Chapter 14—Firms in Competitive Markets

MULTIPLE CHOICE

1. A market is competitive if
   (i) firms have the flexibility to price their own product.
   (ii) each buyer is small compared to the market.
   (iii) each seller is small compared to the market.

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

   ANS: C DIF: Average REF: 296

   Use the information in the table below to answer the following questions.

   Table 14-1

Quantity	Price
1	13
2	13
3	13
4	13
5	13
6	13
7	13
8	13
9	13

2. **Refer to Table 14-1**. The price and quantity relationship in the table is most likely that faced by a firm in a
   a. monopoly.
   b. concentrated market.
   c. competitive market.
   d. strategic market.

   ANS: C DIF: Easy REF: 296

3. **Refer to Table 14-1**. Over which range of output is average revenue equal to price?
   a. 1 to 5
   b. 3 to 7
   c. 5 to 9
   d. Average revenue is equal to price over the whole range of output.

   ANS: D DIF: Easy REF: 298

4. **Refer to Table 14-1**. Over what range of output is marginal revenue declining?
   a. 1 to 6
   b. 3 to 7
   c. 7 to 9
   d. None; marginal revenue is constant over the whole range of output.

   ANS: D DIF: Average REF: 298

5. **Refer to Table 14-1**. If the firm doubles its output from 3 to 6 units, total revenue will
   a. increase by less than $39.
   b. increase by exactly $39.
   c. increase by more than $39.
   d. It cannot be determined from the information provided.

   ANS: B DIF: Easy REF: 298

6. For a firm in a perfectly competitive market, the price of the good is always
   a. equal to marginal revenue.
   b. equal to total revenue.
   c. greater than average revenue.
   d. All of the above are correct.

   ANS: A DIF: Easy REF: 298

7. If a firm in a perfectly competitive market triples the number of units of output sold, then total revenue will
   a. more than triple.
   b. less than triple.
   c. exactly triple.
   d. All of the above are potentially true.

   ANS: C DIF: Easy REF: 298

8. 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.

   ANS: B DIF: Easy REF: 296

9. Which of the following statements best reflects a price-taking firm?
   a. If the firm were to charge more than the going price, it would sell none of its goods.
   b. The firm has no incentive to charge less than the going price.
   c. The firm can sell as much as it wants to sell at the going price.
   d. All of the above are correct.

   ANS: D DIF: Average REF: 296

10. Of the following characteristics of competitive markets, which are necessary for firms to be price takers?
   (i) There are many sellers.
   (ii) Firms can freely enter or exit the market.
   (iii) Goods offered for sale are largely the same.

   a. (i) and (ii) only
   b. (i) and (iii) only
   c. (ii) only
   d. All are necessary.

   ANS: B DIF: Average REF: 296

11. When a firm in a competitive market produces 10 units of output, it has a marginal revenue of $8.00. What would be the firm's total revenue when it produces 6 units of output?
    a. $4.80
    b. $6.00
    c. $48.00
    d. $60.00

    ANS: C DIF: Average REF: 298

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

    ANS: D DIF: Average REF: 300

13. The Wheeler Wheat Farm sells wheat to a grain broker in Seattle, Washington. Since the market for wheat is generally considered to be competitive, the Wheeler Wheat Farm maximizes its profit by choosing
    a. to produce the quantity at which average total cost is minimized.
    b. to produce the quantity at which average fixed cost is minimized.
    c. to sell its wheat at a price where marginal cost is equal to average total cost.
    d. the quantity at which market price is equal to the farm's marginal cost of production.

    ANS: D DIF: Average REF: 300

14. Comparison of marginal revenue to marginal cost
    (i) reveals the contribution of the last unit of production to total profit.
    (ii) is helpful in making profit-maximizing production decisions.
    (iii) tells a firm whether its fixed costs are too high.

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

    ANS: B DIF: Average REF: 300

15. If marginal cost exceeds marginal revenue, the firm
    a. is most likely to be at a profit-maximizing level of output.
    b. should increase the level of production to maximize its profit.
    c. must be experiencing losses.
    d. may still be earning a profit.

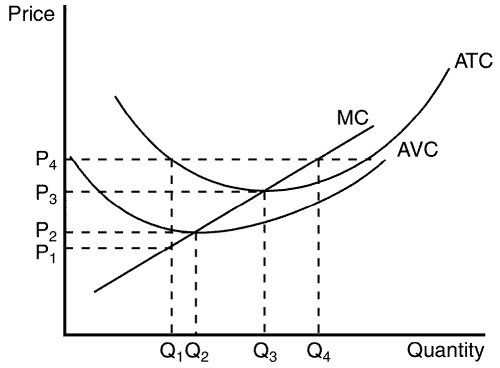
    ANS: D DIF: Average REF: 307

16. When marginal revenue equals marginal cost, the firm
    a. should increase the level of production to maximize its profit.
    b. may be minimizing its losses, rather than maximizing its profit.
    c. must be generating economic profits.
    d. must be generating economic losses.

    ANS: B DIF: Average REF: 307

The graph below depicts the cost structure for a firm in a competitive market. Use the graph to answer the following questions.

Figure 14-2



17. **Refer to Figure 14-2**. When price rises from P_2 to P_3, the firm finds that
    a. marginal cost exceeds marginal revenue at a production level of Q_2.
    b. if it produces at output level Q_3 it will earn a positive profit.
    c. expanding output to Q_4 would leave the firm with losses.
    d. All of the above are correct.

    ANS: C DIF: Average REF: 307

18. **Refer to Figure 14-2**. When price falls from P_3 to P_1, the firm finds that
    a. fixed cost is higher at a production level of Q_1 than it is at Q_3.
    b. it should produce Q_1 units of output.
    c. it should produce Q_3 units of output.
    d. it is unwilling to produce any output.

    ANS: D DIF: Average REF: 307

19. **Refer to Figure 14-2**. When price rises from P_3 to P_4, the firm finds that
    a. fixed costs are lower at a production level of Q_4.
    b. it can earn a positive profit by increasing production to Q_4.
    c. profit is maximized at a production level of Q_3.
    d. average revenue exceeds marginal revenue at a production level of Q_4.

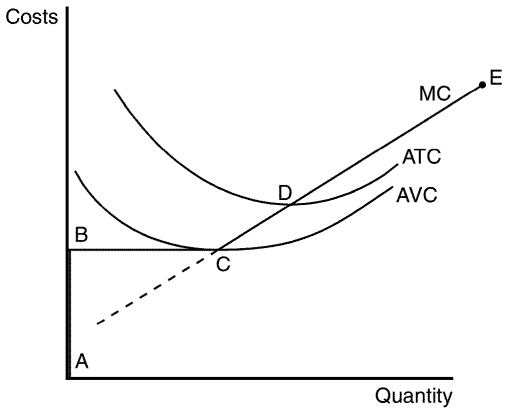
    ANS: B DIF: Average REF: 307

20. **Refer to Figure 14-2**. Which of the following statements best reflects the situation faced by the firm when price falls from P_4 to P_2?
    a. Average total cost is lower than at the previous level of output so it increases production.
    b. The firm will earn profit equal to $(P_4 - P_2) \times Q_2$.
    c. Marginal revenue is lower than marginal cost at the previous level of output, so it decreases production.
    d. Marginal revenue is higher than marginal cost at the previous level of output, so it increases production.

    ANS: C DIF: Average REF: 307

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

Figure 14-3



21. **Refer to Figure 14-3**. Which line segment best reflects the short-run supply curve for this firm?
    a. BCD
    b. CD
    c. DE
    d. None of the above are correct.

    ANS: D DIF: Average REF: 307

22. **Refer to Figure 14-3**. If the firm is in a short-run position where P < AVC, it is most likely to be on what segment of its supply curve?
    a. BC
    b. CD
    c. DE
    d. None of the above are correct.

    ANS: D DIF: Average REF: 307

23. Which of the following statements best reflects the production decision of a profit-maximizing firm in a competitive market when price falls below the minimum of average variable cost?
    a. The firm will continue to produce to attempt to pay fixed costs.
    b. The firm will immediately stop production to minimize its losses.
    c. The firm will stop production as soon as it is able to pay its sunk costs.
    d. The firm will continue to produce in the short run but will likely exit the market in the long run.

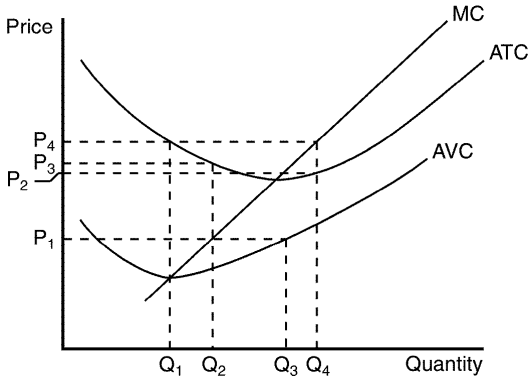
    ANS: B DIF: Average REF: 307

24. When a profit-maximizing firm in a competitive market is unable to generate enough revenue to pay all of its fixed costs it should, in the short run,
    a. shut down and incur a loss equal to its fixed costs.
    b. shut down until it is able to produce where average revenue exceeds average fixed cost.
    c. continue to produce as long as marginal cost is less than average revenue.
    d. continue to produce as long as total revenue is sufficient to pay variable costs.

    ANS: D DIF: Average REF: 307

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

    Figure 14-6



25. **Refer to Figure 14-6**. When market price is P_1, a profit-maximizing firm's total revenue can be represented by the area
    a. $P_1 \times Q_2$.
    b. $P_2 \times Q_2$.
    c. $P_3 \times Q_2$.
    d. $P_1 \times Q_3$.

    ANS: A DIF: Average REF: 307

26. **Refer to Figure 14-6**. When market price is P_4, a profit-maximizing firm's total cost can be represented by the area
    a. $P_4 \times Q_1$
    b. $P_4 \times Q_4$
    c. $P_2 \times Q_4$
    d. Total costs cannot be determined from the information in the figure.

    ANS: C DIF: Average REF: 307

27. **Refer to Figure 14-6**. When market price is P_1, a profit-maximizing firm's total profit or loss can be represented by which area?
    a. $P_1 \times Q_3$; profit
    b. $(P_3 - P_1) \times Q_2$; loss
    c. $(P_2 - P_1) \times Q_1$; loss
    d. We can't tell because we don't know fixed costs.

    ANS: B DIF: Average REF: 307

28. **Refer to Figure 14-6.** When a profit-maximizing firm is earning profits, those profits can be identified by
    a. $P \times Q$.
    b. $(MC - AVC) \times Q$.
    c. $(P - ATC) \times Q$.
    d. $(P - AVC) \times Q$.

    ANS: C DIF: Average REF: 307

29. For any given price, a firm in a competitive market will maximize profit by selecting the level of output at which price intersects the
    a. average total cost curve.
    b. average variable cost curve.
    c. marginal cost curve.
    d. marginal revenue curve.

ANS: C DIF: Average REF: 307

30. When a restaurant stays open for lunch service even though few customers patronize the restaurant for lunch, which of the following principles is (are) best demonstrated?
    (i) Fixed costs are sunk in the short run.
    (ii) In the short run, only fixed costs are important to the decision to stay open for lunch.
    (iii) If revenue exceeds variable cost, the restaurant owner is making a profitable strategic decision to remain open for lunch.

    a. (i) and (ii) only
    b. (ii) and (iii) only
    c. (i) and (iii) only
    d. All are demonstrated.

    ANS: C DIF: Average REF: 307

31. 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
    a. average total cost curve intersects the marginal cost curve at an output level of less than 100 units.
    b. average variable cost curve intersects the marginal cost curve at an output level of less than 100 units.
    c. profit is $200.
    d. All of the above are correct.

    ANS: D DIF: Challenging REF: 308

32. A profit-maximizing firm in a competitive market is able to sell its product for $9. At its current level of output the firm's average total cost is $11. Its marginal cost curve crosses the marginal revenue curve at an output level of 10 units. Then the firm experiences a
    a. profit of more than $20.
    b. profit of exactly $20.
    c. loss of more than $20.
    d. loss of exactly $20.

    ANS: D DIF: Average REF: 308

    Scenario 14-2
    Assume a certain firm is producing 1,000 units of output (so Q = 1,000). At Q = 1,000, the firm's marginal cost equals $15 and its average total cost equals $11. The firm sells its output for $12 per unit.

33. **Refer to Scenario 14-2**. At Q = 1,000, the firm's profit amounts to
    a. $-200.
    b. $1,000.
    c. $3,000.
    d. $4,000.

    ANS: B DIF: Average REF: 307

34. **Refer to Scenario 14-2**. At Q = 999, the firm's total cost amounts to
    a. $10,985.
    b. $10,990.
    c. $10,995.

d. $10,999.

ANS: A DIF: Challenging REF: 307

35. **Refer to Scenario 14-2**. At Q = 999, the firm's profit amounts to
a. $993.
b. $997.
c. $1,003.
d. $1,007.

ANS: C DIF: Challenging REF: 307

36. **Refer to Scenario 14-2**. To maximize its profit, the firm should
a. increase its output.
b. continue to produce 1,000 units.
c. decrease its output, but continue to produce.
d. shut down.

ANS: C DIF: Average REF: 307

37. Which of the following statements is correct regarding a firm's decisionmaking?
a. The decision to shut down and the decision to exit are both short-run decisions.
b. The decision to shut down and the decision to exit are both long-run decisions.
c. The decision to shut down is a short-run decision, whereas the decision to exit is a long-run decision.
d. The decision to exit is a short-run decision, whereas the decision to shut down is a long-run decision.

ANS: C DIF: Average REF: 302

38. A firm's marginal cost has a minimum value of $2; its average variable cost has a minimum value of $4; and its average total cost has a minimum value of $5. Then the firm will shut down if the price of its product falls below
a. $2.
b. $4.
c. $5.
d. There is not enough information given to answer the question.

ANS: B DIF: Average REF: 302

39. Susan quit her job as a teacher, which paid her $36,000 per year in order to start her own catering business. She spent $12,000 of her savings, which had been earning 10 percent interest per year, on equipment for her business. She also borrowed $12,000 from her bank at 10 percent interest, which she also spent on equipment. For the past several months she has spent $1,000 per month on ingredients and other variable costs. Also for the past several months she has taken in $3,500 in monthly revenue.
a. In the short run, Susan should shut down her business and in the long run she should exit the industry.
b. In the short run, Susan should continue to operate her business, but in the long run she should exit the industry.
c. In the short run, Susan should continue to operate her business, but in the long run she will probably face competition from newly entering firms.
d. In the short run, Susan should continue to operate her business, and she is also in long-run equilibrium.

ANS: B DIF: Challenging REF: 307

40. A firm in a competitive market has the following cost structure:

Output	Total Cost
0	$5
1	$10
2	$12
3	$15
4	$24
5	$40

This firm will shut down
a. if price falls below $3.33 and exit if it falls below $5.
b. if price falls below $5 and exit if it falls below $3.33.
c. if price falls below $7 and exit if it falls below $10.
d. and exit if price falls below $5.

ANS: A DIF: Challenging REF: 302

41. A firm in a competitive market has the following cost structure:

Output	Total Cost
0	$5
1	$10
2	$12
3	$15
4	$24
5	$40

If the market price is $4, this firm will
a. produce two units in the short run and exit in the long run.
b. produce three units in the short run and exit in the long run.
c. produce four units in the short run and exit in the long run.
d. shut down in the short run and exit in the long run.

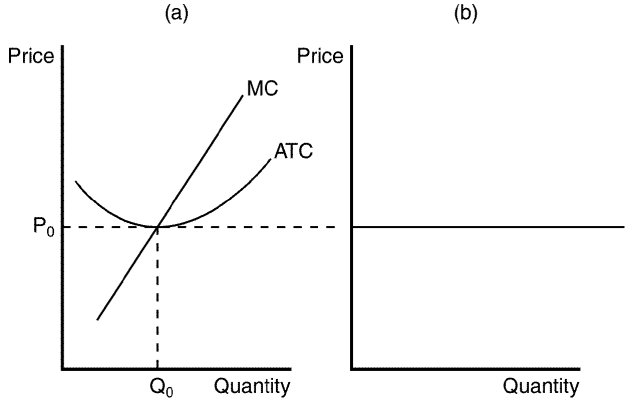
ANS: B DIF: Challenging REF: 302

42. A competitive market is in long-run equilibrium. If demand decreases, we can be certain that price will
a. fall in the short run. All firms will shut down and some of them will exit the industry. Price will then rise.
b. fall in the short run. No firms will shut down, but some of them will exit the industry. Price will then rise.
c. fall in the short run. All, some, or no firms will shut down, and some of them will exit the industry. Price will then rise.
d. not fall in the short run because firms will exit to maintain the price.

ANS: C DIF: Challenging REF: 308

Use the figures below to answer the following questions.

Figure 14-8



43. **Refer to Figure 14-8**. If the figure in panel (a) reflects the long-run equilibrium of a profit-maximizing firm in a competitive market, the figure in panel (b) is most likely to reflect long-run market
    a. strategy.
    b. production capacity.
    c. demand.
    d. supply.

    ANS: D DIF: Average REF: 311

44. **Refer to Figure 14-8**. If the figure in panel (a) reflects the long-run equilibrium of a profit-maximizing firm in a competitive market, the figure in panel (b) most likely reflects
    a. perfectly inelastic long-run market supply.
    b. the idea that free entry and exit of firms in the market lead to only one market price in the long run.
    c. the product of the individual supply curves for all firms in the market.
    d. the fact that zero profits cannot be sustained in the long run.

    ANS: B DIF: Average REF: 311

45. If all existing firms and all potential firms have the same cost curves, there are no inputs in limited quantities, and the market is characterized by free entry and exit, then the long-run
    a. market supply curve is equal to the sum of marginal cost.
    b. supply curve for the market must slope downward.
    c. market supply curve must slope upward.
    d. supply curve for the market is horizontal and equal to the minimum of long-run average cost for each firm.

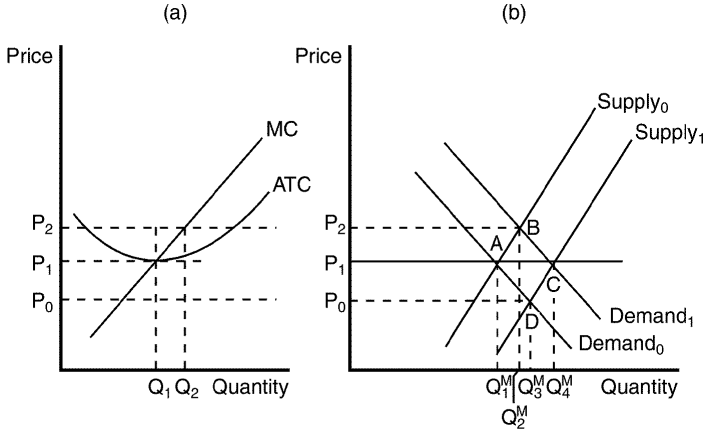
    ANS: D DIF: Average REF: 308

46. When entry and exit behaviour of firms in an industry does not affect a firm's cost structure,
    a. the long-run market supply curve must be horizontal.
    b. the long-run market supply curve must be upward-sloping.
    c. the long-run market supply curve must be downward-sloping.
    d. we can't tell anything about the shape of the long-run market supply curve.

    ANS: A DIF: Average REF: 310

    Use the figures below to answer the following questions.

    Figure 14-9



47. **Refer to Figure 14-9**. When the market is in long-run equilibrium at point A in panel (b), the firm represented in panel (a) will
    a. have a zero economic profit.
    b. have a negative accounting profit.
    c. exit the market.
    d. All of the above are correct.

    ANS: A DIF: Average REF: 311

48. **Refer to Figure 14-9**. Assume that the market starts in equilibrium at point A in panel (b). An increase in demand from $Demand_0$ to $Demand_1$ will result in
    a. a new market equilibrium at point D.
    b. an eventual increase in the number of firms in the market and a new long-run equilibrium at point C.
    c. rising prices and falling profits for existing firms in the market.
    d. falling prices and falling profits for existing firms in the market.

    ANS: B DIF: Average REF: 311

49. **Refer to Figure 14-9**. If the market starts in equilibrium at point C in panel (b), a decrease in demand will ultimately lead to
    a. more firms in the industry, but lower levels of production for each firm.
    b. fewer firms in the market.
    c. a new long-run equilibrium at point D in panel (b).
    d. None of the above are correct.

    ANS: B DIF: Average REF: 311

50. **Refer to Figure 14-9**. When a firm in a competitive market, like the one depicted in panel (a), observes market price rising from P_1 to P_2, it is most likely the result of
    a. entrance of new firms into the market.
    b. the exit of existing firms in the market.
    c. an increase in market supply from $Supply_0$ to $Supply_1$.
    d. an increase in market demand from $Demand_0$ to $Demand_1$.

    ANS: B DIF: Average REF: 311

51. **Refer to Figure 14-9**. An increase in market supply from $Supply_0$ to $Supply_1$ is most likely the result of
    a. existing firms changing their cost structure.
    b. existing firms in the market increasing their level of production beyond Q_1.

c. the entrance of new firms in the market.
d. All of the above are correct.

ANS: C DIF: Average REF: 311

52. A competitive market is comprised of firms that face identical cost structures. The firms experience an increase in demand that results in positive profits for the firms. Which of the following events are then most likely to occur?
(i) New firms will enter the market.
(ii) In the short run, price will rise; in the long run, price will rise further.
(iii) In the long run, all firms will be producing at their efficient scale.

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

ANS: B DIF: Average REF: 312

53. Regardless of the cost structure of firms in a competitive market, in the long run
a. firms will experience rising demand for their products.
b. the marginal firm will earn zero economic profit.
c. firms will experience a less competitive market environment.
d. exit and entry is likely to lead to a horizontal long-run supply curve.

ANS: B DIF: Average REF: 312

54. A market might have an upward-sloping long-run supply curve if
a. firms have different costs.
b. consumers exercise market power over producers.
c. all factors of production are essentially available in unlimited supply.
d. All of the above are correct.

ANS: A DIF: Average REF: 311

55. When new entrants to a competitive market have higher costs than existing firms,
a. accounting profits will be the primary signal for entrance.
b. sunk costs become an important determinant of short-run entrance strategy.
c. market price must be rising.
d. None of the above are correct.

ANS: C DIF: Average REF: 311

56. In a particular market, there are 500 firms. Each firm has a marginal cost of $30 when it produces 200 units of output. One point on the market supply curve is
a. (Quantity = 200, Price = $30).
b. (Quantity = 500, Price = $30).
c. (Quantity = 100,000, Price = $30).
d. (Quantity = 100,000, Price = $15,000).

ANS: C DIF: Average REF: 311

57. There are 500 identical firms in a competitive market. The firms do not use any resources that are available in limited quantities, and all of them have the following cost structure:

Output	Total Cost

0	$5
1	$10
2	$12
3	$15
4	$24
5	$40

The long-run supply curve for this market is
a. positively sloped.
b. horizontal at a price of $3.33.
c. horizontal at a price of $5.
d. horizontal at a price of $7.

ANS: C DIF: Challenging REF: 311