

Name _____

Number _____

E321 Test2 10/29/01 Chappell

Multiple Choice

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

- _____ 1. Economists generally assume that the firm's goal is to
- minimize its costs.
 - maximize its profit.
 - make its market share as large as possible.
 - maximize its production.
- _____ 2. Marginal cost is defined as
- the additional cost attributable to the last unit produced.
 - the change in fixed costs associated with the production of one more unit of output.
 - the difference between total revenue and total cost.
 - price times quantity.
- _____ 3. If an activity is worth pursuing at all, then it should be pursued up to the point where
- total cost equals total benefit.
 - average cost equals average benefit.
 - marginal cost equals marginal benefit.
 - sunk costs equal zero.

Demand and Total Cost of Production

The following questions refer to the following tables which show the demand for a firm's product and the firm's total cost of production.

Demand		Total Cost	
Quantity	Price	Quantity	Dollars
0 units	\$35 per unit	0 units	\$ 0
1	30	1	4
2	25	2	11
3	20	3	21
4	15	4	34
5	10	5	50

- _____ 4. Refer to Demand and Total Cost of Production. The marginal cost of producing the third unit is
- \$21 per unit.
 - \$20 per unit.
 - \$10 per unit.
 - \$7 per unit.

- _____ 5. Refer to Demand and Total Cost of Production. The marginal revenue received from selling the fifth unit is
- \$50 per unit.
 - \$10 per unit.
 - \$2 per unit.
 - \$10 per unit.
- _____ 6. Refer to Demand and Total Cost of Production. According to the equimarginal principle, how many units should the firm produce in order to maximize its profit?
- 2 units.
 - 3 units.
 - 4 units.
 - 5 units.
- _____ 7. Suppose the government increases the annual cost of the liquor permit that a tavern needs to serve alcohol. What effect will this increased cost have on the tavern's production and pricing decisions in the short run? (Assume that the firm continues to operate, producing a positive quantity).
- None-the tavern will maintain its current prices.
 - The tavern will raise its prices to cover the higher cost.
 - The tavern will scale back its operations.
 - The tavern will cut its prices to increase its sales.
- _____ 8. Which of the following situations characterizes the short run?
- The firm's output level is held constant.
 - Only fixed factors of production are available to the firm.
 - All factors of production are variable.
 - Some inputs are fixed, and some inputs are variable.
- _____ 9. The marginal product of labor is defined to be
- the additional output attributable to the last unit of labor employed.
 - the amount of output obtained, on average, from each unit of labor employed.
 - the percentage increase in output caused by a 1% rise in labor usage.
 - the amount of capital that the firm can use to replace one unit of labor.
- _____ 10. In the short run, a firm's marginal cost tends to rise as more is produced because of
- diminishing marginal returns.
 - the implicit costs of production.
 - diseconomies of scale.
 - rising input costs.

Variable Cost of Production

The following questions refer to the following table which shows a firm's variable costs of production.

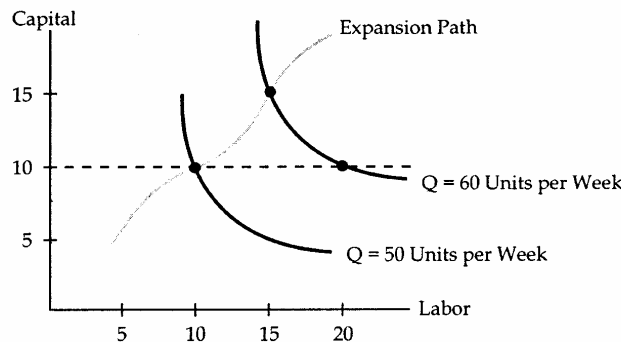
Quantity (number of units)	0	1	2	3	4	5	6	7	8
Variable Cost (dollars)	0	30	50	60	80	110	160	250	400

- _____ 11. Refer to Variable Cost of Production. If the total cost of producing the fifth unit of output is \$150, fixed costs must be
- \$8.
 - \$22.
 - \$30.
 - \$40.

- ___ 12. If information about the total cost is not given for every possible 1 unit change in quantity, marginal cost can still be computed as
- the price of labor divided by the quantity of labor.
 - the price of labor divided by the marginal product of labor.
 - fixed cost divided by the marginal product of labor.
 - variable cost divided by the marginal product of labor.
- ___ 13. The marginal rate of technical substitution of labor for capital ($MRTS_{LK}$) measures
- the amount of capital that can replace a unit of labor without affecting the firm's output.
 - the additional output attributable to a 1% increase in labor and capital usage.
 - the rate at which the firm can exchange labor for capital in the input markets.
 - the slope of the firm's expansion path.
- ___ 14. A firm is currently producing 200 units of output using 60 hours of labor and 80 hours of capital. The marginal product of labor is 12 units of output per hour, and the marginal product of capital is 15 units of output per hour. If the wage rate is \$6 per hour and the rental rate is \$3 per hour, then
- the firm's use of labor and capital is cost-efficient.
 - the firm should use more labor and less capital.
 - the firm should use more capital and less labor.
 - we cannot determine if the firm's use of inputs is efficient without more information.
- ___ 15. Suppose a firm doubles its employment of all inputs in the long run. If this action more than doubles the amount of output produced, then this firm is experiencing
- increasing returns to scale.
 - diminishing marginal returns.
 - technological progress.
 - positive marginal revenue.

Cost of Production

The following questions refer to the diagram below. The wage rate is assumed to be \$12 per hour, the rental rate is assumed to be \$6 per hour, and capital is assumed to be fixed in the short run at 10 hours.



- ___ 16. Refer to Cost of Production. The short-run average cost of producing 60 units of output per week is
- \$3 per unit.
 - \$4.50 per unit.
 - \$5 per unit.
 - \$9 per unit.

- ___ 17. Refer to Cost of Production. The long-run total cost of producing 60 units of output per week is
- \$180.
 - \$270.
 - \$300.
 - \$900.
- ___ 18. The marginal revenue curve of a competitive firm is
- U-shaped.
 - a ray from the origin.
 - a horizontal line at the market price.
 - downward sloping.
- ___ 19. The demand curve faced by a competitive firm is
- perfectly elastic at the established market price.
 - downward sloping, with the same elasticity as the industry demand curve.
 - more inelastic than the demand curve faced by its competitors.
 - nonexistent.
- ___ 20. A competitive firm will shut down its operations in the short run when the market price falls below its
- marginal revenue.
 - marginal cost.
 - average cost.
 - average variable cost.
- ___ 21. Ultimately, short-run supply curves are upward sloping because of
- the irrelevance of fixed costs to the firm's decision making.
 - the factor-price effect.
 - diminishing marginal returns to the variable inputs.
 - the equality of demand and marginal revenue for competitive firms.
- ___ 22. An industry's output is produced at the lowest possible cost when
- firms' marginal costs are equal.
 - firms minimize their average costs.
 - all firms earn the same profit.
 - output is evenly divided among the industry's firms.
- ___ 23. When do new firms tend to enter a competitive industry?
- When the large firms in the industry are earning zero profit.
 - When the smaller firms are leaving the industry.
 - When the new entrants can earn positive profits.
 - When there is an absence of fixed costs in the long run.
- ___ 24. An industry is likely to be an increasing-cost industry when
- all firms are identical.
 - it represents a negligible fraction of the total demand for inputs.
 - industry expansion permits the development of supporting subindustries.
 - some firms are more efficient than others.

- _____ 25. Assume dental care is provided by a competitive industry. A new government regulation requires each dentist to have a newly-developed ultrasound machine for sterilizing dental instruments. What happens to the price of dental care?
- a. The price of dental care rises in the short run and rises further in the long run.
 - b. The regulation will cause higher prices in the short run, but it will have no long-run impact.
 - c. There is no change in the short run, but dentists will exit and prices will rise in the long run.
 - d. The machine is a sunk cost, so the price of dental care does not change in either the short run or the long run.

Analytical Questions

1. A firm's total cost schedule and the demand for its product are summarized in the table below.

Costs			Revenues			
Quantity Produced	Total Cost	Marginal Cost	Quantity Demanded	Price	Total Revenue	Marginal Revenue
0 units	\$ 0	-	0 units	\$155 per unit		
1	70		1	150		
2	142		2	145		
3	217		3	140		
4	297		4	135		
5	385		5	130		
6	485		6	125		
7	603		7	120		

- (i) Complete the table and use the equimarginal principle to determine the level of output that maximizes the firm's profit. Also determine the price charged by the firm and its maximum profit level.
- (ii) What would happen to your answers from part i if the firm's fixed costs rose by \$40?

2. The manager of a firm receives an engineering report claiming that an additional hour of capital would add twice as much output as would an additional hour of labor. According to the firm's accountants, an hour of capital costs 3 times more than an hour of labor.
 - (i) Is the firm on its expansion path? Why or why not?
 - (ii) Suppose the firm is under contractual obligations to keep its output at current levels. What long-run adjustment (if any) should the manager make in the firm's employment of labor and capital?
 - (iii) Sketch an isoquant-isocost diagram that illustrates the situation described in part ii. Label the initial situation "A" and the post-adjustment situation "B." The scale of your diagram does not need to be accurate.

3. Suppose bicycles are produced by a competitive constant-cost industry, which is initially in a long-run equilibrium. Suppose that the cost of titanium alloy rises, which adds \$10 to the cost of manufacturing each bicycle frame. Draw a supply-demand diagram that shows how market price and quantity will be affected in both the short run and the long run. Also illustrate the profit maximizing output choices made by a typical firm prior to the shock (the cost change), in the short run after the shock, and in the new long-run equilibrium after the shock.

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Answer Section

MULTIPLE CHOICE

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