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

**QUIZ #3 VERSION B**

**"Welfare Analysis"**

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: 24 pts total]

(1) Aaron is willing to pay $700 for an iPhone, but fortunately the price is only $300. If he buys an iPhone, his consumer surplus is

1. zero.
2. $300.
3. $400.
4. $700.
5. $1000.

(2) Suppose consumers now buy 10 million gallons of ice cream at a price of $2 per gallon. If the price of ice cream rises to $3 per gallon, and nothing else affecting demand changes, the harm to consumers is

1. exactly $10 million.
2. less than $10 million.
3. more than $10 million.

(3) Suppose a change in the economy increases the welfare of government employees by $5 billion and decreases no one's welfare. Such a change would be called a

1. Pareto improvement.
2. a potential Pareto improvement, or an economically efficient change.
3. both of the above.
4. none of the above.

(4) To pass the compensation test of Kaldor and Hicks, a change in the economy must result in

1. cost savings for the government.
2. a rise in wages, salaries, and other compensation.
3. winners but no losers.
4. gains to winners that exceed any losses to losers.
5. at least some winners.

(5) Which of the following government controls on a competitive market cause the quantity traded to *decrease?*

1. price floor (legal minimum price).
2. price ceiling (legal maximum price).
3. quota on sellers.
4. all of the above.
5. none of the above.

(6) Which of the following government controls on a competitive market cause a *increase* in social welfare?

1. price floor (legal minimum price).
2. price ceiling (legal maximum price).
3. quota on sellers.
4. all of the above.
5. none of the above.

**II. Problems:** Insert your answer to each question below in the box provided. Use the 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) [Welfare effects of shifts in curves: 20 pts] The following graph shows the market for flash drives. Initially the supply curve was at the position shown as “Old Supply.” Then government regulations raised the cost of producing flash drives and the supply curve shifted to “New Supply.”

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| a. Did consumer surplus *increase,* *decrease*, or *remain constant* as a result of the shift in supply? |  |
| b. Compute the change in consumer surplus. | $ thousand |
| c. Did producer surplus *increase,* *decrease*, or *remain constant* as a result of the shift in supply? |  |
| d. Compute the change in producer surplus. | $ thousand |
| e. Who was harmed more by the government regulations—consumers or producers? |  |

(2) [Welfare effects of price controls: 27 pts] The following graph shows the market for flipflops. Suppose the government decides the price of flipflops is too high, and it imposes a price ceiling (or maximum legal price) of **$ 4**.

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| a. Does the price ceiling create *excess demand*, *excess supply*, or *neither*? |  |
| b. How much (give a number)? |  |
| c. Give the quantity actually traded with the price ceiling. |  |
| d. Does producer surplus *increase, decrease,* or remain *constant* as a result of the price ceiling? |  |
| e. Compute the change in producer surplus caused by the price ceiling. | $ |
| f. Does consumer surplus *increase, decrease,* or remain *constant* as a result of the price ceiling? (Assume optimistically that flipflops are purchased only by those consumers who value flipflops the most.) |  |
| g. Compute the change in consumer surplus caused by the price ceiling. | $ |
| h. Does social welfare *increase, decrease,* or remain *constant* as a result of the price ceiling? |  |
| i. Compute the deadweight social loss caused by the price ceiling. | $ |

(3) [Welfare effects of quotas: 24 pts] The following graph shows the market for a particular chemical. The government has decided to restrict use of the chemical due to environmental concerns. The government will impose a quota on sellers: only **4** million units of the chemical may be sold. Assume that permits to sell **4** million units will be given only to the lowest-cost sellers (on the low end of the supply curve).

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| a. What was the market price of the chemical before the quota is imposed? | $ |
| b. What is the market price of the chemical after the quota is imposed on sellers? | $ |
| c. Does consumer surplus *increase, decrease,* or remain *constant* as a result of the quota? |  |
| d. Compute the change in consumer surplus caused by the quota. | $ million |
| e. Does producer surplus *increase, decrease,* or remain *constant* as a result of the quota? (Assume that permits to sell 4 million units will be given only to the lowest-cost sellers.) |  |
| f. Compute the change in producer surplus caused by the quota. | $ million |
| g. Does social welfare *increase, decrease,* or remain *constant* as a result of the quota? (Ignore any environmental effects of the chemical.) |  |
| h. Compute the deadweight social loss caused by the quota. | $ million |

**III. Challenge question** [5 points]

To answer problem (3) above, you assumed that permits to sell 4 million units were given only to the *lowest-cost* producers (on the low end of the supply curve). Thus after the quota was imposed, the marginal cost of production ranged from $2 to $4, with an average of $3.

Assume instead that the 4 million permits were distributed randomly among *all* existing producers in proportion to their output before the quota was imposed. Thus the marginal cost of production would range from $2 to $6, with an average of $4. Recompute the change in producer surplus and the deadweight loss caused by the quota under the assumption of random distribution. Show your work and circle your final answer.

[end of quiz]