effect on the market price.

**Figure 2**

8. **Refer to Figure 2.** If the government imposes a binding price ceiling of \$8.00 in this market, the result would be a
- surplus of 20.
  - surplus of 40.
  - shortage of 20.
  - shortage of 40.

**Figure 3**

9. **Refer to Figure 3.** The price buyers will pay after the tax is imposed is
- \$18.00.
  - \$14.00.
  - \$12.00.
  - \$8.00.
10. **Refer to Figure 3.** The amount of the tax imposed in this market is
- \$10.00.
  - \$6.00.
  - \$4.00.
  - \$2.00.
11. The tax incidence is equivalent
- if the tax is levied on only the seller.
  - if the tax is levied only on the buyer.
  - if the tax is levied on both the buyer and the seller.
  - regardless of whether the tax is levied on buyers or sellers.
12. Deadweight loss measures the
- loss in a market to buyers and sellers that is not offset by an increase in government revenue.
  - loss in revenue to the government when buyers choose to buy less of the product.
  - loss of efficiency in a market as a result of government intervention.
  - lost revenue to businesses because of higher prices to consumers from the tax.

**QUESTIONS # 13 - #18 ARE ALL BASED ON THE INFORMATION GIVEN IN QUESTION #13.**

13. Market demand and market supply are given by  $Q_d = 128 - 9P$  and  $Q_s = 7P - 32$ . The government now decides to impose a tax on consumers. This leads to a new demand equation of  $Q_d(\text{tax}) = 112 - 9P$ . With the tax, the price consumers now pay is

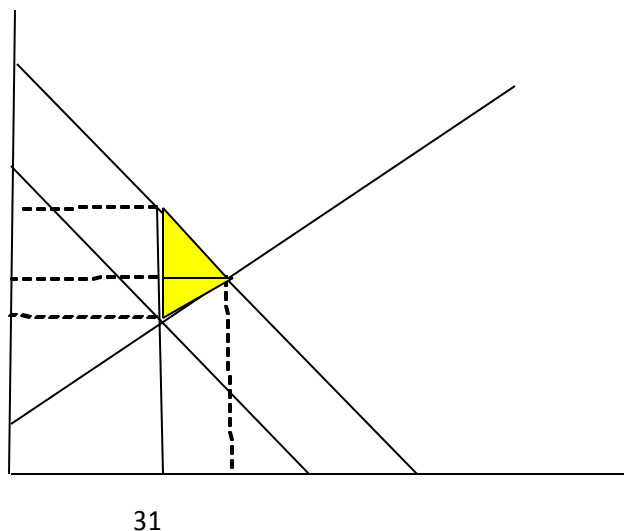
- a. \$9  
b. \$10.78  
c. \$11.42  
d. \$10.

SET NEW DEMAND = SUPPLY TO GET  $Q=31$ . WHEN  $Q=31$ , FROM OLD DEMAND, GET  $P = 97/9 = 10.78$

SUB  $Q=31$  INTO SUPPLY TO GET  $P$  FIRM RECEIVES WHICH IS \$9.00.

THE TAX IS  $10.78 - 9.00 = 1.78$ .

REVENUE =  $31 * 1.78 = 55.18$



14. The government collects tax revenue equal to

- a. \$334.18  
b. \$178.00  
c. \$55.18  
d. \$97.02

SEE ABOVE

15. The deadweight loss due to the tax is

- a. \$6.23  
b. \$12.46  
c. \$33.82  
d. \$67.64

$DWL = .5 * 1.78 * 7 = 6.23$

16. The tax has reduced producer surplus by

- a. \$68.67  
b. \$12.46  
c. \$34.50  
d. the tax increases producer surplus.

PS GOES DOWN BY  $1.00 * 31 + .5 * 1.00 * 7 = 34.50$

17. Which is more elastic - demand or supply?

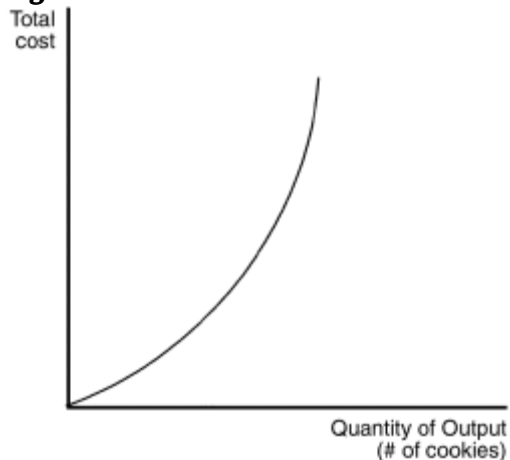
- a. Demand **CONSUMER BURDEN IS LESS**  
b. supply  
c. both have the same elasticity  
d. insufficient information to calculate.

18. Which statement is true?

- a. Total surplus was maximized before the tax was imposed.
- b. Consumers bear the larger burden of the tax.
- c. A tax on producers would mean a lower after-tax price for consumers.
- d. Both a and c are true.

The figure below depicts a total cost function for a firm that produces cookies. Use the figure to answer the following question.

**Figure 4**



19. **Refer to Figure 4 above.** The changing slope of the total cost curve reflects

- a. decreasing average variable cost.
- b. decreasing average total cost.
- c. decreasing marginal product. **WHEN IN DOUBT, BLAME IT ON DIMINISHING MP ☺**
- d. increasing fixed cost.

20. Let  $L$  represent the number of workers hired by a firm and let  $Q$  represent that firm's quantity of output. Assume two points on the firm's production function are  $(L = 12, Q = 122)$  and  $(L = 13, Q = 130)$ . Then the marginal product of the 13th worker is

- a. 8 units of output.
- b. 10 units of output.
- c. 122 units of output.
- d. 130 units of output.

21. Which of the following costs do not vary with the amount of output a firm produces?

- a. average fixed costs
- b. fixed costs and average fixed costs
- c. marginal costs and average fixed costs
- d. fixed costs

22. Average total cost equals

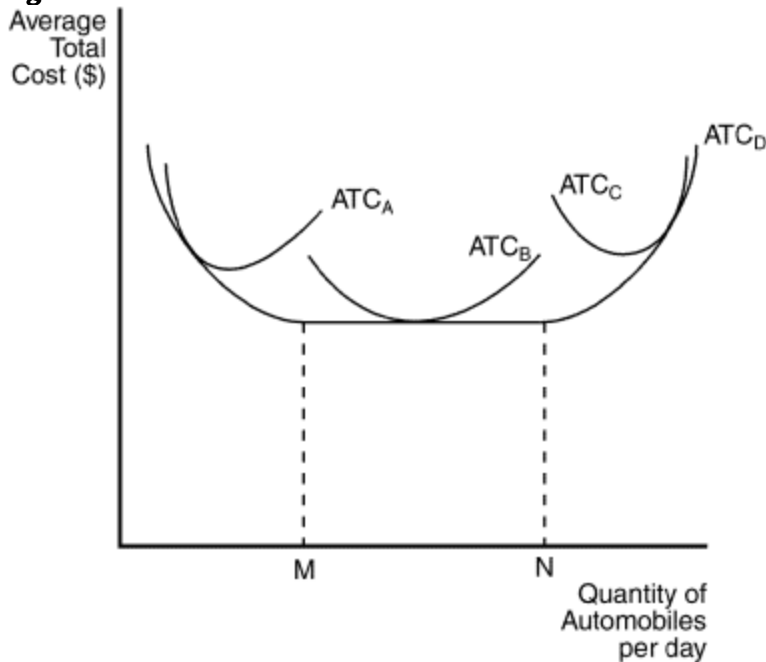
- a. change in total costs divided by quantity produced.
- b. change in total costs divided by change in quantity produced.
- c. (fixed costs + variable costs) divided by quantity produced.

d. (fixed costs + variable costs) divided by change in quantity produced.

23. Diminishing marginal product suggests that the marginal
- cost of an extra worker is unchanged.
  - cost of an extra worker is less than the previous worker's marginal cost.
  - product of an extra worker is less than the previous worker's marginal product.
  - product of an extra worker is greater than the previous worker's marginal product.
24. The efficient scale of the firm is the quantity of output that
- maximizes marginal product.
  - maximizes profit.
  - minimizes average total cost.
  - minimizes average variable cost.
25. Which of the following must always be true as the quantity of output increases?
- Marginal cost must rise.
  - Average total cost must rise.
  - Average variable cost must rise.
  - Average fixed cost must fall.

The figure below depicts average total cost functions for a firm that produces automobiles. Use the figure to answer the following two questions.

**Figure 5**



26. **Refer to Figure 5.** In the long run, the firm can operate on which of the following average total cost curves?
- $ATC_A$

- b.  $ATC_B$
- c.  $ATC_C$
- d. All of the above are correct.

27. **Refer to Figure 5.** This firm experiences diseconomies of scale at what output levels?

- a. output levels above N
- b. output levels between M and N
- c. output levels below M
- d. All of the above are correct, if the firm is operating in the long run.

28. In the long run, a firm that produces and sells computers gets to choose

- a. how many workers to hire.
- b. the size of its factories.
- c. which short-run average-total-cost curve to use.
- d. All of the above are correct.

29. Tom owns a factory in which he has produced TVs for five years. He has kept track of his average total cost as his level of production varies. This information is summarized below:

Output	Average Total Cost
10	\$500
20	\$400
30	\$300
40	\$400
50	\$500

From this information, we can conclude that

- a. Tom's factory exhibits both economies and diseconomies of scale.
- b. Tom's factory exhibits only diseconomies of scale.
- c. Tom's factory exhibits constant returns to scale.
- d. None of the above are correct. **NEED TO SEE LRAC**

30. Which of the following is NOT a characteristic of a perfectly competitive market?

- a. Firms are price takers.
- b. Firms have difficulty entering the market.
- c. There are many sellers in the market.
- d. Goods offered for sale are largely the same.

31. When a profit-maximizing firm in a competitive market has zero economic profit, accounting profit

- a. is negative (accounting losses).
- b. is positive.
- c. is also zero.
- d. could be positive, negative or zero.



32. For a competitive firm,
- average revenue equals the price of the good, but marginal revenue is different.
  - marginal revenue equals the price of the good, but average revenue is different.
  - average revenue equals marginal revenue, but the price of the good is different.
  - average revenue, marginal revenue, and the price of the good are all equal to one another.

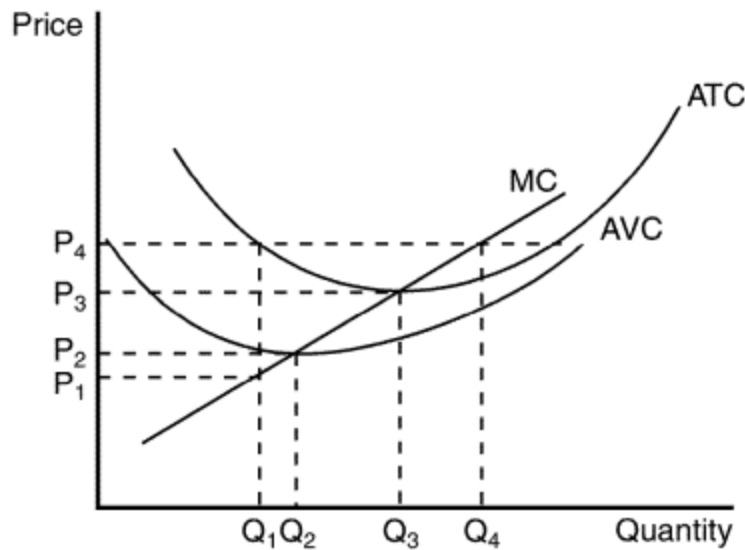
Use the information for a competitive firm in the table below to answer the following questions.

**Table 1**

Quantity	Total Revenue	Total Cost
0	\$0	\$10
1	9	14
2	18	19
3	27	25
4	36	32
5	45	40
6	54	49
7	63	59
8	72	70
9	81	82

33. **Refer to Table 1 above.** At which quantity of output is marginal revenue equal to marginal cost?
- 3
  - 6
  - 8
  - All of the above are correct.
34. **Refer to Table 1.** If this firm chooses to maximize profit it will choose a level of output where marginal cost is equal to
- 6.
  - 7.
  - 8.
  - 9.
35. **Refer to Table 1.** If the firm finds that its marginal cost is \$11, it should
- increase production to maximize profit.
  - increase the price of the product to maximize profit.
  - advertise to attract additional buyers to maximize profit.
  - None of the above are correct.
36. If marginal cost exceeds marginal revenue, the firm
- is most likely to be at a profit-maximizing level of output.
  - should increase the level of production to maximize its profit.
  - must be experiencing losses.
  - may still be earning a profit. **AS LONG AS  $MR > ATC$**

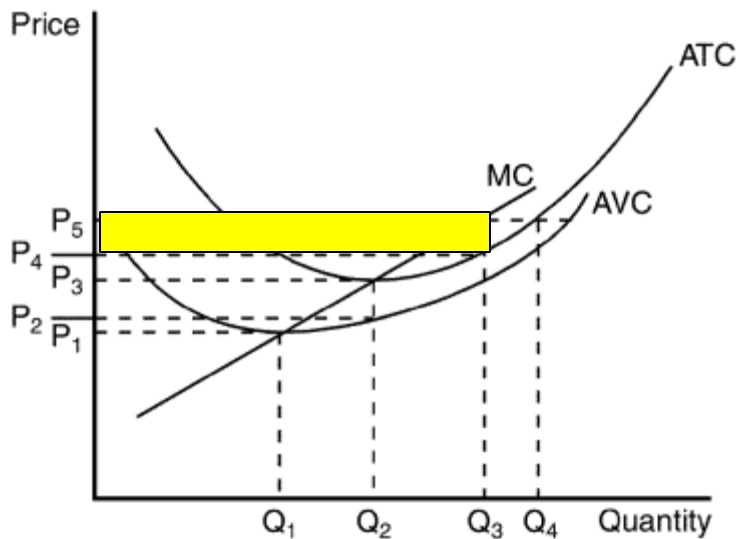
**Figure 6**



37. **Refer to Figure 6.** When price rises from  $P_2$  to  $P_3$ , the firm finds that
- marginal cost exceeds marginal revenue at a production level of  $Q_2$ .
  - if it produces at output level  $Q_3$  it will earn a positive profit.
  - expanding output to  $Q_4$  would leave the firm with losses.
  - All of the above are correct.
38. When a perfectly competitive firm makes a decision to shut down, it is most likely that
- marginal cost is above average variable cost.
  - marginal cost is above average total cost.
  - price is below the minimum of average variable cost.
  - fixed costs exceed variable costs.
39. In the long run all of a firm's costs are variable. In this case the exit criterion for a profit-maximizing firm is
- price < average total cost.
  - price > average total cost.
  - average revenue > average fixed cost.
  - average revenue > marginal cost.

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

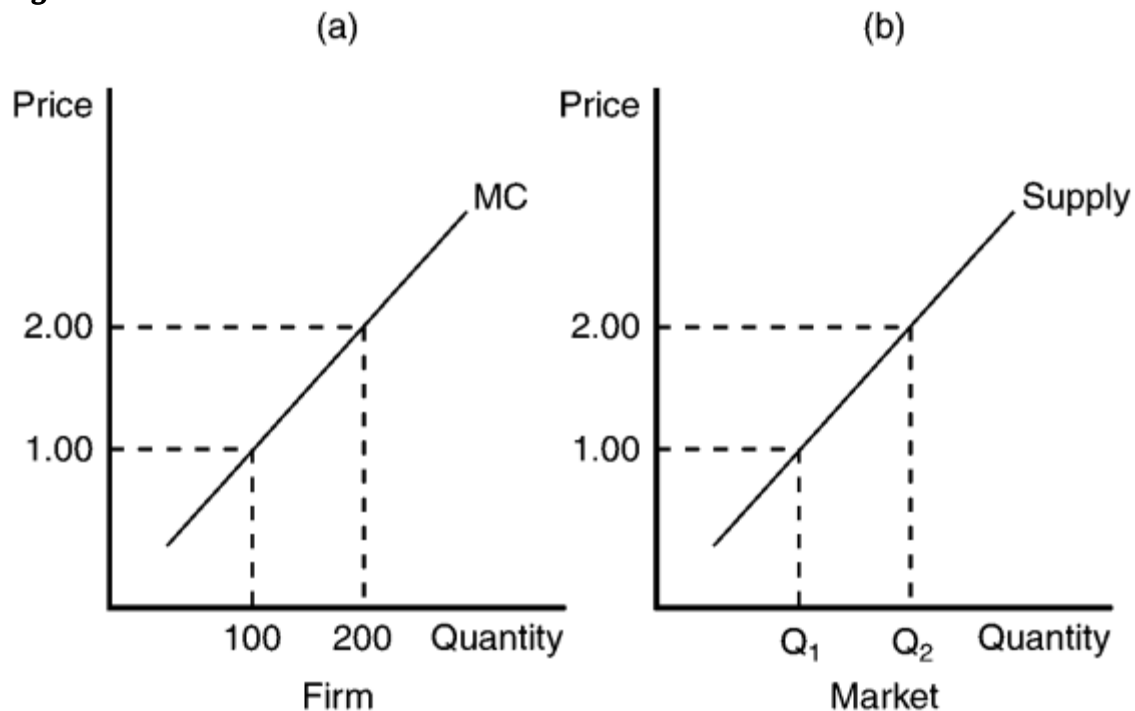
**Figure 7**



40. **Refer to Figure 7.** When market price is  $P_5$ , a profit-maximizing firm's profits can be represented by the area
- $P_5 \times Q_3$ .
  - $(P_5 - P_3) \times Q_2$ .
  - $(P_5 - P_4) \times Q_3$ .
  - When market price is  $P_5$  there are no profits.
41. A profit-maximizing firm in a competitive market is currently producing 100 units of output. It has average revenue of \$10, and its average total cost is \$8. It follows that the firm's
- average total cost curve intersects the marginal cost curve at an output level of less than 100 units.
  - average variable cost curve intersects the marginal cost curve at an output level of less than 100 units.
  - profit is \$200.
  - All of the above are correct.
42. For a certain firm, the 100th unit of output that the firm produces has a marginal revenue of \$10 and a marginal cost of \$7. It follows that
- the production of the 100th unit of output increases the firm's profit by \$3.  $MR - MC = 3$
  - the production of the 100th unit of output increases the firm's average total cost by \$7.
  - the firm's profit-maximizing level of output is less than 100 units.
  - All of the above are correct.
43. Which of the following expressions is correct?
- Profit = (Price of output - Average total cost)  $\times$  Quantity of output.
  - Profit = (Price of output  $\times$  Quantity of output) - Average total cost.
  - Profit = Total revenue - (Average total cost/Quantity of output).
  - Profit = Total revenue - (Average variable cost  $\times$  Quantity of output).

In the figure below, panel (a) depicts the linear marginal cost of a firm in a competitive market and panel (b) depicts the linear market supply curve for a market with a fixed number of identical firms. Use the figure to answer the following questions.

**Figure 8**



44. **Refer to Figure 8.** If there are 200 identical firms in this market, what level of output will be supplied to the market when price is \$1.00?
- 2,000
  - 5,000
  - 10,000
  - 20,000 **100 PER FIRM TIMES 200 FIRMS**
45. **Refer to Figure 8.** When 100 identical firms participate in this market, at what price will 15,000 units be supplied to this market?
- \$1.00
  - \$1.50 **15000/100= 150 UNITS PER FIRM SO P = \$1.50**
  - \$2.00
  - It cannot be determined from the information provided.
46. When new firms have an incentive to enter a competitive market, their entry will
- increase the price of the product.
  - drive down profits of existing firms in the market.**
  - shift the market supply curve to the left.
  - All of the above are correct.
47. An industry is a natural monopoly when
- government assists the firm in maintaining the monopoly.
  - a single firm owns a key resource.

(iii) a single firm can supply a fixed number of goods or services at a smaller cost than could two or more firms.

- a. (i) only
- b. (iii) only**
- c. (i) and (ii)
- d. (ii) and (iii)

\_\_\_\_\_ 48. For a profit-maximizing monopolist,

- a.  $P > MR = MC$ .**
- b.  $P = MR = MC$ .
- c.  $P > MR > MC$ .
- d.  $MR < MC < P$ .

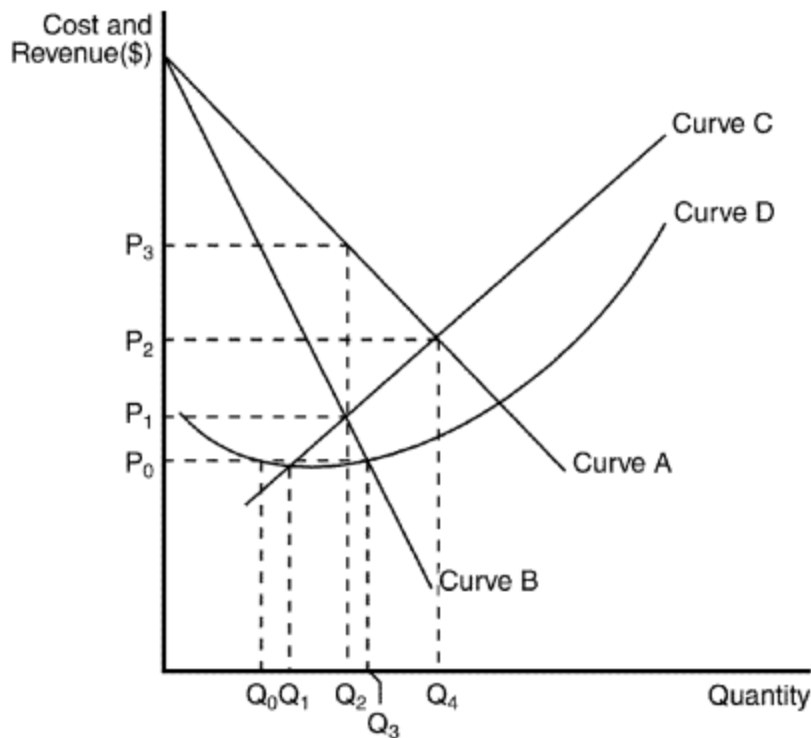
\_\_\_\_\_ 49. A monopolist's marginal revenue is less than price because

- (i) to sell additional units of the good, the price charged on all units must decrease.
- (ii) with the sale of an additional unit, the monopolist receives less revenue for each of the previous units it planned to sell.
- (iii) of the upward-sloping average revenue curve.

- a. (i) and (ii)**
- b. (ii) and (iii)
- c. (i) and (iii)
- d. All of the above are correct.

The figure on the following page reflects the cost and revenue structure for a monopoly firm. Use it to answer the following two questions.

***Figure 9***



50. **Refer to Figure 9.** If the monopoly firm wants to maximize its profit, it should operate at a level of output equal to
- $Q_1$ .
  - $Q_2$ . **MR=MC**
  - $Q_3$ .
  - $Q_4$ .
51. **Refer to Figure 9.** Profit will be maximized by charging a price equal to
- $P_0$ .
  - $P_1$ .
  - $P_2$ .
  - $P_3$ .
52. Competitive firms differ from monopolies in which of the following ways?
- Competitive firms face a perfectly elastic demand curve..
  - Marginal revenue for a competitive firm equals price, while marginal revenue for a monopoly is less than the price it is able to charge.
  - Monopolies must lower their price in order to sell more of their product, while competitive firms do not.
- (i) and (ii)
  - (ii) and (iii)
  - (i) and (iii)
  - All of the above are correct.

53. What is the monopolist's profit under the following conditions? The profit-maximizing price charged for goods produced is \$12. The intersection of the demand curve and the marginal cost curve occurs where output is 15 units and marginal cost is \$6.
- \$90
  - \$100
  - \$180
  - Not enough information is given to determine the answer. **NEED ATC.**
54. The profit-maximization problem for a monopolist differs from that of a competitive firm in which of the following ways?
- A competitive firm maximizes profit at the point where marginal revenue equals marginal cost; a monopolist maximizes profit at the point where marginal revenue exceeds marginal cost.
  - A competitive firm maximizes profit at the point where average revenue equals marginal cost; a monopolist maximizes profit at the point where average revenue exceeds marginal cost.
  - For a competitive firm, marginal revenue at the profit-maximizing level of output is equal to marginal revenue at all other levels of output; for a monopolist, marginal revenue at the profit-maximizing level of output is smaller than it is for larger levels of output.
  - For a profit-maximizing competitive firm, thinking at the margin is much more important than it is for a profit-maximizing monopolist.

**QUESTIONS #55 - #60 ARE ALL BASED ON THE INFORMATION GIVEN IN QUESTION #55.**

55. A monopolist faces a demand of  $P = 40 - 2Q$ . Marginal revenue is  $MR = 40 - 4Q$  and marginal cost is  $MC = 4$ . To maximize profits, the monopolist will produce a quantity of \_\_\_\_ and sell at a price of \_\_\_\_.
- 18; \$4
  - 9; \$22
  - 18; \$22
  - 9; \$4

**SET  $MR=MC$ :  $40 - 4Q = 4$        $4Q = 36$      $Q = 9$**

**SUB  $Q=9$  INTO DEMAND CURVE TO GET  $P = 40 - 2(9) = 22$**

56. If the monopolist's total costs are  $TC = 90$ , the monopolist's profit per unit is
- \$10
  - \$22
  - \$10.80
  - \$12.

**AT  $Q = 9$ ,  $ATC=90/9=10$       PROFIT PER UNIT IS  $(P-ATC)=(22-10)=12$**

57. If this were a perfectly competitive firm, it would maximize profit at a price of
- \$22
  - \$18
  - \$9
  - \$4.

**$P=MC$     SO  $P = \$4$**

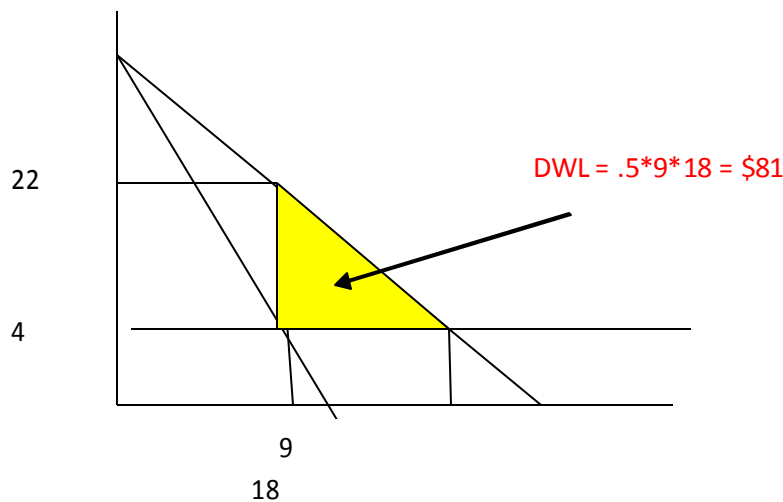
58. If this were a perfectly competitive firm, it would produce a quantity of output equal to

- a. 9
- b. 18
- c. 40
- d. 4.

SET DEMAND = MC SO  $40 - 2Q = 4$  AND  $Q = 18$

59. The deadweight loss due to monopoly is

- a. \$18
- b. \$162
- c. \$9
- d. \$81.



60. A perfectly competitive firm and a monopolist both earn marginal revenue equal to \$4 when producing the profit maximizing quantity of output in this market.

- a. True
- b. False - the monopolists's MR is higher.
- c. False - the monopolist's MR is lower.
- d. False - they both earn MR equal to \$22.

61. In Super Bowl XXXI, who did Brett Favre and the Green Bay Packers defeat?

- a. Dallas Cowboys
- b. Indianapolis Colts
- c. New England Patriots
- d. Buffalo Bills.

62. Professor Holmes' friend named the animal shown as a hint on WebCT

- a. Brett
- b. Yoko
- c. Hannah
- d. Quota-Girl.