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Economics 201

Midterm #2: Practice Midterm

1. When marginal cost (MC) is less than average cost (AC), then:
a. AC is increasing
b. MC is increasing
c. AC is decreasing
d. MC is constant

2. As MC begins increasing, we expect which of the following to occur:
a. the marginal product of labor will be decreasing
b. the marginal product of labor will be increasing
c. the marginal product of labor will be at a maximum
d. the marginal product of labor will be constant

3. If the market price falls below the breakeven point, then:
a. the firm will exit in the short run
b. the firm will earn a loss in the short run
c. the firm will raise the price in the short run
d. the firm will earn positive profits in the short run
e. the firm will change the quality of their product in the short run

4. The best definition of bounded rationality is:
a. when it is rational to increase output until reaching a certain point
b. when a person makes rational economic decisions on the basis of limited information
c. when a person makes rational economic decisions in order to increase profits
d. when it is rational to erect boundaries in order to become more efficient

5. If a firm increases its scale of operation, and the long run costs are increasing, then:
a. constant returns to scale are present
b. increasing returns to scale are present
c. decreasing returns to scale are present
d. the firm is producing at maximum output

6. Which of the following imply that a firm is earning zero economic profit:
a. firms are producing at a point where AC is at a minimum
b. firms are producing where P = MC
c. firms are producing where AVC = MC
d. all of the above

The following production function (below) represents the output of an individual firm. This equation should be used to answer Questions #7-8 (Q = total product or output, L = labor).

$$Q = 2\sqrt{10L}$$

7. Calculate the average product of labor (APL) when L = 40
a. 40
b. 0.5
c. 1.0
d. 400
e. none of the above

8. Calculate the marginal product of labor (MPL) when L increases from 40 to 41 (and round your answer to the nearest tenth):
a. 0.1
b. 40.5
c. 2.0
d. 0.5

9. If MPL = 1.0 when L = 10 and Q = 20, then what must be true about APL:
a. APL is increasing
b. APL is equal to MPL
c. APL is decreasing
d. APL is at a maximum

10. Which of the following occurs when a firm produces the maximum possible output:
a. the firm’s APL is equal to zero
b. the firm’s APL is negative
c. the firm’s MPL is negative
d. the firm’s MPL is equal to zero
e. the firm’s average cost is equal to zero

11. Which is the best example of diminishing marginal returns:
a. as a firm’s output increases, the firm’s marginal cost will decrease
b. as a firm hires more labor, the firm’s get increasingly smaller increases in output
c. as a firm hires more labor, the firm’s output will decrease
d. as a firm’s output increases, the firm will hire fewer units of labor

12. Which of the following statements is true if we assume that a firm faces diminishing marginal returns when hiring labor:
a. the firm's MC will reach a minimum point when the firm produces where MC = AC
b. the firm's marginal product reaches a minimum point before intersecting with average product
c. the firm will not produce if their marginal product is decreasing
d. the firm will be producing at a point where their MC is increasing

Questions 13-15 all relate to the following equations (where TC = total costs, MC = marginal cost, and q = output):

$$TC = 80 \qquad [\text{if } q = 0]$$
$$TC = 100 + 20q^2 \qquad [\text{if } q > 0]$$
$$MC = 40q \qquad [\text{if } q > 0]$$

13. What is the value of average cost (AC), when q = 10?
a. 2100
b. 80
c. 210
d. 400
e. none of the above

14. What is the value of average fixed cost (AFC), when q = 10?
a. 8
b. 50
c. 100
d. 110
e. none of the above

15. What is the value of average variable cost (AVC), when q = 10?
a. 8
b. 40
c. 200
d. 2000
e. none of the above

16. Which of the following will allow a perfectly competitive firm to maximize its profits:
a. set their own (firm) price at the point where that price is equal to marginal cost
b. produce where the firm's marginal cost is equal to their own average cost
c. set their own (firm) price at the point where it is equal to average cost
d. produce where the market price is equal to marginal cost

17. Which of the following is a situation that a profit maximizing perfectly competitive firm would face in the long run:
a. P > AC
b. P = AC
c. P < AC
d. P > MC

18. Which of the following is **not** a characteristic of a perfectly competitive market:
a. each firm produces only a small amount of overall market output
b. no firm can affect the market price by changing their output
c. firms are price takers
d. firms produce heterogeneous goods
e. the market has no barriers to entry or exit

Questions 19-21 relate to the following equations and correspond with the costs of a profit maximizing, perfectly competitive firm.

$TC = \$25$	[if $q = 0$]
$TC = 100 + 2q + q^2$	[if $q > 0$]
$MC = 2 + 2q$	[if $q > 0$]

19. If the market price is $28, what are each firm's profits?
a. $69
b. $0
c. $339
d. -$3471
e. none of the above

20. What are the sunk costs of this firm?
a. $0
b. $2
c. $25
d. $100
e. none of the above

21. What are the recoverable fixed costs of this firm?
a. $0
b. $2
c. $25
d. $100
e. none of the above

22. As a firm expands, if the firm needs less than twice the factors to produce double the output:
a. then the firm is experiencing increasing returns to scale
b. then the firm is experiencing increasing long run average cost
c. then the firm is experiencing decreasing returns to scale
d. then the firm is experiencing constant long run average cost

23. Which of the following is true about perfectly competitive firms in the long run:
a. firms only have variable costs in the long run, no fixed costs
b. firms can earn profits that are greater than zero
c. firms will shut down if prices fall below average cost
d. all of the above

24. When P > AC in a perfectly competitive market and demand is expected to remain unchanged, then which of the following is most likely to occur over the long run:
a. firms will contract in order to lower the price
b. firms will exit the market and the market supply curve will shift right
c. firms will enter the market and the market supply curve will shift left
d. there will be no changes over the long run until price rise
e. firms will enter the market and the market supply curve will shift right

25. Assume that when hiring labor, a perfectly competitive firm faces the following (below):

Labor	**Output**
0	0
1	20
2	35
3	45
4	50
5	52

This table tells you that when this firm hires 1 unit of labor, the firm can produce 20 units of output. When hiring 2 units of labor, the firm can produce 35 units of output, and so on.

Assume further that the firm sells its output for $2 per unit, and that the firm pays each unit of labor $20.

If the firm hires labor 1 unit at a time, then how many units of labor should this firm hire?

a. hire 1 unit of labor

b. hire 2 units of labor

c. hire 3 units of labor

d. hire 4 units of labor

e. none of the above