

## Quiz #4 – Week 04/05/2009 to 04/11/2009

You have 30 minutes to answer the following 15 multiple choice questions. Record your answers in the bubble sheet. Your grade in this quiz will count for 1% of your total grade in this course.

1. Perfect competition requires that

- a. producers be able to enter or exit an industry in the short run.
- b. producers be able to distinguish their product from a rival producer's product.
- c. producers have no ability to exert influence over the market price of the product.
- d. consumers compete for the producers' product.

2. Which of the following describes a perfectly competitive industry?

- a. Elementary school students are only allowed to attend the school in their attendance area.
- b. Water for household use is sold by the local water utility.
- c. The price of wine is determined by global supply and demand. A small share of the total world production of wine is produced in a local valley by ten companies.
- d. The price of oil is determined by global supply and demand. A total of five companies produce the world's supply of oil.

3. Marginal revenue is the addition to total

- a. revenue from producing one more unit of the good.
- b. cost from selling one more unit of the good.
- c. revenue from selling one more unit of the good.
- d. profit from producing and selling one more unit of the good.

4. Suppose Jerry calculates that if he produces one more box of pens his total cost will increase by \$15, but that he can sell this box of pens for \$14. Jerry will

- a. produce the pens and enhance his revenues.
- b. not produce the pens, since the revenue from the additional pens is less than the cost of producing the additional pens.
- c. produce the pens, but wait to sell them until the market price of pens increases.
- d. shut down his pen production, since his addition to revenue from pen production is less than his addition to cost from pen production.

5. Suppose a perfectly competitive firm in the short run sells its product for a price that is less than the minimum point on its *ATC* curve. Which of the following statements is true?

- a. The firm will shut down in the short run since it is not covering all of its costs.
- b. Some firms in this industry will exit the industry in the long run, and the exiting will continue until the market price increases and is equal to the break-even point on the *ATC* curve.
- c. The firm will shut down in the short run only if the price is greater than the shutdown price but less than the break-even price.
- d. Some firms in this industry will exit the industry in the long run, and the exiting will continue until the market price increases and is equal to the shut-down price on the *ATC* curve.

6. Suppose a perfectly competitive industry with constant costs is initially in long-run equilibrium. Demand for the product produced in this industry increases due to a change in tastes and preferences. In the long run this will result in

- a. the industry output of this good increasing, the price staying constant due to the entry of new firms into the industry, and each firm in the industry earning positive economic profits.
- b. the industry output of this good increasing, the price staying constant due to the entry of new firms into the industry, and each firm in the industry earning negative economic profits.
- c. the industry output of this good increasing, the price staying constant due to the entry of new firms into the industry, and each firm in the industry earning zero economic profit.
- d. the industry output of this good increasing, the firm level of output increasing, the price increasing, and each firm in the industry earning zero economic profit.

**7.** Which of the following statements is true?

- I. The model of supply and demand is a model of a perfectly competitive market.
  - II. In the model of supply and demand, some producers may be able to affect the price of the good.
  - III. In the model of supply and demand, some consumers may be able to affect the price of the good.
- a. Statement I is true.
  - b. Statements II and III are true.
  - c. Statements I, II, and III are true.
  - d. None of these statements are true.

**8.** The optimal output rule for a perfectly competitive firm is to produce that quantity where

- a.  $MR = MC$  in the long run, but in the short run to produce that quantity where  $MC = ATC$ .
- b.  $MC = ATC$  in the short run.
- c.  $MR = MC$  no matter what the time period, provided that marginal revenue is greater than average variable cost.
- d.  $MR = MC$  no matter what the time period, provided that marginal revenue is greater than average total cost.

**9.** A firm calculates that the cost of producing its tenth unit of output is \$0.50, while the revenue from producing this tenth unit is \$0.55. This firm

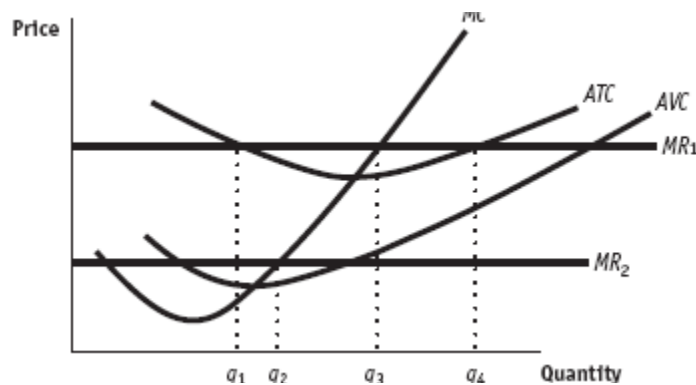
- a. should definitely produce the tenth unit.
- b. should definitely stop producing, since it knows it is profit maximizing and may risk reducing its profit if it produces any more units of the good.
- c. should definitely produce at least five more units if it hopes to profit maximize.
- d. cannot increase its production in the short run since its fixed inputs are constant.

**10.** Production is profitable in the short run whenever price is greater than

- a. average total cost.
- b. marginal cost.
- c. average variable cost.
- d. average fixed cost.

11. Which of the following statements about a perfectly competitive firm is true?

- I. A firm profit maximizes by producing that output where  $MR = MC$ .
  - II. A firm will produce in the short run provided that the price of the good exceeds its average variable cost.
  - III. A firm in the long run can make positive economic profits.
- a. Statement I is true.
  - b. Statements I and II are true.
  - c. Statements I and III are true.
  - d. Statements I, II, and III are true.



12. Use the above graph of a perfectly competitive firm in the short run to answer this question. If the firm's marginal revenue is  $MR_2$ , then this firm profit maximizes by producing units of output, and its economic profit will be .

- a.  $q_1$ ; negative
- b.  $q_2$ ; negative
- c.  $q_3$ ; zero
- d.  $q_4$ ; negative

13. In the short run, the individual supply curve for a perfectly competitive firm is that firm's

- a.  $MC$  curve at or above the shut-down price.
- b.  $ATC$  curve above the  $MC$  curve.
- c.  $ATC$  curve below the  $MC$  curve.
- d.  $MR$  curve at or above the shut-down price.

## ANSWER KEY TO QUIZ #4

1. **Answer c.** Perfect competition does not require free entry and exit, but it is often present in the long run in a perfectly competitive industry. The output produced in a perfectly competitive industry is a standardized commodity: consumers cannot distinguish one producer's output from another producer's output. Consumers are price taking, and the market price equates the quantity demanded at that price with the quantity supplied at that price. Perfectly competitive industries are characterized by producers being price takers.
2. **Answer c.** Only answer (c) provides a description of price-taking behavior on both the producer and the consumer side of the model.
3. **Answer c.** This is a simple definition of marginal revenue, which focuses on measuring the benefit from selling one more unit of the good
4. **Answer b.** Jerry is trying to determine the profit-maximizing level of output for his firm. To select this output level he will want to equate marginal revenue to marginal cost. Since the marginal revenue of producing an additional box of pens is less than the marginal cost of producing this box of pens, Jerry knows that this would represent too high a level of production. To determine whether Jerry should shut down his production, we need information about his average costs of production.
5. **Answer b.** In the short run, if the price is less than average total cost, then firms in this perfectly competitive industry earn negative economic profit. These negative economic profits will lead some firms to exit the industry in the long run until the firms remaining in the industry earn zero economic profits. This implies that price will equal the minimum point of the ATC curve or the break-even price. The shut-down price is not on the ATC curve, as given in answer (d), but is instead on the AVC curve.
6. **Answer c.** In the long run, this industry will experience the entry of new firms because the increase in tastes and preferences for this good will cause the short-run price of the good to increase, resulting in the existing firms earning positive economic profit. But these profits will act as a signal to potential firms to enter, and this entry will shift the market supply curve to the right, causing the price to fall back to its initial level. Firms in the long run will produce the same level of output as they did initially, but there will be more firms in the industry, which will lead to an increase in the industry level of output. Firms in the long run will earn zero economic profit.
7. **Answer a.** A basic underlying assumption of the model of supply and demand is that neither consumers nor producers can affect the price of the good. Producers and consumers are price takers, which eliminates statements II and III.
8. **Answer c.** The profit-maximizing firm, if it produces, always produces that quantity where  $MR = MC$ . The profit-maximizing firm produces in the short run, provided that the market price is equal to or greater than the

firm's average variable cost. The firm makes a positive economic profit if the market price is greater than average total cost, and it earns a negative economic profit if the market price is less than average total cost.

9. **Answer a.** Since the firm's marginal cost of producing the tenth unit of output is less than the marginal revenue from selling the tenth unit of output, the firm should definitely produce this tenth unit. The firm is able to increase its production in the short run, despite fixed inputs, because it can use more of the variable input. Without more information we cannot know with certainty that the firm should produce five more units of output. We do know the firm will profit maximize by producing that level of output where  $MR = MC$  for the last unit produced.

10. **Answer a.** The firm makes positive economic profit whenever the market price is greater than the firm's average total cost, and it makes negative economic profit whenever the market price is less than the firm's average total cost.

11. **Answer b.** Perfectly competitive firms produce that level of output where, for the last unit produced, the addition to total revenue (the marginal revenue) just equals the addition to total cost (the marginal cost). Perfectly competitive firms do not produce in the short run if the market price is less than the shut-down price, or the minimum point of the AVC curve. In the long run, a perfectly competitive firm will earn zero economic profit due to the entry of firms in the event of positive short-run economic profit or the exit of firms in the event of negative short-run economic profit.

12. **Answer b.** The perfectly competitive firm sets marginal revenue equal to marginal cost and produces that quantity of output ( $q_2$ ). When the firm produces  $q_2$  units of output, the market price is less than the average total cost of production for this level of output, and the firm will earn negative economic profit.

13. **Answer a.** The firm decides how much to supply by equating the market price to its MC curve, since the market price is the firm's MR curve. The firm produces in the short run provided that the market price is equal to or greater than its shut-down price, or its AVC. Thus, the firm's short-run supply curve is its MC curve at or above the point of intersection with its AVC curve.