

Practice Test Questions Unit 3.4-3.7

1. Which of the following is true of both monopolistically competitive and perfectly competitive firms in long-run equilibrium?
- (A) Marginal revenue equals average total cost.
 - (B) Marginal cost equals average total cost.
 - (C) Price equals average total cost. ✓
 - (D) Price is greater than marginal cost.
 - (E) Production occurs at minimum average total cost.
2. Which of the following statements regarding accounting profits, opportunity costs, and economic profits is true?
- (A) With positive opportunity costs, a firm can never earn economic profits.
 - (B) Accounting profits are equal to economic profits minus opportunity costs.
 - (C) If accounting profits are less than opportunity costs, there will be economic losses. ✓
 - (D) Economic profits must always be greater than accounting profits.
 - (E) When economic profits are positive, accounting profits may be positive or negative.

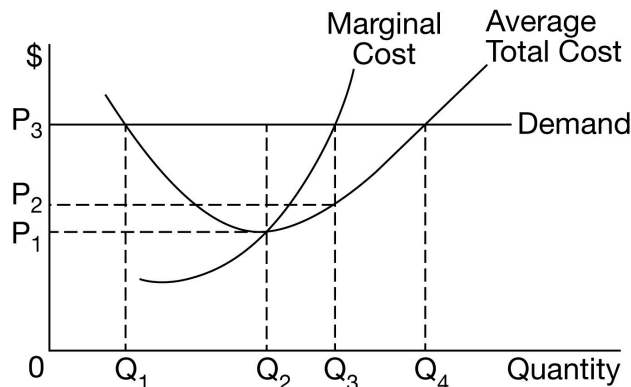
Answer C

Correct. Total revenue minus explicit costs equals accounting profits. Subtracting opportunity costs from accounting profits yields economic profits. Therefore, if accounting profits are less than opportunity costs, there will be economic losses.

3. A constant-cost, perfectly competitive gadget industry is in long-run equilibrium. An increase in the number of consumers of gadgets will most likely result in
- (A) higher short-run and long-run prices for gadgets
 - (B) reduced short-run profits, followed by the exit of some firms
 - (C) an upward shift in all short-run cost curves, followed by a higher long-run price for gadgets
 - (D) a higher short-run price for gadgets, followed by an increase in the quantity produced ✓
 - (E) a decrease in the demand for gadgets, followed by a decrease in the supply of gadgets

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4.



How many units of output should a firm with the cost and demand curves shown above produce to maximize profit?

- (A) 0
- (B) Q_1
- (C) Q_2
- (D) Q_3
- (E) Q_4

**Answer D**

Correct. The profit-maximizing quantity occurs at the output quantity at which marginal revenue equals marginal cost. The firm depicted in the graph operates in a perfectly competitive market; its price is the same as marginal revenue and equal to the horizontal demand curve. To maximize profit the firm should produce where $MR = MC$, which occurs at Q_3 .

5. A firm is producing the allocatively efficient level of output if

- (A) total revenue is equal to total cost
- (B) marginal revenue is equal to marginal cost
- (C) price is equal to average total cost
- (D) price is equal to marginal cost
- (E) price is equal to total cost



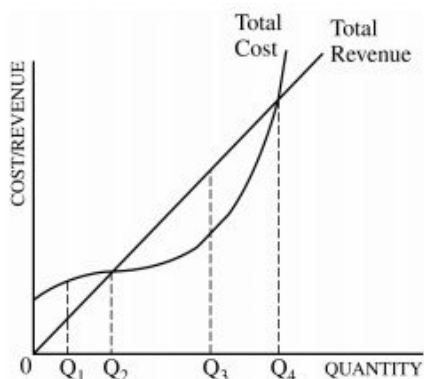
6. A firm produces 400 books and sells each book for 15. If the explicit cost of producing the books is 4,500 and the implicit cost is \$1,000, the firm's economic profit is

- (A) \$0
- (B) \$500
- (C) \$1,000
- (D) \$1,500
- (E) \$5,000



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7.



The graph above shows the total revenue and total cost curves for a firm in which type of market structure and what is the profit-maximizing quantity?

(A)

Market Structure	Quantity
Monopoly	Q_2

(B)

Market Structure	Quantity
Monopoly	Q_3

(C)

Market Structure	Quantity
Perfect Competition	Q_1

(D)

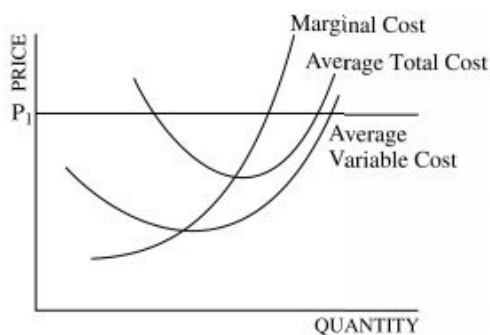
Market Structure	Quantity	✓
Perfect Competition	Q_3	

(E)

Market Structure	Quantity
Perfect Competition	Q_4

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8.



The graph above shows the short-run cost curves of a firm in a perfectly competitive market. Which of the following are true at the firm's profit-maximizing output level?

- I. Price exceeds average total cost.
- II. Economic profits are zero.
- III. Marginal cost equals average total cost.
- IV. New firms are likely to enter the market in the long run.

- (A) I and II only
- (B) I and III only
- (C) I and IV only
- (D) II, III, and IV only
- (E) I, II, III, and IV



9. All of the following are essential characteristics of a perfectly competitive industry EXCEPT:

- (A) All products produced by the firms in the industry are homogeneous.
- (B) All firms in the industry are price takers.
- (C) All consumers and firms are completely aware of the prices at which transactions take place in the industry.
- (D) There are barriers to entry into and exit from the industry.
- (E) Price is equal to marginal revenue for every firm in the industry.



10. An entrepreneur has earned enough total revenue to cover her accounting costs, but economic losses are being incurred. What must be true?

- (A) Her accounting costs are larger than her economic costs.
- (B) Her accounting profits are less than her implicit costs.
- (C) Her accounting profits are greater than her economic costs.
- (D) Her economic losses are less than her total fixed costs.
- (E) Her implicit costs are less than her accounting costs.



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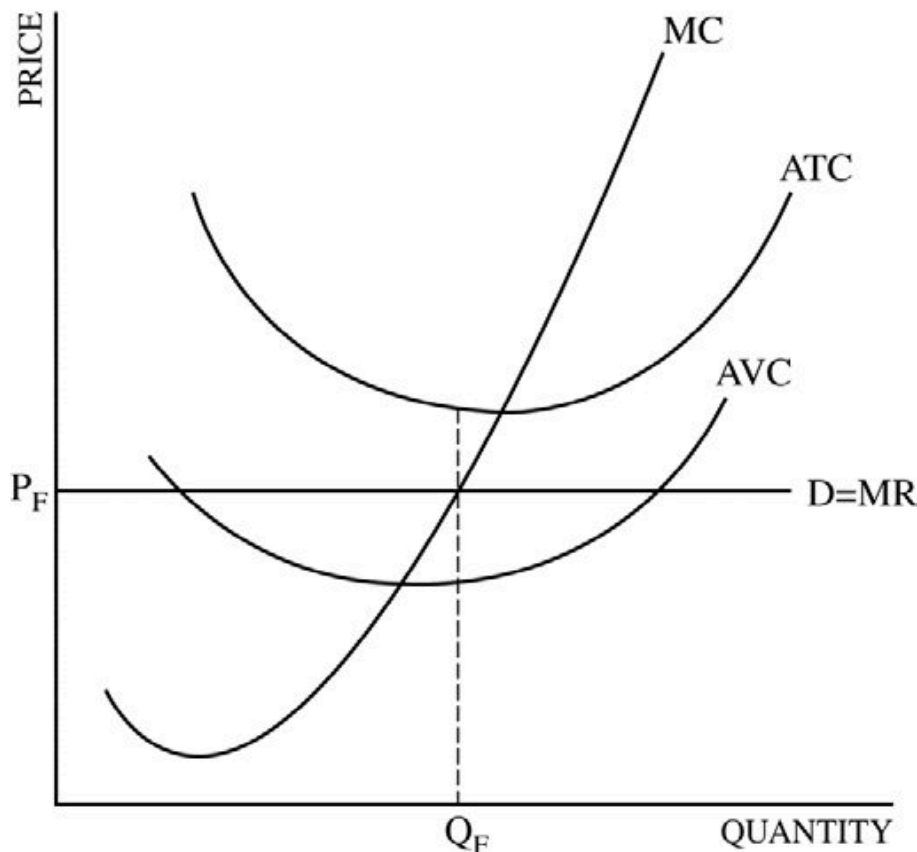
11. A perfectly competitive firm's short-run supply curve is the portion of the marginal cost curve that is
- (A) above the average total cost curve
 - (B) above the average variable cost curve ✓
 - (C) above the minimum average fixed cost curve
 - (D) above the demand curve
 - (E) between the average fixed cost curve and the average variable cost curve
12. A perfectly competitive market in equilibrium is allocatively efficient and it maximizes
- (A) total consumer surplus
 - (B) total producer surplus
 - (C) the sum of total consumer surplus and total producer surplus ✓
 - (D) total revenue
 - (E) total external benefits
13. A profit-maximizing firm will shut down in the short run any time the firm's total revenue is less than its
- (A) total cost
 - (B) fixed cost
 - (C) total variable cost ✓
 - (D) explicit cost
 - (E) implicit cost
14. A profit-maximizing, perfectly competitive firm is currently in long-run equilibrium. It is earning 15,000 of total revenue from a sale of 1,000 units. Its total fixed cost of production is 2,500. Which of the following can correctly be inferred from the information provided?
- (A) Its marginal cost is 12.50, and its average total cost is 12.50.
 - (B) Its marginal cost is 12.50, and its average variable cost is 12.50.
 - (C) Its marginal cost is 15.00, and its average total cost is 12.50.
 - (D) Its marginal cost is 15.00, and its average variable cost is 12.50. ✓
 - (E) Its marginal cost is 15.00, and its average fixed cost is 12.50.

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15. Assume soybeans are produced by a perfectly competitive, constant-cost industry. Fresh Farm is a typical firm producing soybeans and is currently operating with an economic loss.
- Using a correctly labeled graph for Fresh Farm, show each of the following in the short run.
 - The marginal cost curve and average total cost, labeled MC and ATC, respectively
 - Fresh Farm's price and loss-minimizing quantity, labeled P_F and Q_F , respectively
 - The average variable cost curve, labeled AVC
 - Suppose that newspapers have recently reported that excessive soybean consumption can cause health problems. As a result, will the new loss-minimizing quantity for Fresh Farm be greater than, less than, or equal to Q_F in the short run? Explain.
 - Is the long-run market supply for soybeans perfectly inelastic, relatively inelastic, unit elastic, relatively elastic, or perfectly elastic?
 - Assume now that the soybean market is in a long-run equilibrium and that fertilizers used in soybean production cause water pollution. Using a correctly labeled graph for the soybean market, show each of the following.
 - Market equilibrium quantity and price, labeled Q_M and P_M
 - Marginal social cost curve, labeled MSC
 - Socially optimal quantity, labeled Q_S
 - The area representing deadweight loss, shaded completely

Respond to all parts of the question.

Part A



Practice Test Questions Unit 3.4-3.7

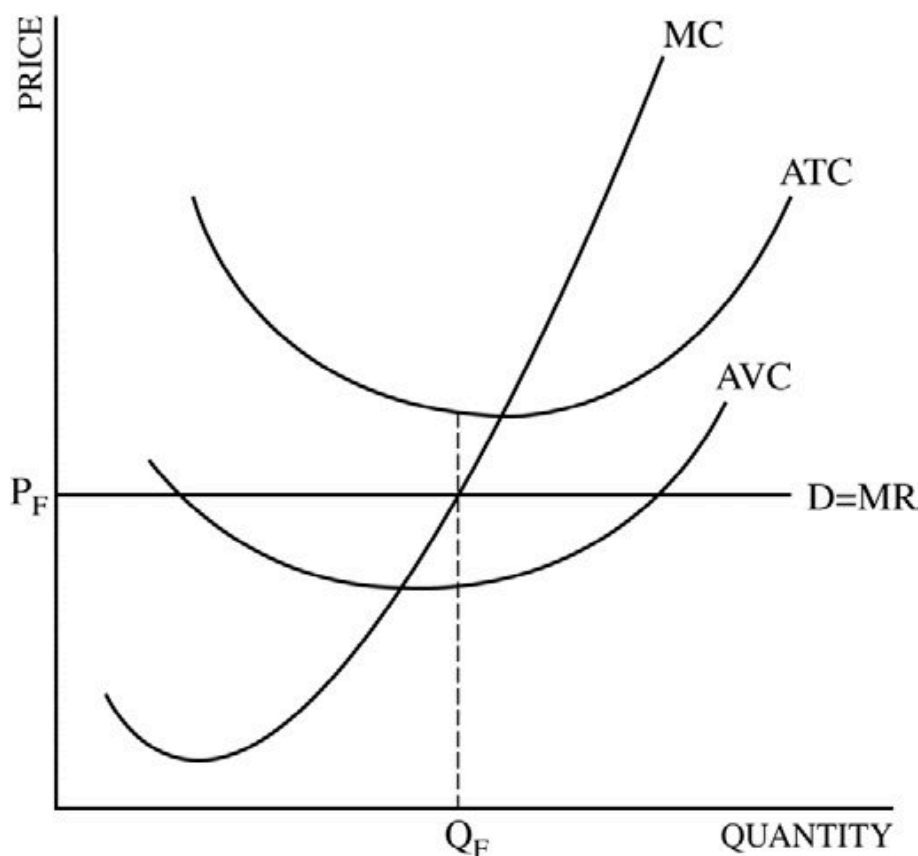
4 points:

- One point is earned for showing an upward sloping MC curve going through the minimum point of the ATC curve.
- One point is earned for a correctly labeled graph of the typical firm, Fresh Farm, with a horizontal demand curve below ATC, showing P_F .
- One point is earned for showing the profit-maximizing quantity, Q_F at $MC=MR$ or $MC=P$ if P is horizontal.
- One point is earned for showing the AVC curve below the price line at Q_F .

✓

0	1	2	3	4
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Student receives 4/4 point(s)



4 points:

- One point is earned for showing an upward sloping MC curve going through the minimum point of the ATC curve.
- One point is earned for a correctly labeled graph of the typical firm, Fresh Farm, with a horizontal demand curve below ATC, showing P_F .
- One point is earned for showing the profit-maximizing quantity, Q_F at $MC=MR$ or $MC=P$ if P is horizontal.
- One point is earned for showing the AVC curve below the price line at Q_F .

Practice Test Questions Unit 3.4-3.7**Part B**

1 point:

- One point is earned for stating that the new quantity will be less than Q_F , since demand decreases or price decreases.



0	1
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Student receives 1/1 point(s)

1 point:

- One point is earned for stating that the new quantity will be less than Q_F , since demand decreases or price decreases.

Part C

1 point:

- One point is earned for stating that the long-run market supply for soybeans is perfectly elastic.



0	1
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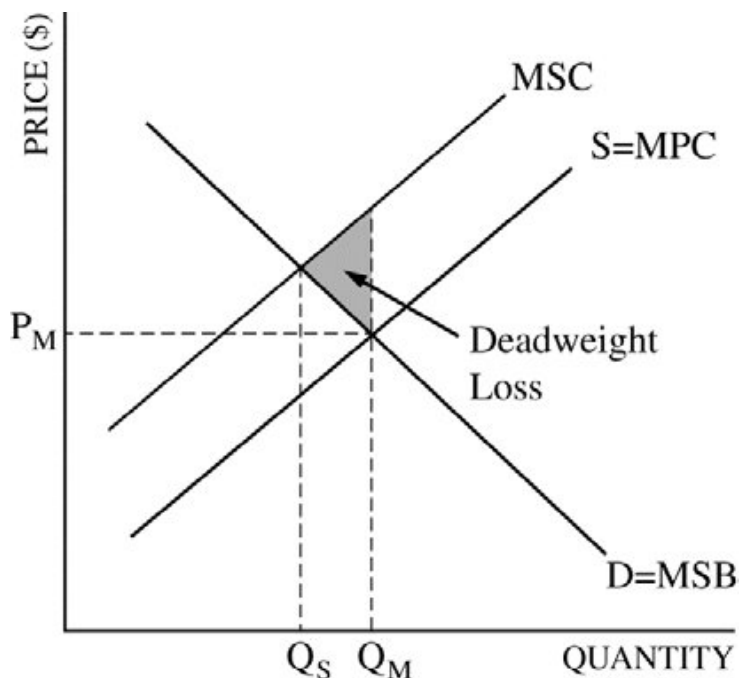
Student receives 1/1 point(s)

1 point:

- One point is earned for stating that the long-run market supply for soybeans is perfectly elastic.

Part D

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4 points:

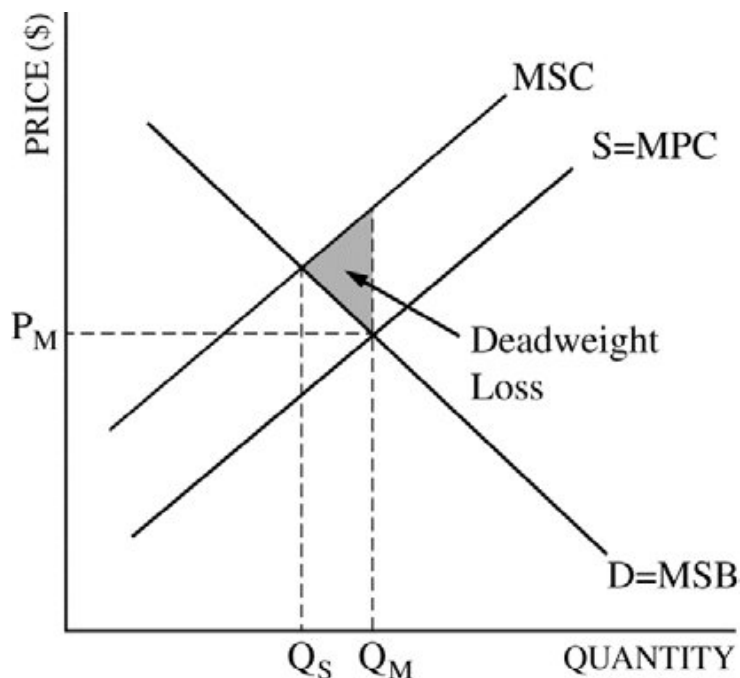
- One point is earned for drawing a correctly labeled graph for the soybean market showing a downward sloping demand curve (or MSB), supply curve (or MPC), equilibrium quantity, Q_M , and price, P_M .
- One point is earned for drawing the marginal social cost curve above the supply curve.
- One point is earned for showing the socially optimal quantity, Q_S , at $MSB=MSC$ or $D=MSC$.
- One point is earned for showing the area representing the deadweight loss, shaded completely.

✓

0	1	2	3	4
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Student receives 4/4 point(s)

Practice Test Questions Unit 3.4-3.7



4 points:

- One point is earned for drawing a correctly labeled graph for the soybean market showing a downward sloping demand curve (or MSB), supply curve (or MPC), equilibrium quantity, Q_M , and price, P_M .
- One point is earned for drawing the marginal social cost curve above the supply curve.
- One point is earned for showing the socially optimal quantity, Q_S , at $MSB=MSC$ or $D=MSC$.
- One point is earned for showing the area representing the deadweight loss, shaded completely.

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16. Assume that a firm that produces a good in a constant-cost perfectly competitive industry is in long-run equilibrium. If the demand for the good increases, the profit-maximizing output by the firm will change in which of the following ways in the short run and long run?

(A)	Short Run	Long Run
	Return to original level	Return to original level
(B)	Short Run	Long Run
	Increase	Increase

(C)	Short Run	Long Run	✓
	Increase	Return to original level	

(D)	Short Run	Long Run
	Decrease	Decrease

(E)	Short Run	Long Run
	Decrease	Return to original level

17. Assume that a perfectly competitive firm is in long-run equilibrium. If industry demand for the product increases, how will this firm's price, output, and profit change in the short run?

(A)	<u>Price</u>	<u>Output</u>	<u>Profit</u>	✓
	Increase	Increase	Increase	

(B)	<u>Price</u>	<u>Output</u>	<u>Profit</u>
	Increase	Decrease	Decrease

(C)	<u>Price</u>	<u>Output</u>	<u>Profit</u>
	Increase	Increase	Decrease

(D)	<u>Price</u>	<u>Output</u>	<u>Profit</u>
	No change	Decrease	Decrease

(E)	<u>Price</u>	<u>Output</u>	<u>Profit</u>
	Decrease	Increase	Increase

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18. Assume that a profit-maximizing, perfectly competitive firm has economic losses in the short run. If the firm continues to produce and sell its goods, then which of the following must be true?
- (A) The firm is covering all of its fixed and variable costs of production.
- (B) The firm is covering all of its fixed costs but not all of its variable costs of production.
- (C) The firm is covering all of its variable costs but not all of its fixed costs of production. ✓
- (D) The firm is covering all of its implicit costs but not all of its explicit costs.
- (E) The firm must have raised the price of its goods in order to minimize its losses.
19. Assume that, for a perfectly competitive firm, marginal cost equals average variable cost at 10, *marginal cost equals average total cost* at 15, and marginal revenue equals marginal cost at \$12. On the basis of this information, the firm should
- (A) close down in the short run
- (B) operate in the short run, even though it will sustain a loss ✓
- (C) operate in the short run, because it will make an economic profit of \$3 per unit
- (D) operate in the long run, because it will make an economic profit of \$3 per unit
- (E) operate in the short run, but decrease output to decrease its cost
20. Assume that olive oil is produced in a constant-cost, perfectly competitive industry, which is currently in long-run equilibrium. If the current price of olive oil is \$5 per quart and the demand for olive oil increases, then the price of olive oil will change in which of the following ways in the short run and long run?

(A)

Short Run	Long Run
Be more than \$5	Be more than \$5

(B) ✓

Short Run	Long Run
Be more than \$5	Be equal to \$5

(C)

Short Run	Long Run
Be equal to \$5	Be equal to \$5

(D)

Short Run	Long Run
Be less than \$5	Be less than \$5

(E)

Short Run	Long Run
Be less than \$5	Be equal to \$5

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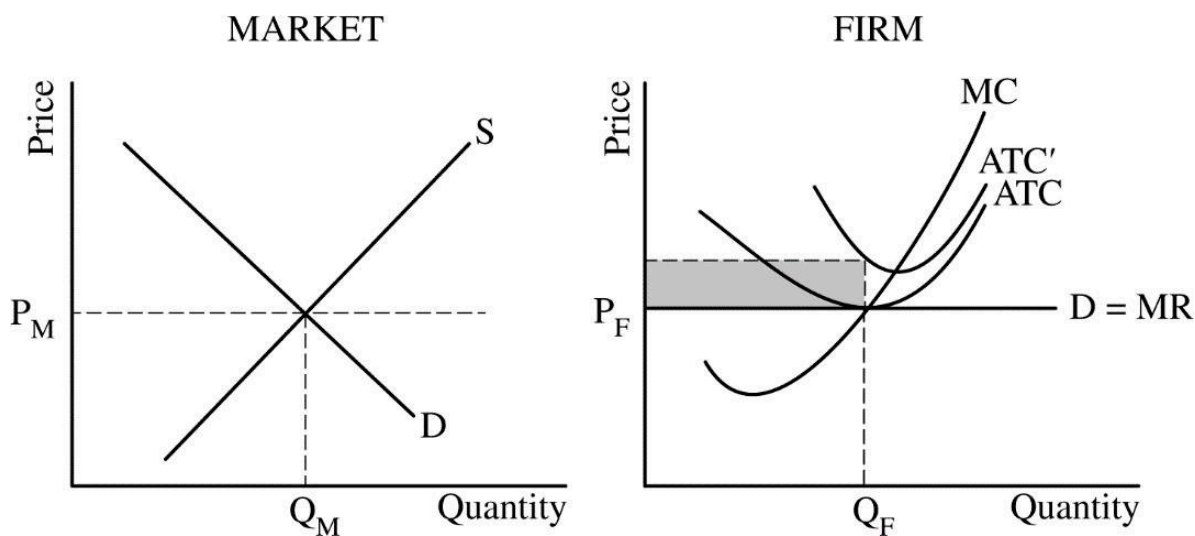
21. Respond to all parts of the question.

Directions: You are advised to spend the first 10 minutes reading all of the questions and planning your answers. You will then have 50 minutes to answer all three of the following questions. You may begin writing your responses before the reading period is over. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

Assume that pencils are manufactured in a perfectly competitive market that is in long-run equilibrium.

- Draw correctly labeled side-by-side graphs for the pencil market and for a representative firm and show each of the following.
 - The market price and quantity, labeled P_M and Q_M , respectively
 - The firm's profit-maximizing price and quantity, labeled P_F and Q_F , respectively
- What is the relationship between P_M and P_F ? Explain.
- Rent on the factory building is an important fixed cost in the production of pencils, and the industry experiences significant increases in rent.
 - What will happen to the firm's profit-maximizing quantity in the short run? Explain.
 - On your graph in part (a), show the impact of the rent increase and completely shade the area representing the firm's profit or loss in the short run.
- As a result of the rent increase, what will happen to each of the following in the long run?
 - The number of firms in the market. Explain.
 - The market equilibrium quantity relative to Q_M and the market equilibrium price relative to P_M . Explain.

Part A



4 points:

- One point is earned for drawing a correctly labeled graph for the market with a downward sloping demand curve and an upward sloping supply curve, and for labeling P_M and Q_M .
- One point is earned for drawing a horizontal marginal revenue curve for the firm, at P_F .

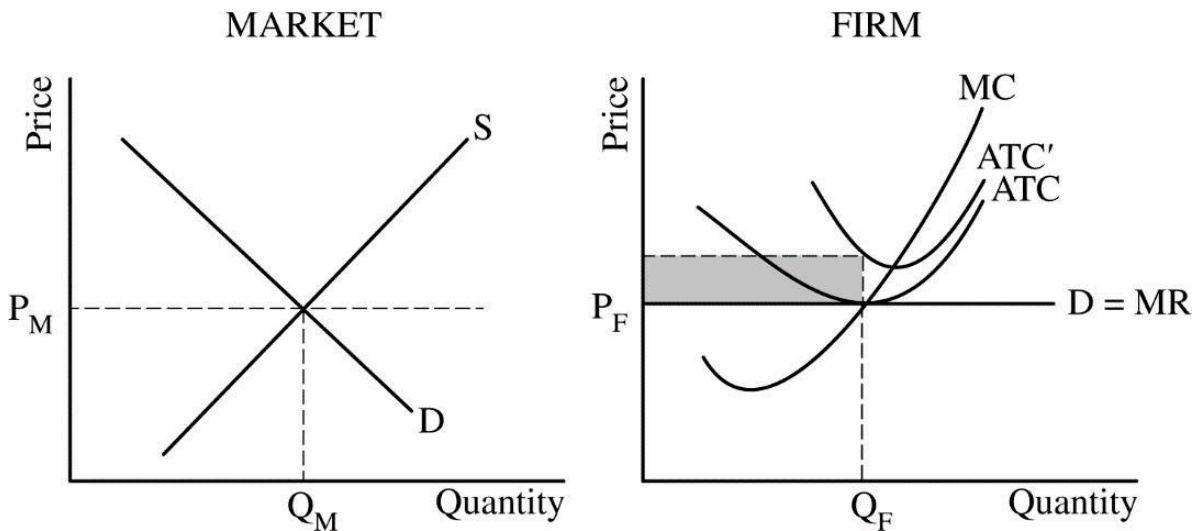
Practice Test Questions Unit 3.4-3.7

- One point is earned for showing the profit-maximizing quantity at $MC=MR$, labeled Q_F .
- One point is earned for showing the ATC curve tangent to the MR curve at Q_F where ATC is at its minimum.

✓

0	1	2	3	4
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Student Receives 4/4 point(s)



4 points:

- One point is earned for drawing a correctly labeled graph for the market with a downward sloping demand curve and an upward sloping supply curve, and for labeling P_M and Q_M .
- One point is earned for drawing a horizontal marginal revenue curve for the firm, at P_F .
- One point is earned for showing the profit-maximizing quantity at $MC=MR$, labeled Q_F .
- One point is earned for showing the ATC curve tangent to the MR curve at Q_F where ATC is at its minimum.

Part B

1 points:

- One point is earned for stating that $P_M=P_F$, and for explaining that the firm is a price taker OR the firm accepts the market equilibrium price as given.

✓

0	1
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Student Receives 1/1 point(s)

1 points:

Practice Test Questions Unit 3.4-3.7

- One point is earned for stating that $PM=PF$, and for explaining that the firm is a price taker OR the firm accepts the market equilibrium price as given.

Part C

2 points:

- One point is earned for stating that the firm's output will not change in the short run, and for explaining that a change in a fixed cost will not affect the firm's marginal cost OR that rent is not a variable cost AND will not affect the firm's marginal cost.
- One point is earned for showing an upward shift of the ATC curve and the area representing the firm's loss, completely shaded.



0	1	2
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Student Receives 2/2 point(s)

2 points:

- One point is earned for stating that the firm's output will not change in the short run, and for explaining that a change in a fixed cost will not affect the firm's marginal cost OR that rent is not a variable cost AND will not affect the firm's marginal cost.
- One point is earned for showing an upward shift of the ATC curve and the area representing the firm's loss, completely shaded.

Part D

2 points:

- One point is earned for stating the number of firms in the market will decrease, and for explaining that some firms will exit the market as a result of the losses incurred in the short run.
- One point is earned for stating that the new market equilibrium quantity will decrease relative to Q_M and the new market equilibrium price will increase relative to P_M and for explaining that the market supply will shift to the left.



0	1	2
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Student Receives 2/2 point(s)

2 points:

- One point is earned for stating the number of firms in the market will decrease, and for explaining that some firms will exit the market as a result of the losses incurred in the short run.
- One point is earned for stating that the new market equilibrium quantity will decrease relative to Q_M and the new market equilibrium price will increase relative to P_M and for explaining that the market supply will shift to the left.

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22. At a firm's current rate of output, the marginal cost is 65, *the average variable cost is 35*, the average fixed cost is 30, *and the product price is 65*. Which of the following statements is true for the firm?

(A) Economic profits are zero because marginal revenue equals marginal cost.
 (B) Economic profits are negative because total revenue is less than total cost.
 (C) Economic profits are positive because total revenue is greater than total cost.
 (D) Economic profits are negative because price is greater than average variable cost.
 (E) Economic profits are zero because price equals average total cost. ✓

23. At a perfectly competitive firm's current output level, average total cost is 15, *average variable cost is 10*, and marginal cost is 8 *and increasing*. *If the product price is 15*, what should this firm do to maximize profits?

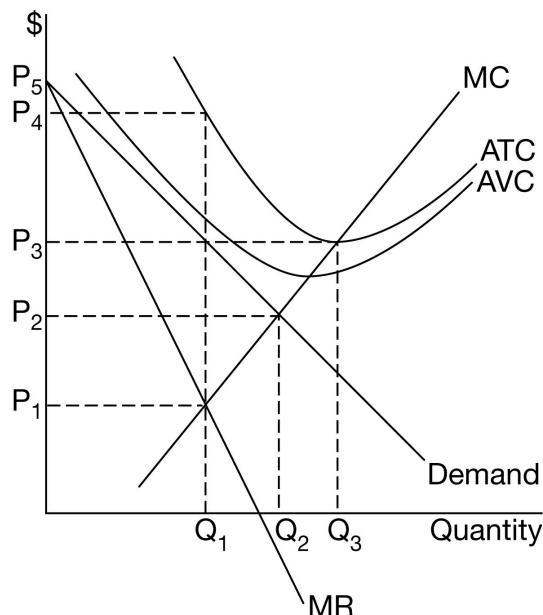
(A) Increase the quantity of output produced. ✓
 (B) Increase the product price.
 (C) Decrease the product price to increase sales.
 (D) Shut down immediately.
 (E) Continue to produce at its current output level.

24. A typical firm in a perfectly competitive constant-cost industry is operating with an economic loss in the short run. When the industry returns to long-run equilibrium, what will happen to the number of firms in the industry, the market price, and the typical firm's quantity?

(A)	<u>Number of Firms</u>	<u>Market Price</u>	<u>Firm's Quantity</u>	✓
	Decrease	Increase	Increase	
(B)	<u>Number of Firms</u>	<u>Market Price</u>	<u>Firm's Quantity</u>	
	Decrease	Decrease	Increase	
(C)	<u>Number of Firms</u>	<u>Market Price</u>	<u>Firm's Quantity</u>	
	Decrease	Increase	Decrease	
(D)	<u>Number of Firms</u>	<u>Market Price</u>	<u>Firm's Quantity</u>	
	Increase	Increase	Decrease	
(E)	<u>Number of Firms</u>	<u>Market Price</u>	<u>Firm's Quantity</u>	
	Increase	Decrease	Decrease	

Practice Test Questions Unit 3.4-3.7

The following two questions refer to the cost and revenue conditions of a monopolistically competitive firm shown in the graph below.



MC = marginal cost, ATC = average total cost, AVC = average variable cost, and MR = marginal revenue.

25. The firm's profit-maximizing output in the short run is

- (A) zero, because $P < AVC$
- (B) Q_1 , because $MR = MC$
- (C) Q_2 , because $P = MC$
- (D) Q_3 , because $MC = ATC$
- (E) impossible to determine



Answer A

Correct. The monopolist's profit-maximizing output is determined by equating marginal revenue to marginal cost. In the graph provided, marginal revenue equals marginal cost at Q_1 and the price is on the demand curve at P_3 . However, at Q_1 the profit-maximizing price is less than both the ATC and the AVC. Therefore, the firm will minimize its losses by shutting down in the short run and exiting the market in the long run if conditions do not change. Thus, the profit-maximizing output in the short run is zero since the firm will shut down.

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26. Which of the following will the firm do in the long run if market conditions do not change?

- (A) It will increase output to Q_2 and lower price to P_2 to minimize losses.
- (B) It will increase output to Q_3 and raise price to P_4 to earn zero economic profit.
- (C) It will produce Q_1 and set price equal to marginal revenue.
- (D) It will exit the industry. ✓
- (E) It will build a larger plant to achieve decreasing returns to scale.

Answer D

Correct. In the graph provided, marginal revenue equals marginal cost at Q_1 and the price is on the demand curve at P_3 . However, at Q_1 the profit-maximizing price is less than both the ATC and the AVC. Therefore, the firm will minimize its losses by shutting down in the short run and exiting the market in the long run if conditions do not change.

27. Assume a perfectly competitive firm is currently producing 100 units of output. Its marginal cost is \$6 and rising at that output quantity. Its average variable cost is \$7 and its average fixed cost is \$3.

If the product's price is \$6, which of the following will the firm do in the short run to maximize its profit?

- (A) Shut down ✓
- (B) Produce, but less than 100 units of output
- (C) Produce more than 100 units of output
- (D) Continue to produce at exactly 100 units of output
- (E) Increase its price above \$6

Answer A

Correct. The firm currently produces the 100 units where marginal cost equals marginal revenue. The price, \$6, is less than the average variable cost. By continuing to operate, the firm incurs a loss greater than its fixed cost. Therefore, the firm will shut down in the short run to minimize its losses.

28. Bruce is a talented writer and graphic artist who enjoys both types of work equally. Instead of earning 45,000 as a writer, Bruce now earns 25,000 in accounting profits as a graphic artist using the same computer equipment he would have used as a writer.

What is Bruce's economic profit from choosing to work as a graphic artist?

- (A) -\$45,000
- (B) -\$20,000 ✓
- (C) \$20,000
- (D) \$45,000
- (E) \$70,000

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29. Reff Corp is a firm with total revenue of 1,000, *marginal cost of 5*, and average variable cost of \$4. Both the output and the input markets are perfectly competitive, and Reff Corp is currently in long-run equilibrium. Reff Corp's output and total fixed cost of production must be equal to which of the following?

(A)

Output	Fixed Cost
250	\$800

(B)

Output	Fixed Cost
250	\$400

(C)

Output	Fixed Cost	✓
200	\$200	

(D)

Output	Fixed Cost
200	\$400

(E)

Output	Fixed Cost
200	\$800

30. Shelby is an entrepreneur who has decided to open a small advertising firm. She rents office space at a cost of 25,000 *per year*, *she has employed an assistant at a salary of 30,000 per year*, and she incurs annual utility and office supply expenses of 20,000. *Her best alternative is to work elsewhere and to earn a salary of 50,000 per year*. How much annual revenue must her firm receive so that Shelby earns zero economic profit?

(A) \$50,000

(B) \$75,000

(C) \$100,000

(D) \$125,000

(E) \$150,000



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31.

Daily Output	Total Variable Cost
0	\$0
1	20
2	30
3	48
4	72
5	100

Based on the cost and output data in the table above, a perfectly competitive firm will shut down if price falls below

- (A) \$30
- (B) \$20
- (C) \$18
- (D) \$16
- (E) \$15



32. Catering, Inc., which provides catering services in a perfectly competitive market, was maximizing profits at the market price of 22 per meal. The market price has recently increased to 28 per meal.

Which of the following short-run adjustments will increase profits for Catering, Inc.?

- (A) Increasing output until the marginal cost equals the new price
- (B) Increasing output until the average total cost equals the new price
- (C) Decreasing output because of the increase in market price
- (D) Increasing the wage rate paid to its workers
- (E) Increasing advertising to increase demand for the meals



33. Assume a decreasing-cost perfectly competitive industry. Which of the following statements is true?

- (A) Firms will earn economic profits in long-run equilibrium.
- (B) The short-run market supply curve is upward sloping; the long-run supply curve is horizontal or perfectly elastic.
- (C) As industry output expands, there are fewer firms producing in the long run.
- (D) As industry output contracts, each firm's long-run average total cost curve shifts upward.
- (E) Input prices rise as the industry produces more output.



Answer D

Correct. With a decreasing-cost industry, as the industry's output expands, the price of at least one input falls as more of that input, like specialized capital, is produced and used. This input price decrease shifts down the long-run average cost of each firm, lowering the minimum of long-run average cost for each firm and lowering the long-run output price at which economic profits equal zero. Conversely, when the industry contracts, long-run average total cost shifts upward, and the long-run equilibrium price is higher.

Practice Test Questions Unit 3.4-3.7

34. Firm XYZ produces and sells corn in a perfectly competitive market and hires its workers in a perfectly competitive labor market. Which of the following best describes the demand curve for XYZ's corn and XYZ's demand curve for labor?

(A)

Demand for XYZ's Corn	XYZ's Labor Demand
Horizontal	Horizontal

(B)

Demand for XYZ's Corn	XYZ's Labor Demand	✓
Horizontal	Downward sloping	

(C)

Demand for XYZ's Corn	XYZ's Labor Demand
Horizontal	Vertical

(D)

Demand for XYZ's Corn	XYZ's Labor Demand
Downward sloping	Downward sloping

(E)

Demand for XYZ's Corn	XYZ's Labor Demand
Downward sloping	Horizontal

35. Assume Nadia voluntarily leaves a job with a salary of \$100 per day to open and run a restaurant instead. After deducting all explicit costs from the restaurant revenues, Nadia has a gain of \$120. Assuming there are no additional implicit costs, which of the following statements is true?

- (A) Nadia has an accounting profit of \$20.
 (B) Nadia has an accounting profit of \$100.

(C) Nadia has an economic profit of \$20. ✓

- (D) Nadia has an economic profit of \$120.
 (E) Nadia has an economic profit of -\$20.

Answer C

Correct. Total revenue minus explicit costs equals accounting profits. Deducting any opportunity costs from accounting profits yields economic profits. Rational decision making should include all costs, and, thus, be based on economic profit or loss. In this example, accounting profit is stated as \$120. Subtracting the opportunity cost of forgone wages (\$100) yields an economic profit of \$20. Economic profit is positive since accounting profit exceeds the opportunity cost of lost wages.

Practice Test Questions Unit 3.4-3.7

36. Jamal quits a job that was paying him \$30,000 per year and decides to start his own business. He runs his business out of his house in a room he had been renting to his colleague for \$12,000 a year. Jamal withdraws the \$20,000 in his savings account that had been earning him a 10 percent annual interest to purchase computers and related accessories and equipment for the business. During the first year of operation, Jamal's business incurred \$30,000 in explicit costs and generated \$60,000 in total sales.

Jamal's economic profit is

- (A) \$30,000
- (B) \$17,000
- (C) \$0
- (D) – \$2,000
- (E) – \$14,000

**Answer E**

Correct. Economic profit is calculated as the difference between total revenue minus both explicit and implicit costs. Given the data above, Jamal's economic profit is $(\$60,000 - \$30,000 - \$30,000 - \$12,000 - \$2,000) = -\$14,000$.

37. Economic profit can be calculated as accounting profit minus which of the following?
- (A) Fixed costs
 - (B) Implicit costs
 - (C) Marginal costs
 - (D) Explicit costs
 - (E) Total costs
38. In the absence of barriers to entry, a typical firm is currently in long-run equilibrium. Assume there is an increase in the market demand for the good that the firm is producing. Which of the following will happen in the long run?
- (A) New firms will enter the market.
 - (B) The market supply will decrease, but the quantity supplied will increase.
 - (C) The firm will earn positive economic profit.
 - (D) The firm's price will be greater than its average revenue.
 - (E) The firm will continue to produce the same quantity of output.

**Answer A**

Correct. The increase in market demand shifts the market demand curve to the right, resulting in an increase in the price. As a result, all existing firms will increase output to where marginal cost equals marginal revenue and earn positive economic profit in the short run. In the long-run, incentivized by the short-run profits, new firms will enter the market, driving economic profits down to zero.

Practice Test Questions Unit 3.4-3.7

39. A firm hires labor and rents machines as variable inputs from perfectly competitive factor markets to produce Good X. The firm also requires land, as a fixed input, for its operation. The firm's short-run profit-maximizing quantity of output would not be affected by a change in which of the following?

(A) The price of land
(B) The price of Good X
(C) The marginal product of labor
(D) The marginal product of machines
(E) The wage rate

**Answer A**

Correct. Land represents a fixed cost in production. Since firms maximize economic profit by producing where marginal revenue equals marginal cost, fixed costs do not affect the profit-maximizing decision, as changes in a fixed cost have no impact on the firm's marginal revenue or marginal cost.

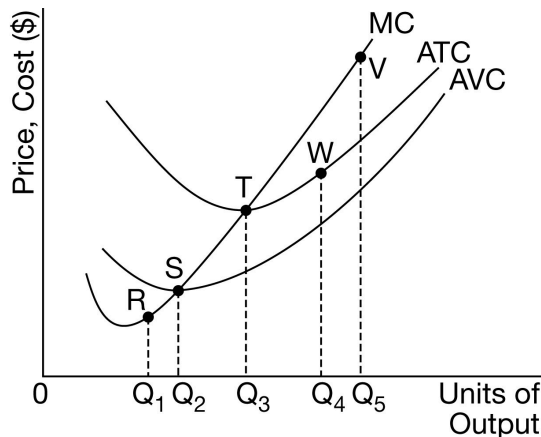
40. Instead of being employed at a printing company at a salary of 25,000 per year, Sally starts her own printing firm. Rather than renting a building that she owns to someone else for 10,000 per year, she uses it as the location for her company. Her costs for workers, materials, advertising, and energy during her first year are 125,000. If the total revenue from her printing company is 155,000, her total economic profit is

(A) -\$5,000
(B) \$5,000
(C) \$20,000
(D) \$30,000
(E) \$120,000



Practice Test Questions Unit 3.4-3.7

41.



The graph above shows the cost curves for May's Fruit Farm, where MC is marginal cost, ATC is average total cost, and AVC is average variable cost.

May's short-run supply curve includes which of the following points?

- (A) TW
- (B) RST
- (C) STV
- (D) STW
- (E) RSTV

**Answer C**

Correct. A firm's (May's) short-run supply curve is the portion of the marginal cost curve that lies above the minimum AVC. On the graph that is line segment STV.

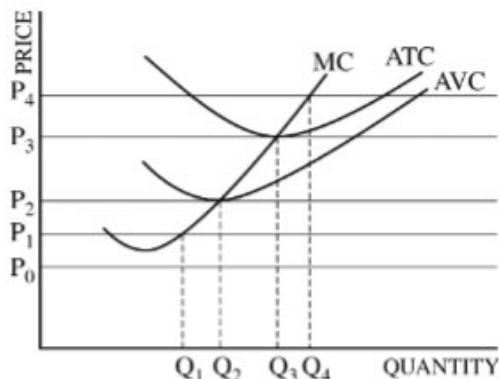
42. Which of the following is true of a firm in a perfectly competitive industry?

- (A) It faces a perfectly elastic demand curve.
- (B) It faces a downward-sloping demand curve.
- (C) It will increase its total revenue if it increases the selling price of its product.
- (D) Its cost could be greatly reduced if it did not have to advertise its product.
- (E) It sets the price of its product at the level at which profits are maximized or losses are minimized.



Practice Test Questions Unit 3.4-3.7

Question is based on the following graph, which shows a firm's marginal cost (MC), average total cost (ATC), and average variable cost (AVC).



43. In the short run, the firm will
- (A) shut down if the price falls below P_3
 - (B) continue to produce as long as the price is greater than P_1
 - (C) continue to produce as long as the price is greater than P_2 ✓
 - (D) earn economic profits as long as the price is greater than P_2
 - (E) cover its fixed cost as long as the price is less than P_3
44. The firm's short-run supply curve is which of the following?
- (A) The AVC curve above P_1
 - (B) The AVC curve above P_2
 - (C) The ATC curve above P_3
 - (D) The MC curve above P_2 ✓
 - (E) The MC curve above P_3
45. Suppose that price in a perfectly competitive industry decreases and it is now below minimum average total cost but remains above minimum average variable cost. Which of the following will occur in the short run?
- (A) New firms will enter the industry.
 - (B) Firms will increase output so that marginal revenue equals the new price.
 - (C) Firms will produce the output at which average total cost is at a minimum.
 - (D) Firms will produce the output at which marginal cost equals the new price. ✓
 - (E) Firms will not produce at all, since they will be unable to cover all their costs.

Practice Test Questions Unit 3.4-3.7

46. A perfectly competitive firm is producing 10 units of output and sells the product for \$5 per unit. At this level of output the average total cost is \$4, the average variable cost is \$3 and the marginal cost is \$7.
- What should this firm do to maximize short-run profits?
- (A) Increase output until price equals average total cost.
 - (B) Increase output until price equals marginal cost.
 - (C) Leave output unchanged because price is greater than average total cost.
 - (D) Decrease output until price is equal to marginal cost. ✓
 - (E) Decrease output until price is equal to average total cost.

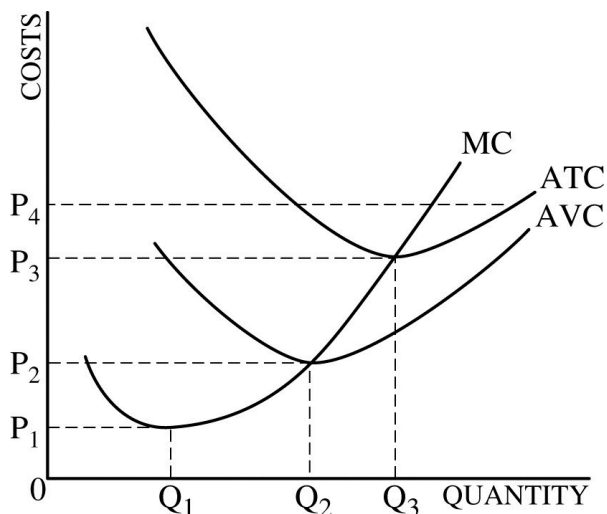
Answer D

Correct. The firm is currently producing where marginal cost (\$7) is greater than marginal revenue (which is equal to price, \$5). The firm can increase profit by decreasing output to where marginal cost equals price.

47. Which of the following is a characteristic of firms in a perfectly competitive industry?
- (A) Engaging in collusive behavior
 - (B) Facing significant barriers to entry
 - (C) Setting the market price
 - (D) Producing identical products ✓
 - (E) Earning positive long-run economic profit

Practice Test Questions Unit 3.4-3.7

The following problems refer to the graph below for a representative firm in a perfectly competitive, constant-cost industry, which shows the firm's marginal cost (MC), average total cost (ATC), and average variable cost (AVC).



48. In the short run, the firm will realize an economic loss but will continue to produce if the price is
- (A) below P_1
 - (B) between P_1 and P_2
 - (C) below P_2
 - (D) between P_2 and P_3 ✓
 - (E) between P_3 and P_4
49. Which of the following **MUST** be true in the long run?
- (A) The equilibrium price will be P_2 , since that is where marginal cost equals minimum average variable cost.
 - (B) The equilibrium price will be above P_3 , since firms must make an economic profit to stay in business.
 - (C) If the price is above P_2 , new firms will enter the industry.
 - (D) If the price is above P_3 , new firms will enter the industry. ✓
 - (E) If the price is above P_4 , firms will exit the industry.
50. For a perfectly competitive firm producing the profit-maximizing quantity, the average total cost is 10 and the average variable cost is 8. If the market price for its product is \$10, which of the following is true for the firm?
- (A) It is sustaining a loss and should shut down.
 - (B) It is earning zero economic profit and will remain in business. ✓
 - (C) Its accounting profits exceed implicit costs.
 - (D) It will temporarily shut down until price rises.
 - (E) It is making an economic profit that will attract other firms to the industry.

Practice Test Questions Unit 3.4-3.7

51. For a perfectly competitive, increasing-cost industry, an increase in the industry's demand will lead to which of the following in the long run?

(A) An upward shift in each firm's long-run average cost curve ✓

(B) An increase in each firm's profit

(C) A decrease in the price of an input and a decrease in total industry profits

(D) A decrease in total industry sales

(E) A decrease in total producer surplus and an increase in total consumer surplus

52. The reason that firms in perfect competition earn zero economic profit in the long run is that

(A) firms are small

(B) there are a large number of sellers

(C) firms cannot advertise

(D) there are no barriers to entry or exit ✓

(E) the commodities produced are relatively inexpensive

53. Which of the following will most likely lead to zero economic profits?

(A) Price floors

(B) Price discrimination

(C) External costs

(D) Free entry and exit of firms ✓

(E) External benefits

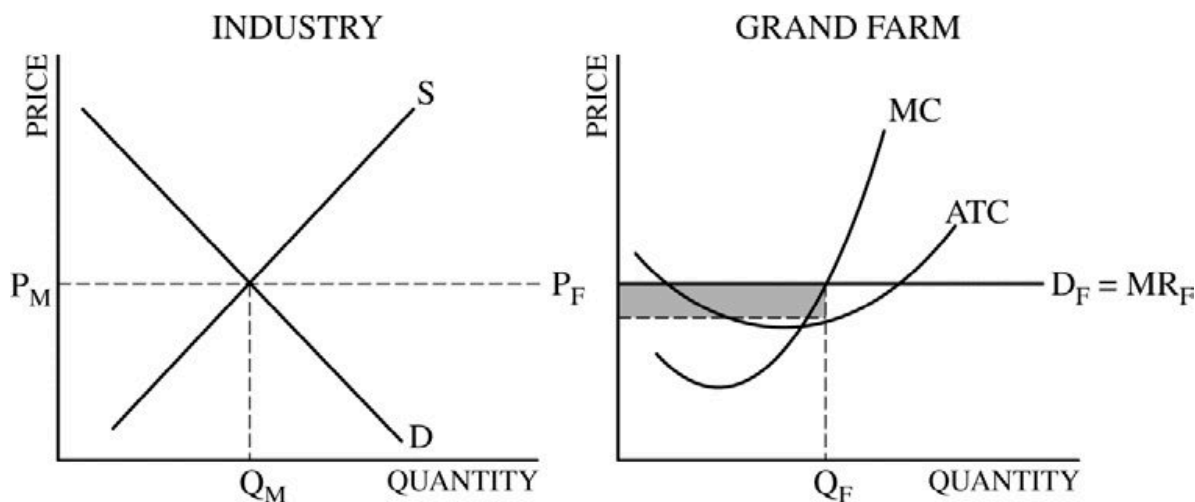
Practice Test Questions Unit 3.4-3.7

54. Rice is produced in a perfectly competitive industry. Grand Farm is a typical firm in the rice industry earning a positive economic profit.
- Using correctly labeled side-by-side graphs for the rice industry and Grand Farm, show each of the following in the short run.
 - The industry price and quantity, labeled P_M and Q_M
 - Grand Farm's demand curve and marginal revenue curve, labeled D_F and MR_F
 - Grand Farm's quantity of output, labeled Q_F
 - Grand Farm's profit, shaded completely
 - In the long run, what happens to each of the following?
 - The number of firms in the industry. Explain.
 - The equilibrium price; does it increase, decrease, or remain the same relative to P_M ?
 - Suppose Lori's Quick Eats sells fried rice in a monopolistically competitive fast-food industry. Lori's Quick Eats is earning positive economic profits in the short run. Using a correctly labeled graph for this monopolistically competitive firm, show each of the following in the short run.
 - The demand and marginal revenue curves, labeled D_L and MR_L
 - The marginal cost and average total cost curves, labeled MC and ATC
 - The profit-maximizing price and quantity, labeled P_L and Q_L
 - Draw a correctly labeled graph for Lori's Quick Eats in long-run equilibrium showing the demand curve and the long-run average total cost curve.

Respond to all parts of the question.

Part A

4 points:



- One point is earned for a correctly labeled graph of the market with a downward-sloping demand curve and upward-sloping supply curve with the equilibrium identified as Q_M and P_M .
- One point is earned for showing a horizontal D and MR curve for the firm labeled D_F and MR_F

Practice Test Questions Unit 3.4-3.7

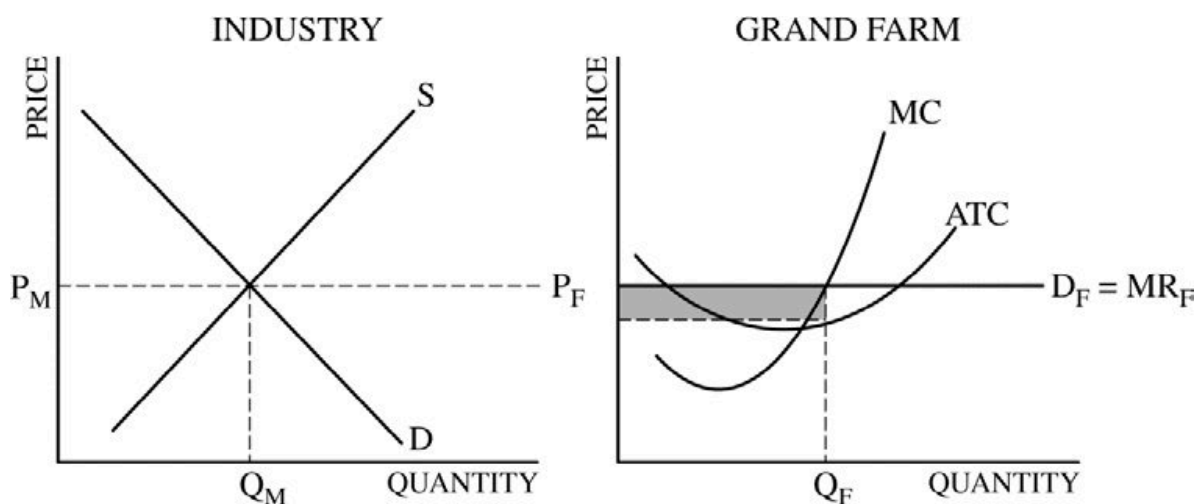
- One point is earned for showing the profit-maximizing quantity, Q_F at $MC=MR$
- One point is earned for showing the area representing economic profit, shaded

✓

0	1	2	3	4
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Student receives 4/4 point(s)

4 points:



- One point is earned for a correctly labeled graph of the market with a downward-sloping demand curve and upward-sloping supply curve with the equilibrium identified as Q_M and P_M .
- One point is earned for showing a horizontal D and MR curve for the firm labeled D_F and MR_F
- One point is earned for showing the profit-maximizing quantity, Q_F at $MC=MR$
- One point is earned for showing the area representing economic profit, shaded

Part B

2 points:

- One point is earned for stating that the number of firms will increase and for explaining that new firms will enter the market.
- One point is earned for stating that the equilibrium price decreases or is lower than P_M .

✓

0	1	2
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Student receives 2/2 point(s)

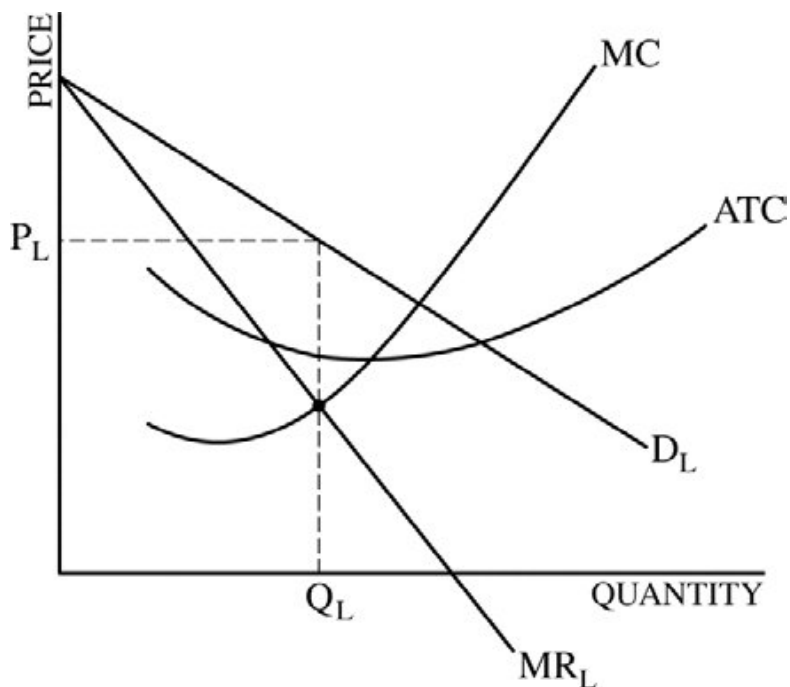
2 points:

Practice Test Questions Unit 3.4-3.7

- One point is earned for stating that the number of firms will increase and for explaining that new firms will enter the market.
- One point is earned for stating that the equilibrium price decreases or is lower than PM.

Part C

4 points:



- One point is earned for drawing a correctly labeled graph with a downward sloping demand curve, D_L with the marginal revenue curve MR_L below it.
- One point is earned for drawing the average total cost curve, ATC , with the upward sloping marginal cost curve, MC passing through the lowest point of the ATC curve.
- One point is earned for identifying the profit maximizing quantity, Q_L at $MC=MR$.
- One point is earned for identifying the price, P_L on the demand curve at Q_L and above ATC .

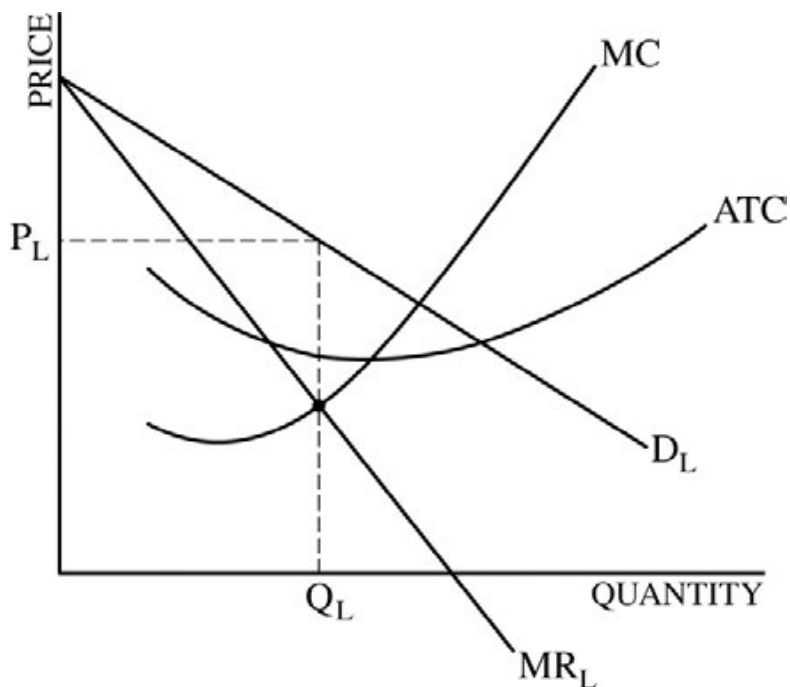
✓

0	1	2	3	4
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Student receives 4/4 point(s)

4 points:

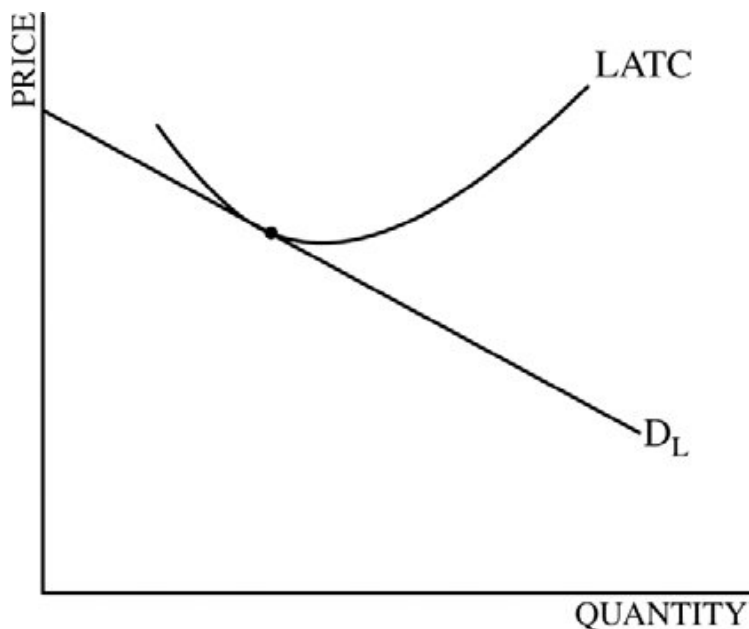
Practice Test Questions Unit 3.4-3.7



- One point is earned for drawing a correctly labeled graph with a downward sloping demand curve, D_L with the marginal revenue curve MR_L below it.
- One point is earned for drawing the average total cost curve, ATC , with the upward sloping marginal cost curve, MC passing through the lowest point of the ATC curve.
- One point is earned for identifying the profit maximizing quantity, Q_L at $MC=MR$.
- One point is earned for identifying the price, P_L on the demand curve at Q_L and above ATC .

Part D

1 point:



Practice Test Questions Unit 3.4-3.7

- One point is earned for a correctly labeled graph showing a long-run average total cost curve tangent to a downward-sloping demand curve.

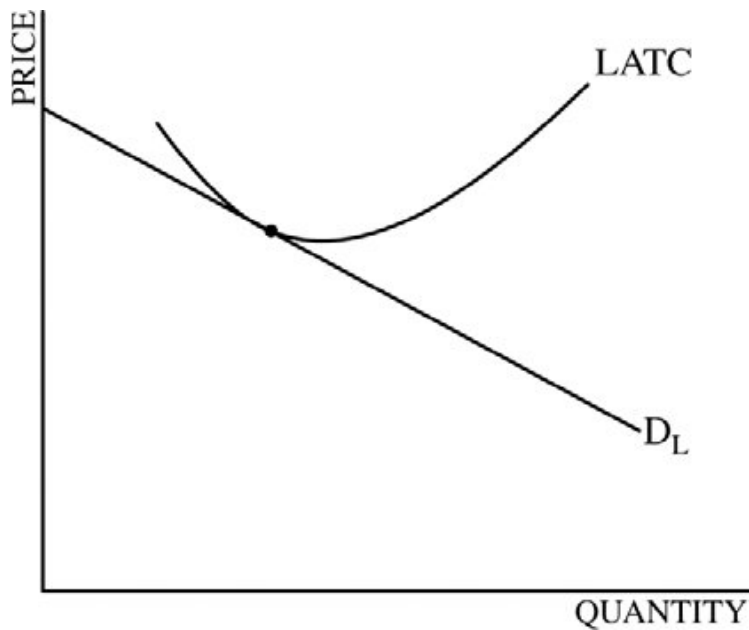
✓

0

1

Student receives 1/1 point(s)

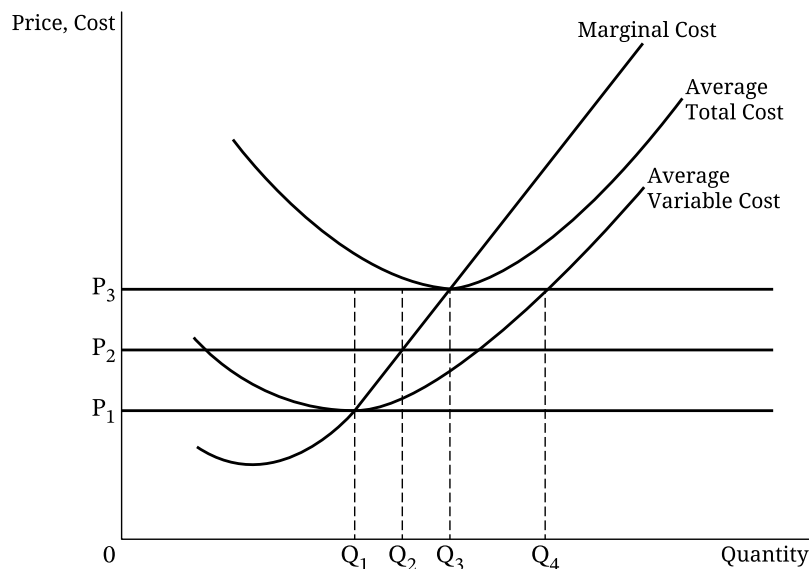
1 point:



- One point is earned for a correctly labeled graph showing a long-run average total cost curve tangent to a downward-sloping demand curve.

Practice Test Questions Unit 3.4-3.7

55. The graph shows the cost and revenue curves for the firm Emma's Hoops.



Emma's Hoops produces toy hoops that are identical to all other toy hoops produced by the many firms in a market with no barriers to entry. The market price of toy hoops is P_2 , and Emma's Hoops is producing the quantity Q_2 of toy hoops. Which of the following is true?

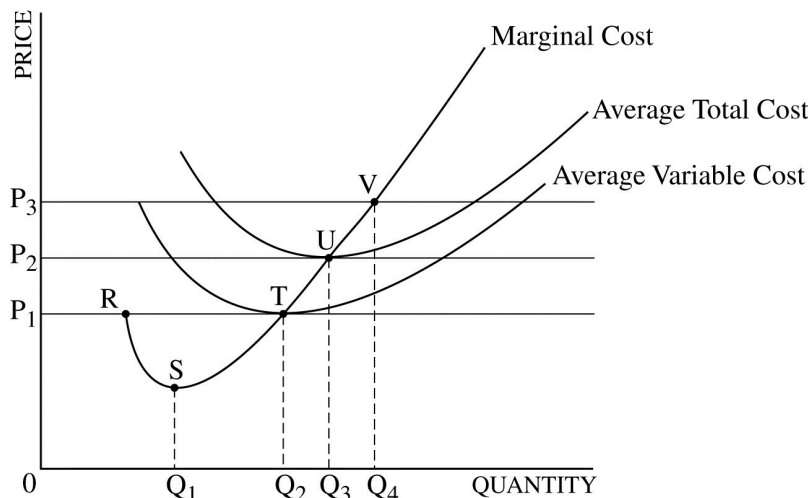
- (A) The firm's average fixed cost is equal to $P_3 - P_1$.
- (B) The firm is currently earning negative economic profit. ✓
- (C) The firm is facing a perfectly inelastic demand curve.
- (D) The firm should decrease production to Q_1 to maximize economic profit.
- (E) The firm should increase its price to P_3 to maximize economic profit.

Answer B

Correct. The firm is currently charging price P_2 for its product, which is below the average total cost at the given quantity of output, Q_2 . Since economic profit = (price – average total cost) $\times$ quantity of output, and average total cost is greater than price, the firm must be earning negative economic profit.

Practice Test Questions Unit 3.4-3.7

56.



Which of the following segments of the marginal cost curve lies entirely on the firm's short-run supply curve?

(A) TUV

(B) STU

(C) RSTU

(D) RSTUV

(E) RS

57. If a perfectly competitive firm is producing where marginal cost is rising and greater than marginal revenue, to maximize profits it should

(A) increase the level of production

(B) decrease the level of production

(C) maintain current level of production

(D) increase price

(E) decrease price

58. If a perfectly competitive market with no government intervention is allocatively efficient, which of the following must be true?

(A) Consumer surplus plus producer surplus is at its maximum.

(B) Consumer surplus is larger than producer surplus.

(C) Producer surplus is larger than consumer surplus.

(D) All surplus is producer surplus.

(E) All surplus is consumer surplus.

59. If a profit-maximizing firm in a perfectly competitive market chooses to produce in the short run, then marginal cost is always

(A) greater than or equal to total cost

(B) greater than or equal to average total cost

(C) greater than or equal to average variable cost

(D) greater than or equal to average fixed cost

(E) less than average total cost

Practice Test Questions Unit 3.4-3.7

60. If total revenue is increasing as output increases, marginal revenue is always

- (A) equal to average revenue
- (B) less than average revenue
- (C) increasing
- (D) decreasing
- (E) greater than zero



Practice Test Questions Unit 3.4-3.7

61. Which of the following differentiates a profit-maximizing firm in a perfectly competitive market from a profit-maximizing firm in an imperfectly competitive market?

Practice Test Questions Unit 3.4-3.7

(A)

A firm in a perfectly competitive market	A firm in an imperfectly competitive market
is a price maker	is a price taker

(B)

A firm in a perfectly competitive market	A firm in an imperfectly competitive market
minimizes average total cost in the short run	maximizes total revenue in the short run

(C)

A firm in a perfectly competitive market	A firm in an imperfectly competitive market
earns zero economic profit in the short run	does not earn economic profit in the short run

Practice Test Questions Unit 3.4-3.7

(D)



A firm in a perfectly competitive market	A firm in an imperfectly competitive market
produces where price equals marginal cost	produces where price is greater than marginal cost

(E)

A firm in a perfectly competitive market	A firm in an imperfectly competitive market
produces in the elastic region of its demand curve	produces in the inelastic region of its demand curve

Answer D

Correct. A firm in a perfectly competitive market is a price taker and therefore has a horizontal demand curve, such that price is equal to marginal revenue. A profit-maximizing firm in a perfectly competitive market produces where marginal revenue equals marginal cost, and since price is also equal to marginal revenue in perfect competition, the firm thus produces where price equals marginal cost. However, a firm in an imperfectly competitive market is a price maker and thus faces a downward-sloping demand curve and a downward-sloping marginal revenue curve that lies below the demand curve. A profit-maximizing firm in an imperfectly competitive market also produces where marginal revenue equals marginal cost, but charges a price based on the demand for its product, which is greater than marginal cost.

Practice Test Questions Unit 3.4-3.7

62. Ryan quit a job with a daily salary and opened a business. On a daily basis, the total revenue of the business is \$200, and the explicit costs of the business are \$120. If Ryan has zero economic profits, what must be the value of Ryan's implicit costs?
- (A) \$0
- (B) \$80
- (C) \$120
- (D) \$200
- (E) \$280

Answer B

Correct. Total revenue minus explicit costs equals accounting profits. Subtracting opportunity cost from accounting profits yields economic profits. In this example, accounting profits are $\$200 - \$120 = \$80$. If economic profits are zero, the implicit cost (the individual's forgone wages) must be \$80. That is, the individual's economic profit is $\$80 - \$80 = \$0$.

63. Which of the following statements about a constant-cost perfectly competitive industry in long-run equilibrium must be true?
- (A) An increase in demand will cause no change in the long-run equilibrium price.
- (B) An increase in demand will cause no change in the long-run equilibrium quantity.
- (C) The long-run supply curve is upward sloping.
- (D) The long-run supply curve is perfectly inelastic.
- (E) The total cost of production remains the same as output increases.
64. Assume an increasing-cost perfectly competitive industry. Which of the following statements is true?
- (A) The short-run market supply curve will be upward sloping, but the long-run market supply curve will be horizontal.
- (B) Firms must be producing where their long-run average cost curve is upward sloping, exhibiting diseconomies of scale.
- (C) In the long run, firms will actually sustain economic losses.
- (D) Firms no longer produce at the minimum of long-run average total cost in long-run equilibrium.
- (E) As the industry expands its output, at least one input price increases, increasing the minimum of long-run average total cost.

Answer E

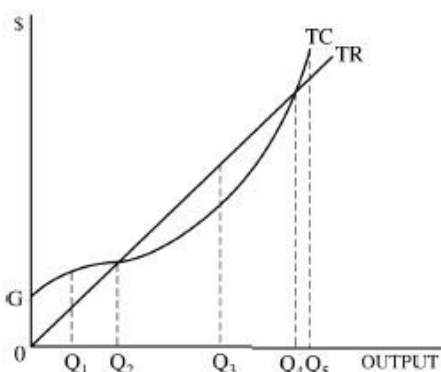
Correct. With an increasing-cost industry, as the industry's output expands, the increased demand for at least one input raises the price of that input. This input price increase shifts up the long-run average cost of each firm, raising the minimum of long-run average total cost for each firm and the long-run output price at which economic profits equal zero.

Practice Test Questions Unit 3.4-3.7

65. In order to minimize short-run losses, a profit-maximizing firm will necessarily shut down production under which of the following conditions?

(A) Total revenue is less than total cost.
(B) Marginal cost is greater than average total cost.
(C) Marginal cost is less than marginal revenue.
(D) Average revenue is less than average variable cost. ✓
(E) Average revenue is less than average total cost.

66. In the graph below, TC is total cost and TR is total revenue.



At which level of output is profit maximized?

- (A) Q_1
(B) Q_2
(C) Q_3 ✓
(D) Q_4
(E) Q_5
67. In the short run, if a firm produces the level of output at which marginal revenue is equal to marginal cost but price is less than average total cost, the firm will
- (A) always shut down production
(B) expand output to lower its average fixed cost
(C) continue to operate if price is greater than its average variable cost ✓
(D) decrease output until price equals its average total cost
(E) increase output to increase revenue

Practice Test Questions Unit 3.4-3.7

68. The following questions are based on the table below, which shows a firm's average variable cost and average total cost.

Output	Average Variable Cost	Average Total Cost
1	\$40	\$160
2	35	95
3	40	80
4	45	75
5	50	74
6	55	75

In the short run, the lowest price at which the firm will continue to produce is

- (A) \$80
(B) \$74
(C) \$50
(D) \$35 ✓
(E) \$30
69. JC pizzeria has a year remaining on an unbreakable lease on its building, requiring a payment of 20,000 a year. If JC operates over the next year, it estimates that its revenues will be 200,000 and that its expenses, in addition to the lease, will be \$190,000. Which of the following statements is true?
- (A) JC should shut down, since it will incur a loss of \$20,000.
(B) JC should shut down to break even.
(C) JC should operate, since its loss is less than its fixed cost. ✓
(D) JC should operate, since it will earn a profit of \$10,000.
(E) JC will break even, whether it operates or shuts down.

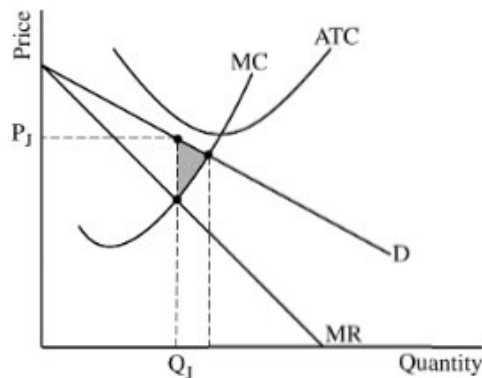
Practice Test Questions Unit 3.4-3.7

70. Respond to all parts of the question.

Joyce owns a gas station and monopolizes gas sales along a remote stretch of road. In February, Joyce stayed open even though she earned negative economic profits.

- a. Draw a correctly labeled graph for Joyce's gas station during February and show each of the following.
 - i. The profit-maximizing output and price, labeled Q_J and P_J
 - ii. The average total cost curve, labeled ATC
 - iii. Deadweight loss, completely shaded
- b. What must have been true for Joyce to continue operating during the month of February even though she earned negative economic profit?
- c. Assume that fixed costs for Joyce's gas station decrease. Would Joyce's profit-maximizing quantity increase, decrease, or stay the same in February? Explain.
- d. During the month of July, demand increases so that Joyce now earns a positive economic profit. However, she realizes her profits would have been higher if she had reduced the price of gasoline.
 - i. At the quantity sold in July, was marginal revenue greater than, equal to, or less than marginal cost?
 - ii. Would the price decrease cause quantity demanded to increase, decrease, or stay the same?
 - iii. Would the price decrease cause the total revenue to increase, decrease, or stay the same? Explain.

Part A



1 point is earned for: drawing a correctly labeled monopoly graph with a downward-sloping demand (D) curve and a marginal revenue (MR) curve below the demand curve.

1 point is earned for: showing the firm's average total cost (ATC) curve above the demand curve at Q_J with the MC curve rising and passing through the minimum of the ATC curve.

1 point is earned for: identifying the firm's profit-maximizing quantity, Q_J , at $MC = MR$.

1 point is earned for: identifying the firm's profit-maximizing price, P_J , on the demand curve, above Q_J .

1 point is earned for: showing the area representing the deadweight loss shaded completely.

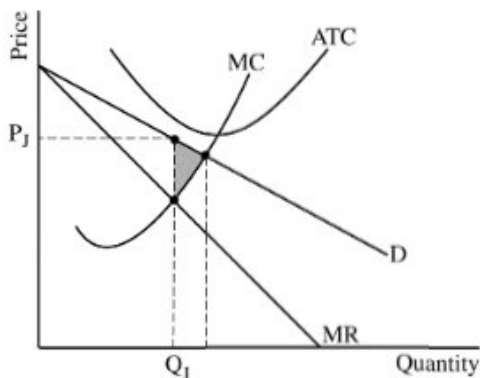
Note: All quantities and prices should be labeled on the axes and connected to the intersection points by dashed lines.

Practice Test Questions Unit 3.4-3.7

✓

0	1	2	3	4	5
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The student response earns all of the following points:



1 point is earned for: drawing a correctly labeled monopoly graph with a downward-sloping demand (D) curve and a marginal revenue (MR) curve below the demand curve.

1 point is earned for: showing the firm's average total cost (ATC) curve above the demand curve at Q_J with the MC curve rising and passing through the minimum of the ATC curve.

1 point is earned for: identifying the firm's profit-maximizing quantity, Q_J , at $MC = MR$.

1 point is earned for: identifying the firm's profit-maximizing price, P_J , on the demand curve, above Q_J .

1 point is earned for: showing the area representing the deadweight loss shaded completely.

Note: All quantities and prices should be labeled on the axes and connected to the intersection points by dashed lines.

Part B

1 point is earned for: stating that total revenue is greater than total variable cost or that $AVC < PJ$.

✓

0	1
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The student response earns all of the following points:

1 point is earned for: stating that total revenue is greater than total variable cost or that $AVC < PJ$.

Part C

1 point is earned for: stating that the profit-maximizing quantity will stay the same because a change in fixed costs does not affect marginal cost.

Practice Test Questions Unit 3.4-3.7



0	1
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The student response earns all of the following points:

1 point is earned for: stating that the profit-maximizing quantity will stay the same because a change in fixed costs does not affect marginal cost.

Part D

1 point is earned for: stating that MR is greater than MC.

1 point is earned for: stating that the lower price would cause quantity demanded to increase.

1 point is earned for: stating that the lower price would cause total revenue to increase, and for explaining that the decrease in price occurs in the elastic region of the demand curve.



0	1	2	3
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The student response earns all of the following points:

1 point is earned for: stating that MR is greater than MC.

1 point is earned for: stating that the lower price would cause quantity demanded to increase.

1 point is earned for: stating that the lower price would cause total revenue to increase, and for explaining that the decrease in price occurs in the elastic region of the demand curve.

71. The characteristic that causes firms in a perfectly competitive industry to earn zero economic profits in the long run is

- (A) firms are price takers
- (B) firms produce identical products
- (C) individual firms account for a small fraction of the total market
- (D) the industry supply curve is horizontal
- (E) there are no barriers to entry or exit

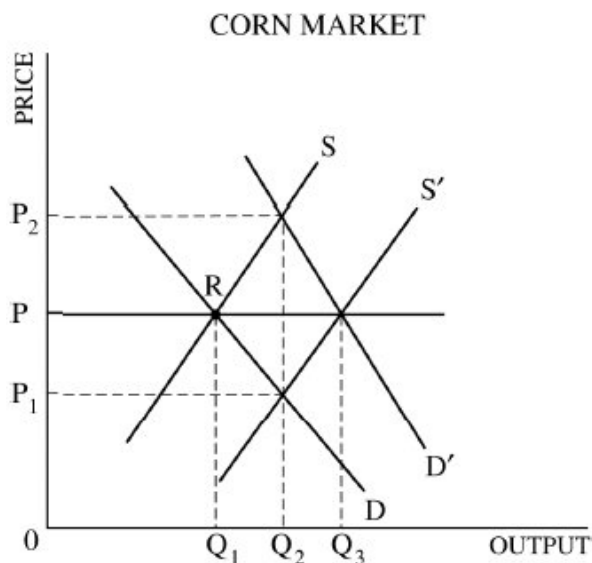


Answer E

Correct. The key assumption that leads to long-run adjustment in perfectly competitive markets is the assumption of no barriers to entry or exit (easy entry or exit). Depending on the market condition in the short run, firms respond by entering the market if economic profits are positive and exiting the market if economic profits are negative. The entry or exit of firms will stop when each firm earns zero economic profit. That means no firm has an incentive to leave the market or enter the market.

Practice Test Questions Unit 3.4-3.7

72. The following question is based on the graph below showing the long-run adjustment of a constant-cost perfectly competitive industry.



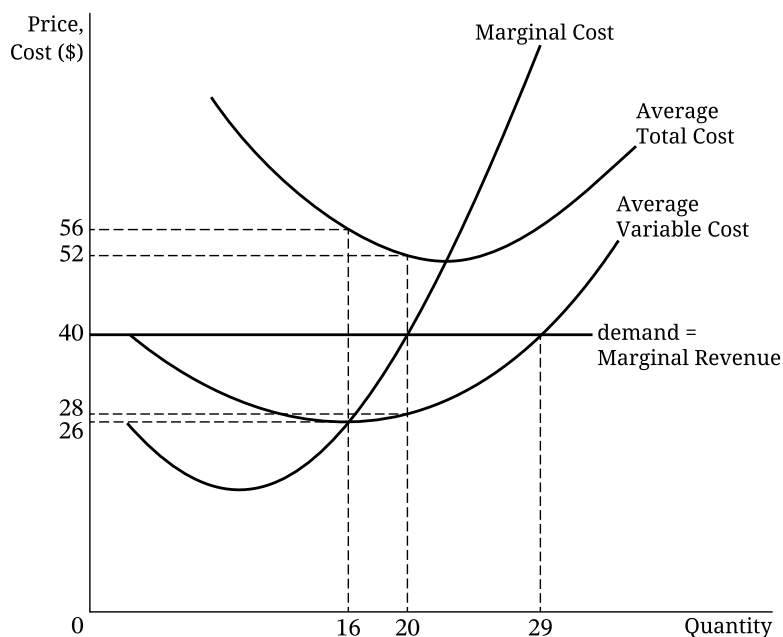
The long-run industry supply curve for corn is

- (A) upward sloping
 - (B) downward sloping
 - (C) horizontal
 - (D) downward sloping at first and then upward sloping
 - (E) upward sloping at first and then downward sloping
73. Which of the following is true of a perfectly competitive firm in long-run equilibrium?

- (A) It produces its output at minimum average total cost.
- (B) It earns positive economic profits.
- (C) It will exit the industry.
- (D) Its price exceeds marginal cost.
- (E) Its price exceeds marginal revenue.

Practice Test Questions Unit 3.4-3.7

74. The graph shows the cost and revenue curves for the firm LuxEcon.



LuxEcon operates in a perfectly competitive market and produces the profit-maximizing quantity of output. Which of the following correctly identifies LuxEcon's profit-maximizing quantity and economic profit?

- (A) LuxEcon's profit-maximizing quantity is 16, and LuxEcon earns positive economic profit of \$256.
- (B) LuxEcon's profit-maximizing quantity is 16, and LuxEcon earns negative economic profit of \$256.
- (C) LuxEcon's profit-maximizing quantity is 20, and LuxEcon earns positive economic profit of \$240.
- (D) LuxEcon's profit-maximizing quantity is 20, and LuxEcon earns negative economic profit of \$240. ✓
- (E) LuxEcon's profit-maximizing quantity is 20, and LuxEcon earns negative economic profit of \$480.

Answer D

Correct. A firm in a perfectly competitive market maximizes economic profit by producing the quantity where marginal revenue equals marginal cost. A firm's economic profit is calculated by $(\text{price} - \text{average total cost}) \times \text{quantity}$. To maximize economic profit, LuxEcon will produce 20 units. At 20 units, LuxEcon's economic profit is $(\$40 - \$52) \times 20 = -\$240$.

75. The short-run supply curve for a firm in a perfectly competitive industry is

- (A) its entire marginal cost curve
- (B) its average variable cost curve above its marginal cost curve
- (C) its average total cost curve above its marginal cost curve
- (D) its marginal cost curve above the minimum point of its average total cost curve
- (E) its marginal cost curve above the minimum point of its average variable cost curve ✓

Practice Test Questions Unit 3.4-3.7

76. At the current quantity that a firm is selling, the firm has marginal revenue of \$750 and marginal cost of \$800. Which of the following is true?
- (A) The firm is maximizing profit.
 - (B) The firm's profits would increase if the firm increased the quantity sold.
 - (C) The firm's profits would increase if the firm decreased the quantity sold. ✓
 - (D) The firm earns negative economic profit.
 - (E) The firm earns zero accounting profit.

Answer C

Correct. The firm is producing where marginal cost is greater than marginal revenue. Profit is maximized when marginal revenue equals marginal cost, so the firm will increase its profits by decreasing output to where marginal revenue equals marginal cost.

77. Which of the following is true for a monopoly but NOT for a perfectly competitive firm?
- (A) The firm maximizes profit by equating marginal cost to marginal revenue.
 - (B) The firm's demand curve is the same as its average revenue curve.
 - (C) At the profit-maximizing output level, price is less than marginal revenue.
 - (D) The firm faces a downward-sloping demand curve. ✓
 - (E) The firm earns zero economic profit in the long run.
78. Which of the following is true about the marginal revenue of a firm in a perfectly competitive industry?
- (A) It is constant. ✓
 - (B) It increases as output sold increases.
 - (C) It decreases as output sold increases.
 - (D) It increases at first, then decreases.
 - (E) It decreases at first, then increases.
79. The most profitable level of output for any firm operating in the short run is the level of output at which
- (A) marginal revenue exceeds marginal cost by the highest amount
 - (B) marginal revenue equals marginal cost ✓
 - (C) price exceeds average cost by the highest amount
 - (D) price equals average cost
 - (E) price equals marginal cost

Practice Test Questions Unit 3.4-3.7

80. Nikita was working at a law firm earning an annual salary of \$80,000, but she decided to start her own law practice. She used a building she owns and had been renting to a tenant for \$15,000 a year. Her law practice earned an accounting profit of \$90,000 in its first year. Based on the preceding information, what was Nikita's economic profit?
- (A) -\$80,000
(B) -\$15,000
(C) -\$5,000 ✓
(D) \$10,000
(E) \$75,000

Answer C

Correct. Economic profit equals total revenue minus the sum of explicit and implicit costs. Accounting profit equals total revenue minus explicit costs. Thus, economic profit equals accounting profit minus implicit costs. In this case, because running her own law practice requires her to quit the job that pays her \$80,000 per year and use the building she had previously been renting for \$15,000 per year, Nikita's implicit costs are the foregone annual salary of \$80,000 and the foregone rent of \$15,000 per year. As a result, her economic profit is -\$5,000 ($=\$90,000 - \$80,000 - \$15,000$).

81. Which of the following market structures results in allocative efficiency?
- (A) Monopoly
(B) Monopolistic competition
(C) Perfect competition ✓
(D) Natural monopoly
(E) Oligopoly
82. Royal Bolts is a profit-maximizing firm in a perfectly competitive market earning positive economic profit. Which of the following will cause an increase in both the firm's profit and the number of units it produces in the short run?
- (A) The imposition of a per-unit tax on producers
(B) An increase in the price of a substitute in consumption ✓
(C) An increase in consumers' incomes if the product is an inferior good
(D) A decrease in the rent for the factory, a fixed input
(E) A decrease in the expected future price of the product by consumers

Answer B

Correct. An increase in the price of a substitute in consumption would increase the demand for the good Royal Bolts produces, since it would become relatively cheaper. The increase in demand would result in an increase in price and marginal revenue. To maximize profit, Royal Bolts would increase its production until marginal revenue equals marginal cost. As a result, the difference between price and average total cost would increase, increasing the firm's profit, and the firm would produce more units of output in the short run.

Practice Test Questions Unit 3.4-3.7

83. Firm Z is a typical firm in a perfectly competitive market that produces a quantity of output where marginal revenue equals marginal cost in a constant-cost industry. If the sum of Firm Z's average fixed cost and average variable cost is below its marginal revenue at the profit-maximizing quantity, which of the following will occur in the long run?
- (A) The firm will increase output.
 - (B) The firm will shut down.
 - (C) The firm will increase price.
 - (D) The firm will exit the market.
 - (E) New firms will enter the market. ✓

Answer E

Correct. Average total cost is equal to the sum of average fixed cost and average variable cost. When average total cost lies below marginal revenue (which is equal to the price) in perfect competition, firms are earning positive economic profit (since per-unit economic profit equals price minus average total cost). Since there are no barriers to entry in perfect competition, the existence of positive economic profit in the short run will cause new firms to enter the market in the long run.

84. Which of the following statements is always true for a perfectly competitive market?

- (A) Firms have no market power. ✓
- (B) Firms produce differentiated products.
- (C) Firms earn positive economic profit.
- (D) There are high barriers to entry.
- (E) There are relatively few competitors.

Answer A

Correct. Firms operating in a perfectly competitive market have no market power, which means they have no ability to set their own price for their products and must take the price as given from the market.

85. Which of the following indicates that a perfectly competitive firm is in long-run equilibrium?

- (A) Price equals marginal cost.
- (B) Price equals average revenue.
- (C) Price equals marginal cost, which equals average total cost. ✓
- (D) Price equals average revenue, which equals marginal revenue.
- (E) Price equals average fixed cost.

Practice Test Questions Unit 3.4-3.7

86. Which of the following statements relating to a profit-maximizing perfectly competitive firm is true?

- (A) The firm is facing downward-sloping demand and marginal revenue curves.
- (B) The firm will raise its price to increase revenue.
- (C) The firm's price is above its marginal revenue at every output level.
- (D) The firm's price is given by the market and is equal to marginal revenue. ✓
- (E) The firm continues to produce as long as marginal revenue is greater than zero.

Answer D

Correct. The competitive firm is a price taker, accepting the market price as given. As a result, the firm's demand curve is perfectly elastic (or horizontal) at the market price. Its marginal revenue is also horizontal and will equal price at every output level.

87. Assume a competitive firm is producing where price (P) and marginal revenue (MR) are greater than marginal cost (MC) and average variable cost (AVC). Which of the following is true regarding the firm's short-run output level?

- (A) The firm is producing too little and should increase its output level until $P = MR = MC$. ✓
- (B) The firm is producing too much and should reduce its output level until $P = MR = AVC$.
- (C) The firm is not maximizing profits and should raise its price but not change its output level.
- (D) The firm should increase its marginal revenue to equal price and reduce its output level until $MR = MC$.
- (E) The firm should reduce its price until $P = MR = MC$.

Answer A

Correct. The competitive firm should continue to produce up to the output level where price, which is equal to marginal revenue (MR) for a competitive firm, equals marginal cost (MC). If P and MR exceed MC, then there are units of output that the firm is not producing that would be profitable.

88. Which of the following conditions is necessary for productive efficiency?

- (A) The firm is producing at the point where the marginal product of labor is greater than the average product of labor.
- (B) The firm is producing a given level of output with a least-cost combination of inputs. ✓
- (C) Consumer surplus is minimized.
- (D) There are external costs.
- (E) There is no government regulation.

89. Productive efficiency occurs when a firm produces output at a level at which

- (A) average total cost equals average revenue
- (B) average total cost is at a minimum ✓
- (C) price exceeds average total cost
- (D) price equals marginal cost
- (E) marginal revenue exceeds average revenue

Practice Test Questions Unit 3.4-3.7

90. If individual firms in a perfectly competitive market are earning positive economic profits, the number of firms and the price of the product in the market will most likely change in which of the following ways in the long run?

(A)

Number of Firms	Price
Increase	Increase

(B)

Number of Firms	Price
Decrease	Increase

(C)

Number of Firms	Price
Increase	Decrease



(D)

Number of Firms	Price
Decrease	Decrease

(E)

Number of Firms	Price
No change	Decrease

Answer C

Correct. The positive economic profits will attract new firms to enter the market. The entry of new firms increases the number of firms, which increases supply and decreases the price. The price will continue to fall until it is equal to minimum average total cost for each firm and economic profits are eliminated.

Practice Test Questions Unit 3.4-3.7

91. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to “Calculate,” you must show how you arrived at your final answer.

Assume that Jasmine is a typical firm that produces and sells T-shirts in a perfectly competitive constant-cost industry. The market is currently in long-run equilibrium. The market price is \$5, and Jasmine’s marginal cost at each level of output is listed in the table below.

Quantity of Output	Marginal Cost
0	0
1	2
2	3
3	4
4	5
5	6
6	7

- (a) What is Jasmine’s profit-maximizing quantity of output? Explain.
- (b) Draw a correctly labeled graph for Jasmine, and show Jasmine’s total revenue at the profit-maximizing quantity, shaded completely.
- (c) Now assume consumer demand for T-shirts increases. What will happen to the number of firms in the market in the long run? Explain.

Respond to all parts of the question.

Part (a)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must both identify Jasmine’s profit-maximizing quantity as 4 T-shirts and explain why in order to earn the point.



0	1
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The response correctly identifies Jasmine’s profit-maximizing quantity of T-shirts as 4 and explains that at that quantity, the price (marginal revenue) of a T-shirt (5) and the marginal cost (5) are equal. If Jasmine were to increase production to 5, the marginal cost (6) would exceed the price (5); therefore, producing the fifth T-shirt would reduce her profit.

Part (b)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

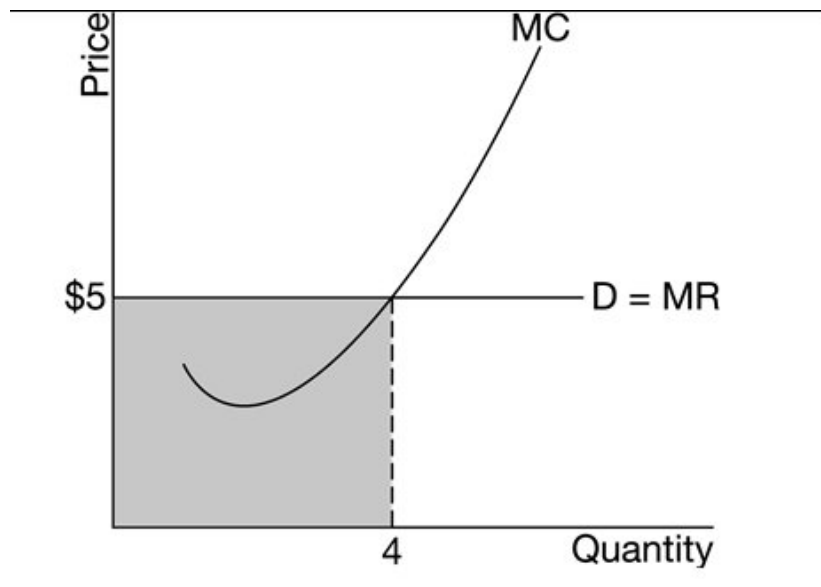


0	1	2	3
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Practice Test Questions Unit 3.4-3.7

The response accurately includes all three of the criteria below.

- ☐ A correctly labeled graph for Jasmine with a horizontal demand (marginal revenue) curve at \$5
- ☐ The profit-maximizing quantity, 4, as being where $MR = MC$
- ☐ The area representing the total revenue at the profit-maximizing quantity shaded completely

Solution**Part (c)**

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must both state that the number of firms in the industry will increase and explain why in order to earn the point.



0	1
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The response states that the number of firms in the industry will increase and goes on to explain that this happens because of entry of new firms attracted by the short-run profits that firms are earning as a result of the increase in demand and higher short-run equilibrium price for T-shirts.

Practice Test Questions Unit 3.4-3.7

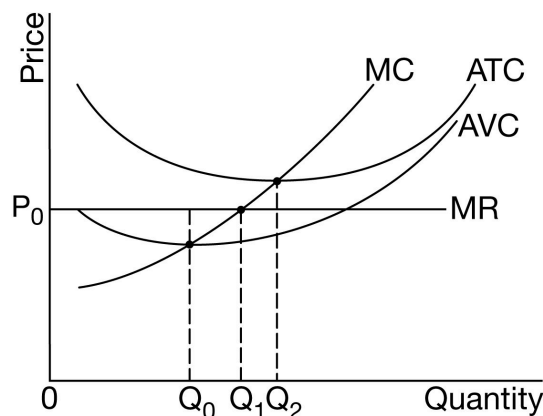
92. When a competitive firm maximizes short-run economic profits, it produces at the output level where

- (A) average cost is at its minimum
- (B) price equals zero
- (C) price equals average variable cost
- (D) marginal revenue equals marginal cost
- (E) marginal revenue equals average variable cost

Answer D

Correct. Profit maximization occurs where marginal revenue (price) equals marginal cost.

93.



The graph above shows the short-run cost and revenue curves for a perfectly competitive firm. Assume that the market price is P_0 and the firm is producing at quantity Q_2 . To maximize profit, the firm should

- (A) continue to produce quantity Q_2 , where average total cost is at its minimum
- (B) produce quantity Q_1 , where price is equal to marginal cost
- (C) produce quantity Q_0 , where average variable cost is at its minimum
- (D) decrease the price so that price equals average variable cost
- (E) increase the market price to the level of the minimum average total cost

Answer B

Correct. The profit-maximizing competitive firm should produce where P (or MR) = MC at Q_1 . The firm will have a loss, since P is less than ATC .

Practice Test Questions Unit 3.4-3.7

94. In the short run, which of the following must be true for a perfectly competitive firm that is maximizing profits?

- (A) The firm will shut down if it has any economic losses.
- (B) The firm will produce at the minimum of average total cost.
- (C) The firm will produce where $MR = MC$, but price from the demand curve is greater than MC .
- (D) The firm will produce where $MR = MC$ as long as P is greater than average variable cost. ✓
- (E) The firm will produce the quantity that exhibits allocative and productive efficiency.

Answer D

Correct. The profit-maximizing firm will produce where $MR = MC$. If price is greater than ATC , the firm has economic profits. The firm will still produce with economic losses as long as P is greater than average variable cost, as the losses will be less than fixed costs, which would be the losses if the firm shuts down.

95. Suppose that a firm is producing the profit-maximizing output under conditions of diminishing returns. Its output price is 25, and its marginal cost of production at its current output level is 25. Based on this information, it can be concluded that this firm must

- (A) be a single-price monopoly
- (B) be a perfectly competitive firm ✓
- (C) decrease its output to maximize profit if it is a monopoly
- (D) increase its output to maximize profit if it is a monopoly
- (E) exit the industry if it is a perfectly competitive firm

Practice Test Questions Unit 3.4-3.7

96. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. If the question prompts you to "Calculate," you must show how you arrived at your final answer.

Electrifide Co. operates as a natural monopoly providing electricity for a particular region of the country. Electrifyde has a constant marginal cost of production.

(a) Draw a correctly labeled graph of Electrifyde and show each of the following.

(i) The profit-maximizing quantity, labeled Q_M

(ii) The profit-maximizing price, labeled P_M

(iii) The allocatively efficient quantity, labeled Q_A

(iv) The deadweight loss, shaded completely

(b) Suppose the government wants the monopolist to produce the socially optimal quantity of electricity in the market for electricity. Would granting a per-unit subsidy or imposing a per-unit tax on electricity lead the monopolist to produce closer to the socially optimal output? Explain.

(c) Suppose instead of granting a subsidy or imposing a tax, the government is considering regulating the price the monopolist can charge.

(i) If the government's goal is to have the monopolist earn a normal profit, indicate on your graph from part (a) the price that the government would set, labeled P_N , and the resulting equilibrium quantity, labeled Q_N .

(ii) If instead the government wants to use price regulation to get the monopolist to produce the socially optimal level of output, what price would the government set?

(iii) Explain what would happen to Electrifyde in the long run as a result of the price regulation in part (c)(ii).

Respond to all parts of the question.

Part (a)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

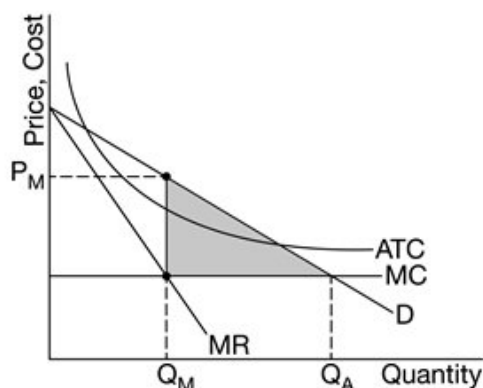


0	1	2	3	4	5	6
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The response accurately includes all six of the criteria below.

- ☐ A correctly labeled graph of the natural monopoly, with a downward-sloping demand curve and a downward-sloping MR curve below the demand curve
- ☐ A downward-sloping average total curve (ATC) with a constant (horizontal) marginal cost curve below ATC
- ☐ The profit-maximizing quantity, labeled Q_M , where $MR=MC$
- ☐ The profit-maximizing price, labeled P_M , from the demand curve at Q_M
- ☐ The allocatively efficient quantity, labeled Q_A
- ☐ The deadweight loss, shaded completely

Practice Test Questions Unit 3.4-3.7

Solution**Part (b)**

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

The response must both state a per-unit subsidy and explain why to earn the point.



0	1
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The response states a per-unit subsidy and explains that the per-unit subsidy reduces the marginal cost, which increases the quantity produced and moves production closer to the allocatively efficient output.

Part (c)

Select a point value to view scoring criteria, solutions, and/or examples and to score the response.

A response that earns the point for part (c)(i) must show on the graph from part (a) the price that the government would set, labeled P_N and the resulting equilibrium quantity, labeled Q_N .



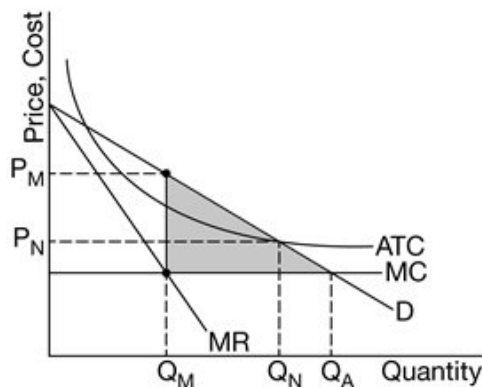
0	1	2	3
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The response accurately includes three of the criteria below.

- ☐ Shows on the graph from part (a) the price that the government would set, labeled P_N , the resulting equilibrium quantity, labeled Q_N
- ☐ States that the government would set the price equal to the marginal cost of production.
- ☐ Explains that the monopolist will exit the market in the long run because the regulated price is below the monopolist's average total cost and it would be operating at a loss.

Solution

Practice Test Questions Unit 3.4-3.7



97. At its current level of output, a firm's total revenue is greater than its total variable cost but less than its total cost. If the firm is producing at the point where marginal revenue is equal to marginal cost, what should the firm do to maximize profit in the short run?
- (A) Increase price to increase revenue.
 - (B) Decrease price to increase quantity.
 - (C) Exit the market to minimize losses.
 - (D) Continue to produce at its current level of output to minimize losses. ✓
 - (E) Shut down.

Answer D

Correct. The firm will minimize its losses by continuing to operate in the short run. Its total revenue is greater than its total variable cost. Because it earns more than enough to cover its total variable costs, the excess amount over the total variable cost covers part of its fixed cost. Thus the firm minimizes its losses by continuing to operate rather shutting down.

Practice Test Questions Unit 3.4-3.7

98. The table shows the total cost schedule for a soybean farm.

Quantity (bushels)	Total Cost (\$)
0	10
1	12
2	16
3	22
4	32
5	50
6	69

The farm grows and sells soybeans at a price of \$15 per bushel in a perfectly competitive market. What is the farm's total economic profit at the profit-maximizing quantity of output?

- (A) \$10
(B) \$21
(C) \$23
(D) \$25
(E) \$28

**Answer E**

Correct. In perfect competition, firms maximize profit by producing the last unit for which marginal revenue is greater than or equal to marginal cost. Producing 4 bushels is profit-maximizing because marginal revenue (equal to price in perfect competition), \$15, exceeds marginal cost of \$10 $\left(= \frac{\$32 - \$22}{4 - 3} \right)$. Producing fewer bushels would forgo potential profit, while producing more would push marginal cost above price and decrease profit. The farm's total economic profit at 4 bushels is \$28, calculated as total revenue minus total cost: $(15 \times \$4) - \$32 = \$28$.

Practice Test Questions Unit 3.4-3.7

99. Tronic is a typical profit-maximizing firm that produces and sells power cords in a constant-cost, perfectly competitive market that is in long-run equilibrium. The market equilibrium price of power cords is \$4.

Part A

Draw correctly labeled side-by-side graphs for the power cord market and for Tronic, and show each of the following.

- The market equilibrium price and quantity, labeled \$4 and Q_M , respectively
- Tronic's profit-maximizing price and quantity, labeled P_F and Q_F , respectively
- Tronic's average total cost curve consistent with long-run equilibrium, labeled ATC

Part B

The price of Good X, a complement in consumption to power cords, has increased. On your graphs in part A, show the impact of this change in the short run on each of the following.

- The new market equilibrium price and quantity of power cords, labeled P_2 and Q_2 , respectively
- Tronic's new profit-maximizing price and quantity, labeled P^* and Q^* , respectively
- The area representing Tronic's economic profit, shaded completely

Part C

Given the increase in the price of Good X, what will happen to the market equilibrium price and quantity of power cords as the market adjusts from the short-run equilibrium in part B to the long-run equilibrium? Explain.

Part D

Tronic uses the cost-minimizing combination of capital and labor in its production process. The marginal product of labor is 75 power cords, the wage rate is \$25, and the rental rate for capital is \$40. Calculate the marginal product of capital. Show your work.

Part E

Consumers can choose whether to use power cords or smart cables. A 10 percent decrease in the price of smart cables caused the quantity demanded of smart cables to increase by 12 percent and the quantity demanded of power cords to decrease by 8 percent. Calculate the cross-price elasticity of demand for power cords with respect to the price of smart cables. Show your work.

Part A Point 1

Select a point value to view scoring criteria or to score the response.



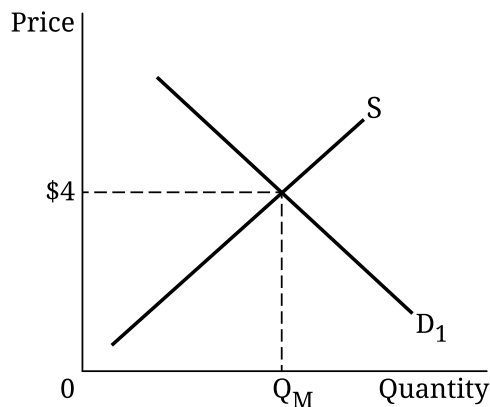
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The response meets the criteria for this point.

Criteria:

Practice Test Questions Unit 3.4-3.7

- Draw a correctly labeled graph of the market for power cords with a downward-sloping demand (D_1) curve and an upward-sloping supply (S) curve and label the market equilibrium price as \$4 and the market equilibrium quantity as Q_M .



Part A Point 2

Select a point value to view scoring criteria or to score the response.



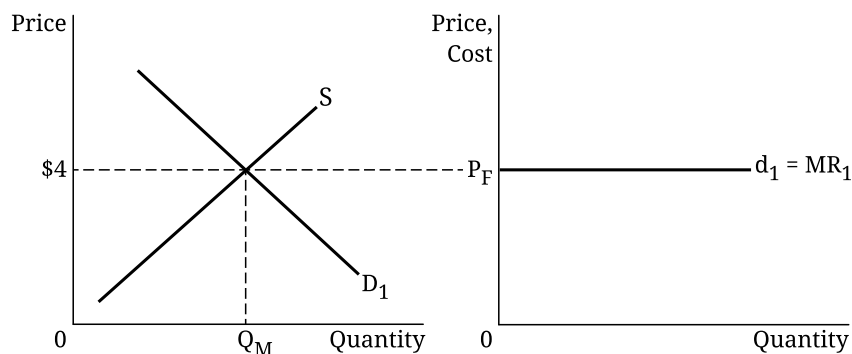
0

1

The response meets the criteria for this point.

Criteria:

- Draw a correctly labeled graph of Tronic that shows the firm's horizontal demand and marginal revenue ($d_1=MR_1$) curve extended from the market equilibrium price (\$4), and label the firm's price as P_F .



Part A Point 3

Select a point value to view scoring criteria or to score the response.



0

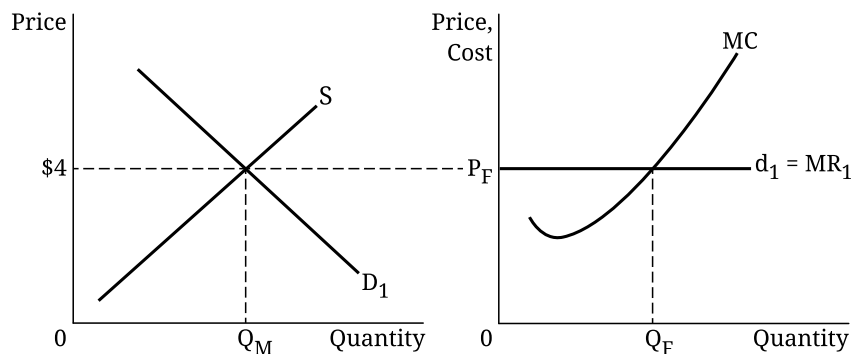
1

The response meets the criteria for this point.

Criteria:

Practice Test Questions Unit 3.4-3.7

- The firm's graph must show a rising marginal cost (MC) curve, and show the firm's profit-maximizing quantity, labeled Q_F , where $MR = MC$.



Part A Point 4

Select a point value to view scoring criteria or to score the response.



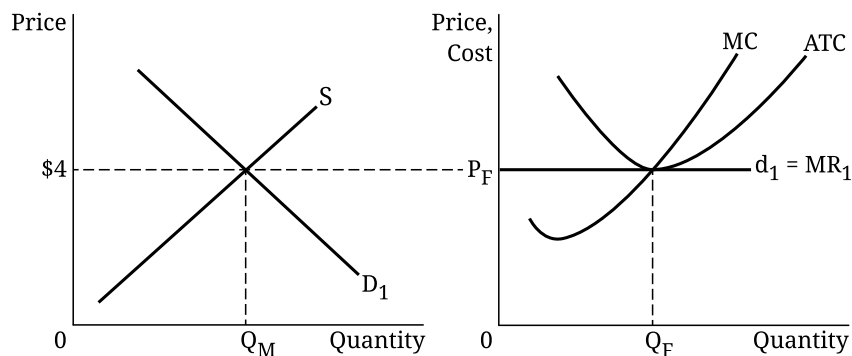
0

1

The response meets the criteria for this point.

Criteria:

- The firm's graph must show the average total cost (ATC) curve tangent to the firm's $d_1 = MR_1$ curve at Q_F , and show the MC curve passing through the minimum point of the ATC curve.



Part B (i)

Select a point value to view scoring criteria or to score the response.



0

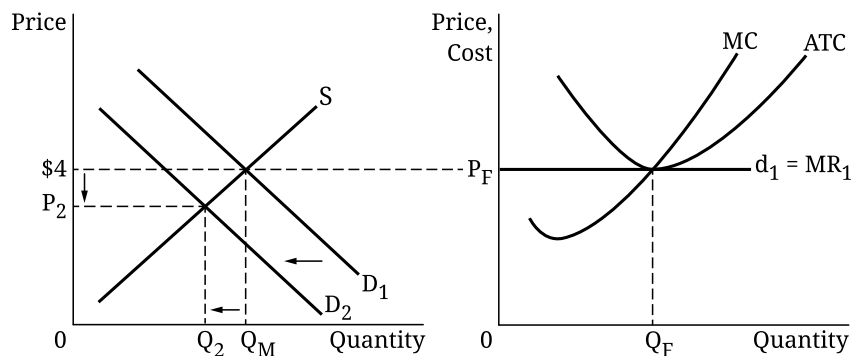
1

The response meets the criteria for this point.

Criteria:

- The market graph from part A must show a leftward shift of the market demand curve, and show the new market equilibrium price of power cords, labeled P_2 , and the new market equilibrium quantity of power cords, labeled Q_2 .

Practice Test Questions Unit 3.4-3.7

**Part B (ii)**

Select a point value to view scoring criteria or to score the response.



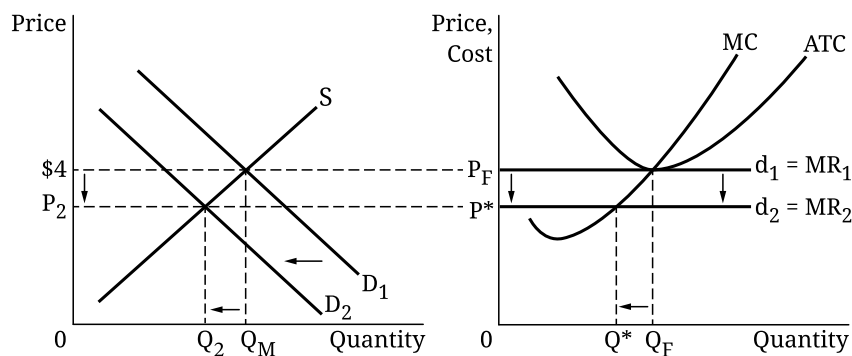
0

1

The response meets the criteria for this point.

Criteria:

- The firm's graph from part A must show a downward shift in the firm's demand and marginal revenue ($d_2=MR_2$) curve that is extended from the new market equilibrium price (P_2) and show the new profit-maximizing price, labeled P^* , and the new profit-maximizing quantity, labeled Q^* .

**Part B (iii)**

Select a point value to view scoring criteria or to score the response.



0

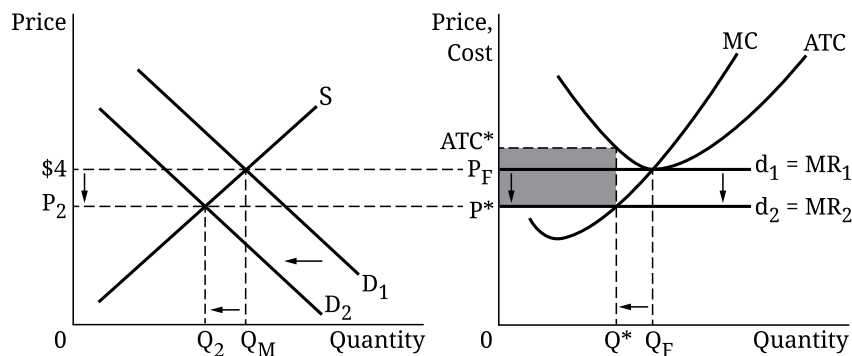
1

The response meets the criterion for this point.

Criterion:

- The firm's graph from part A must show the area representing Tronic's negative economic profit, shaded completely.

Practice Test Questions Unit 3.4-3.7

**Part C**

Select a point value to view scoring criteria or to score the response.



0	1
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The response meets the criteria for this point.

Criteria:

- State that the market equilibrium price of power cords will increase and the market equilibrium quantity of power cords will decrease and explain that negative economic profits will cause firms to exit the market, decreasing the market supply of power cords in the long run.

Part D

Select a point value to view scoring criteria or to score the response.



0	1
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The response meets the criteria for this point.

Criteria:

- Calculate the marginal product of capital as 120 power cords and show your work.

$$\frac{MP_{\text{Labor}}}{\text{Wage Rate}} = \frac{MP_{\text{Capital}}}{\text{Rental Rate}}$$

$$\frac{75 \text{ power cords}}{\$25} = \frac{MP_{\text{Capital}}}{\$40}$$

$$MP_{\text{Capital}} = 120 \text{ power cords}$$

Part E

Select a point value to view scoring criteria or to score the response.

Practice Test Questions Unit 3.4-3.7



0

1

The response meets the criteria for this point.

Criteria:

- Calculate the cross-price elasticity of demand as 0.8 and show your work.

$$\text{Cross-Price Elasticity of Demand} = \frac{\% \text{ Change in } Q_D \text{ of Power Cords}}{\% \text{ Change in Price of Smart Cables}} = \frac{-8\%}{-10\%} = 0.8$$