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

**QUIZ #10 VERSION B**

**"Introduction to Regulation"**

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. [2 pts each: 20 pts total]

(1) Social deadweight loss is minimized when price is set equal to

1. average variable cost.
2. average total cost.
3. marginal cost.
4. average fixed cost.

(2) If there is no way to produce a target level of output more cheaply by two firms than by one firm, then *by definition* we have

1. subadditive costs.
2. oligopoly.
3. falling marginal cost.
4. falling total cost.
5. economies of scale.

(3) The principle that regulated firms are entitled to a "fair return" was established by the Supreme Court in the case of

1. Nebbia v. New York.
2. Smyth v. Ames.
3. Munn v. Illinois.
4. Standard Oil v. United States.

(4) The largest wave of new federal regulation in the United States occurred in the

1. 1920s.
2. 1930s.
3. 1940s.
4. 1950s.
5. 1960s.

(5) Suppose regulators must choose between regulatory outcomes X and Y. If they choose X, one million people will gain $1 each. If they choose Y, one thousand people will gain $1000 each. According to economic theories of regulation, free-rider problems in political organization lead to the prediction that

1. regulators will choose outcome X.
2. regulators will choose outcome Y.
3. either outcome is equally likely because the total gains are equal.
4. Cannot be determined from information given.

The next three questions refer to the following graph, which relates the economic profit of a regulated firm to the price of its output. Assume that MC=AC=$10 for this firm.

$10 $20 $30 Price

Profit

(6) For the graph above, the Stigler-Peltzman theory of regulation predicts that regulators will set price

1. between zero and $10.
2. at $10 exactly.
3. between $10 and $20.
4. at $20 exactly.
5. between $20 and $30.
6. at $30 exactly.
7. above $30.

(7) For the graph above, the “normative analysis as positive theory” of regulation predicts that regulators will set price

1. between zero and $10.
2. at $10 exactly.
3. between $10 and $20.
4. at $20 exactly.
5. between $20 and $30.
6. at $30 exactly.
7. above $30.

(8) For the graph above, the “capture theory” of regulation predicts that regulators will set price

1. between zero and $10.
2. at $10 exactly.
3. between $10 and $20.
4. at $20 exactly.
5. between $20 and $30.
6. at $30 exactly.
7. above $30.

(9) Oligopolistic industries are less likely to be regulated than monopolies or oligopolies according to the

1. Becker theory of regulation.
2. “capture theory” of regulation.
3. “normative analysis as positive theory” of regulation (also called the "public interest" theory of regulation).
4. Stigler-Peltzman theory of regulation.

(10) Regulation typically causes some deadweight loss, but is not likely to cause massive deadweight loss according to the

1. Becker theory of regulation.
2. “capture theory” of regulation.
3. “normative analysis as positive theory” of regulation (also called the "public interest" theory of regulation).
4. Stigler-Peltzman theory of regulation.

**II. Problems:** Insert your answer to each question below in the box provided. Use margins and graphs 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) [Theories of regulation: 6 pts] In each box, insert one of the following answers.

* “normative analysis as positive theory” (NAPT) (also called the "public interest" theory).
* capture theory.
* Stigler-Peltzman theory.
* Becker theory.

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| a. Regulation is an outcome of pressures applied by competing interest groups according to the... |  |
| b. Regulation is supplied by legislators and demanded by private groups according to the... |  |
| c. Regulation maximizes social welfare according to the... |  |

(2) [Pricing with economies of scale: 30 pts] The following graph shows average cost, marginal cost, and demand for a firm subject to price regulation.

First, suppose the regulator uses marginal-cost pricing.

|  |  |
| --- | --- |
| a. What price would be set? | $ |
| b. Does the firm experience economic profit, loss, or neither? |  |
| c. How much? | $ million |
| d. Compute the social deadweight loss from this policy. | $ million |

Second, suppose the regulator uses average-cost pricing.

|  |  |
| --- | --- |
| e. What price would be set? | $ |
| f. Does the firm experience economic profit, loss, or neither? |  |
| g. How much? | $ million |
| h. Compute the social deadweight loss from this policy. | $ million |

Third, suppose the regulator uses a two-part tariff to maximize social welfare (efficiency) while permitting the firm to break even.

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| i. What per-unit price would be set? | $ |
| j. What per-customer fixed charge (or "entry fee") would be set? Assume the firm has **2** million customers with identical individual demands. | $ |

(3) [Multipart tariffs: 39 pts] Suppose a regulated firm has a marginal cost (= average variable cost) of **$ 3**. In addition to the marginal cost shown in the graph below, the firm has "fixed" or overhead costs of **$ 140** million per month. The firm serves both big customers and customers. Their representative monthly demand curves are also shown in the graph.

Consider two alternative tariffs:

(i) Two-part tariff consisting of an entry fee (or monthly charge) of **$ 70** and a per-unit usage charge of **$ 4** per unit.

(ii) Declining-block tariff. Each customer must pay **$ 5** per unit for the first **30** units purchased, and **$ 3** per unit thereafter.

Assume there are **two million big customers and one million small customers.** Compute the following.

|  |  |  |
| --- | --- | --- |
|  | (i) Two-part tariff | (ii) Declining-block tariff |
| a. How much would a typical big customer buy? | units | units |
| b. How much would a typical small customer buy? | units | units |
| c. Compute the firm's total revenue. | $ million | $ million |
| d. Compute the firm's total cost (including the "fixed" cost). | $ million | $ million |
| e. Does the firm make a *profit*, a *loss*, or just *break even*? |  |  |
| f. Compute the deadweight loss from this pricing policy. | $ million | $ million |

g. Which of these tariffs do you favor? Why?

**III. Challenge question:** Write a one-paragraph essay answering the following question. [5 pts]

Suppose a regulated firm that produces three products must set prices above marginal cost in order to recover "fixed" or overhead costs. Assume that multipart tariffs and declining blocks are not feasible. Also assume the firm's three products have zero cross-price elasticities of demand. The following table shows marginal costs, price elasticities of demand, and prices proposed by the firm. The firm claims that these proposed prices are "Ramsey prices." Do you agree? Why or why not?

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| --- | --- | --- | --- |
|  | Marginal cost | Price elasticity of demand | Proposed price |
| Product A | $3 | -1.0 | $6 |
| Product B | $10 | -3.0 | $12 |
| Product C | $12 | -2.0 | $15 |

[end of quiz]