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| Regulation & Antitrust Policy (Econ 180) | Signature: |  |
| Drake University, Spring 2011William M. Boal | Printed name: |  |

**QUIZ #2 VERSION B**

**"Competitive Firms"**

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Mobile phones or other wireless devices are NOT permitted. Points will be subtracted for illegible writing or incorrect rounding. Point values for each question are noted in brackets.

**I. Multiple choice:**  Circle the one best answer to each question. [4 pts each: 36 pts total]

(1) To maximize profit, a firm should choose an output level where

1. average cost is smallest.
2. average cost equals marginal revenue.
3. marginal cost equals marginal revenue.
4. average cost equals average revenue.
5. total revenue is largest.
6. total cost is smallest.
7. marginal revenue is largest.
8. marginal cost is smallest.

(2) If at a certain level of output, marginal cost is *greater* than average cost, then average cost must be

1. increasing.
2. decreasing.
3. at its minimum point.
4. Cannot be determined from information given.

(3) Consider the graph below of a ABC Company’s marginal cost (MC) and marginal revenue (MR) curves. Suppose ABC Company is currently producing 200 units of output for some reason. It can increase its profit by

1. increasing its output.
2. decreasing its output.
3. increasing or decreasing its output.
4. It cannot increase its profit by changing its output.



(4) If a firm takes the market price as given, its *total revenue* curve is

1. a downward-sloping line.
2. a horizontal line.
3. an upward-sloping line through the origin.
4. a U-shaped curve.

(5) XYZ Company is a small firm in a big market and therefore takes the market price as given. Its marginal cost (MC) and average cost (AC) curves are shown below. Suppose the market price is $15. To maximize profit, XYZ Company should set its output at

1. 30 units.
2. 40 units.
3. 50 units.
4. 60 units.
5. 70 units.
6. Cannot be determined from information given.



(6) In the short run, which kind of cost does *not* depend on the level of output?

1. Marginal cost
2. Total cost.
3. Fixed cost.
4. Variable cost.

(7) A cost that you cannot avoid no matter what action you take is called

1. an opportunity cost.
2. a sunk cost.
3. a marginal cost.
4. a variable cost.
5. an average cost.
6. a total cost.

(8) In the *short run*, a firm should shut down when its total revenue falls below its

1. total cost.
2. accounting cost.
3. fixed cost.
4. variable cost.

(9) If producers take price as given and maximize profit, and markets are in short-run equilibrium, then the market price must be equal to

1. short-run marginal cost.
2. short-run average total cost.
3. short-run average variable cost.
4. short-run average fixed cost.

**II. Problems:** Insert your answer to each question below in the box provided. Use the margins for scratch work⎯only the answers in the boxes will be graded. Work carefully⎯partial credit is not normally given for questions in this section.

(1) [Short-run cost: 28 pts] Acme Manufacturing Company operates a small plant whose daily cost is $600 whether the plant is idle or running. In addition, the company has labor, energy, and materials costs that depend on the amount of output, as shown in the schedule below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Units of output per day | Cost of labor, energy, and materials | SAVC | SAFC | SATC | SMC |
| 0 | $ 0 |  |  |  |  |
|  |  |  |  |  | $ |
| 50 | $200 | $ | $ | $ |  |
|  |  |  |  |  | $ |
| 100 | $300 | $ | $ | $ |  |
|  |  |  |  |  | $ |
| 150 | $450 | $ | $ | $ |  |
|  |  |  |  |  | $ |
| 200 | $800 | $ | $ | $ |  |

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| a. Compute the company’s short-run average variable cost schedule (SAVC). Insert your answers above. |  |
| b. Compute the company’s short-run average fixed cost schedule (SAFC). Insert your answers above. |  |
| c. Compute the company’s short-run average total cost schedule (SATC). Insert your answers above. |  |
| d. Compute the company’s short-run marginal cost schedule (SMC). Insert your answers above. |  |
| e. What is Acme's shutdown price? | $ |
| f. What is Acme's breakeven price? | $ |
| g. If the price of Acme's output is **$ 5**, how many units of output should it produce to maximize profit: 0 units, 50 units, 100 units, 150 units, or 200 units? | units |

(2) [Short-run cost curves and supply: 30 pts] Acme Doorknob Company makes doorknobs. It is a small firm in a big market, and therefore takes its output price as given. In the short run, Acme faces daily cost curves as shown in the following diagram. Here, SMC denotes short-run marginal cost, SAVC denotes short-run average variable cost, and SATC denotes short-run average total cost.

|  |  |
| --- | --- |
| a. Suppose Acme were currently producing 900 doorknobs for some unknown reason. If Acme produced one more doorknob, by how much would its total cost increase? That is, what would be the *change in cost* as Acme increased output from 900 to 901 doorknobs? (Give an answer to the nearest dollar.) | $ |
| b. Suppose Acme were currently producing 500 doorknobs for some unknown reason. Compute Acme's short-run total cost. (Give an answer to the nearest hundred dollars.) | $ |
| c. What is Acme's break-even price⎯that is, the lowest price at which the company can avoid losses? (Give an answer to the nearest dollar.) | $ |
| d. What is Acme's shut-down price⎯that is, the lowest price at which it will remain in operation in the short run? (Give an answer to the nearest dollar.) | $ |
| e. Suppose the price of doorknobs is $16. How many doorknobs should Acme produce to maximize profit? (Give an answer to the nearest hundred.) | doorknobs |
| f. Will Acme make a *profit* or a *loss* at a price of $16? |  |
| g. Suppose the price of doorknobs is $8 How many doorknobs should Acme produce to maximize profit? (Give an answer to the nearest hundred.) | doorknobs |
| h. Will Acme make a *profit* or a *loss* at a price of $8? |  |
| i. Suppose the price of doorknobs is $3 How many doorknobs should Acme produce to maximize profit? (Give an answer to the nearest hundred.) | doorknobs |
| j. Will Acme make a *profit* or a *loss* at a price of $3? |  |

**III. Challenge question** [6 points]

Using the graph in problem (2) above, compute Acme Doorknob Company's short-run fixed cost (SFC). Show your work and explain your reasoning. Please circle your final answer.

[end of quiz]