

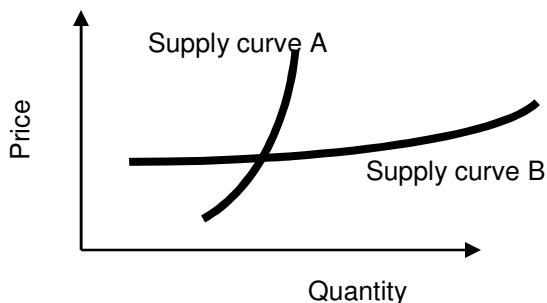
EXAMINATION #2 VERSION C
"Applications of Supply and Demand"
March 5, 2012

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Cell phones or other wireless devices are NOT permitted. Point values for each question are noted in brackets. Points will be subtracted for illegible writing or incorrect rounding. Maximum total points are 100.

I. Multiple choice: Circle the one best answer to each question. [1 pt each, 13 pts total]

- (1) Texas has about eight times as many people as Iowa. Therefore the price elasticity of demand for food in Texas should be about
- a. about the same as the elasticity of demand in Iowa.
 - b. eight times the elasticity of demand in Iowa.
 - c. one-eighth the elasticity of demand in Iowa.
 - d. Cannot be determined from information given.

- (2) Which supply curve below is *more* elastic?
- a. Supply curve A.
 - b. Supply curve B.
 - c. Both have the same elasticity because they pass through the same point.
 - d. Cannot be determined from the information given.



- (3) It takes time for consumers to adjust their electricity usage to changes in prices. Therefore, the long-run demand for electricity is
- a. less elastic than the short-run demand.
 - b. just as elastic as the short-run demand.
 - c. more elastic than the short-run demand.
 - d. Elasticity of demand is not related to time for adjustment.

- (4) Suppose initially that in some city, the only way to obtain fast internet access is to purchase a DSL line from the telephone company. Then suppose the cable TV company begins offering internet access. This change will make the demand for DSL lines
- a. less elastic with respect to price.
 - b. perfectly inelastic with respect to price.
 - c. more elastic with respect to price.
 - d. Availability of substitutes does not affect elasticity.

- (5) Assuming that hybrid-engine cars and gasoline are substitutes, then the cross-price elasticity of demand for hybrid cars with respect to the price of gasoline must be
- a. positive
 - b. negative.
 - c. zero.
 - d. cannot be determined from information given.

- (6) Some estimates show that rich people spend a *greater fraction* of their income on new automobiles than poor people do. If this is true, then the income elasticity of demand for new automobiles must be
- a. negative.
 - b. exactly zero.
 - c. between zero and one.
 - d. exactly one.
 - e. greater than one.

(7) The price of peanuts is higher in the United States than in Africa. If the United States ends its restrictions on international trade in peanuts, this change will benefit

- African peanut producers and U.S. peanut consumers.
- U.S. peanut producers and African peanut consumers.
- U.S. peanut producers and U.S. peanut consumers.
- African peanut producers and African peanut consumers.

(8) Suppose the price of apples in Des Moines is \$1.50 per pound and the cost of shipping apples between Des Moines and Milwaukee is \$0.40 per pound. Markets are *out of equilibrium* if the price of apples in Milwaukee is

- \$1.00 per pound.
- \$1.40 per pound.
- \$1.50 per pound.
- \$1.80 per pound.

(9) Suppose the supply of silver is plentiful today but is expected to be very scarce in the future. Speculation through buying and holding inventories will tend to

- raise the price of silver today and lower it in the future.
- lower the price of silver today and raise it in the future.
- raise the price of silver today and in the future.
- lower the price of silver today and in the future.
- have no effect on prices because speculators want a price difference to make money.

(10) Suppose the futures price of wheat for delivery next June is \$40, but you believe that the spot price will be \$60 next June. If you are correct, you can make money by

- selling wheat futures now and selling wheat on the spot market in June.
- buying wheat futures now and selling wheat on the spot market in June.
- selling wheat futures now and buying wheat on the spot market in June.
- buying wheat futures now and buying wheat on the spot market in June.

(11) Suppose the price of a share of stock in ABC Corporation today is \$20. Assume that speculators are already active in the stock market, but that the market is in equilibrium. Then speculators must believe that the price of a share of stock in ABC Corporation tomorrow will be

- about \$20.
- greater than \$20.
- less than \$20.
- cannot be determined from information given.

(12) A quota on *buying* fireworks would cause the price of fireworks to

- remain constant.
- rise.
- fall.
- rise or fall, depending on the shapes of the demand and supply curves.

(13) Suppose the price elasticity of demand for hearing aids is -1.0 and the price elasticity of supply is 5.0. If the government offers a subsidy for hearing aids,

- Sellers and buyers each enjoy half of the benefit.
- Sellers will enjoy most of the benefit.
- Buyers will enjoy most of the benefit.
- Answer depends on which side is legally designated to receive the subsidy check from the government.

II. Problems: Insert your answer to each question 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) [Calculating elasticities: 2 pts] Suppose that if the price of internet access is \$50 per month, then 5 out of every ten families get internet access. If the price is \$10 per month, then 7 out of every ten families get internet access. Compute the price elasticity of demand for internet access using the “arc-elasticity” formula.

(2) [Using price elasticities: 10 pts] Suppose the electric company *raises* its price by 5%. Suppose the price elasticity of demand for electricity is -1.2. Assume everything else affecting demand for electricity remains constant.

- a. According to the information above, is demand for electricity *elastic*, *inelastic*, or *unitary-elastic*?
- b. As the price rises, will the amount of electricity consumed *increase*, *decrease*, or remain *constant*?
- c. ... by approximately how much?
- d. Will the total revenue received by electric company *increase*, *decrease*, or remain *constant*?
- e. ... by approximately how much?

%
%

(3) [Using income elasticities: 10 pts] Suppose the income elasticity of demand for restaurant meals is 1.6. Now suppose income *rises* by 5%. Assume the price of restaurant meals does not change.

- a. According to the information above, are restaurant meals a *necessary good*, an *inferior good*, or a *luxury (or superior) good*?
- b. As income rises, will the quantity of restaurant meals demanded *increase*, *decrease*, or remain *constant*?
- c. ... by approximately how much?
- d. Will consumer spending on restaurant meals, as a fraction of a consumer's total budget, *increase*, *decrease*, or remain *constant*?
- e. ... by approximately how much?

%
%

(4) [Effects of international trade: 6 pts] Country A and Country B both have markets for corn. Supply and demand schedules for the two countries are given below in millions of bushels.

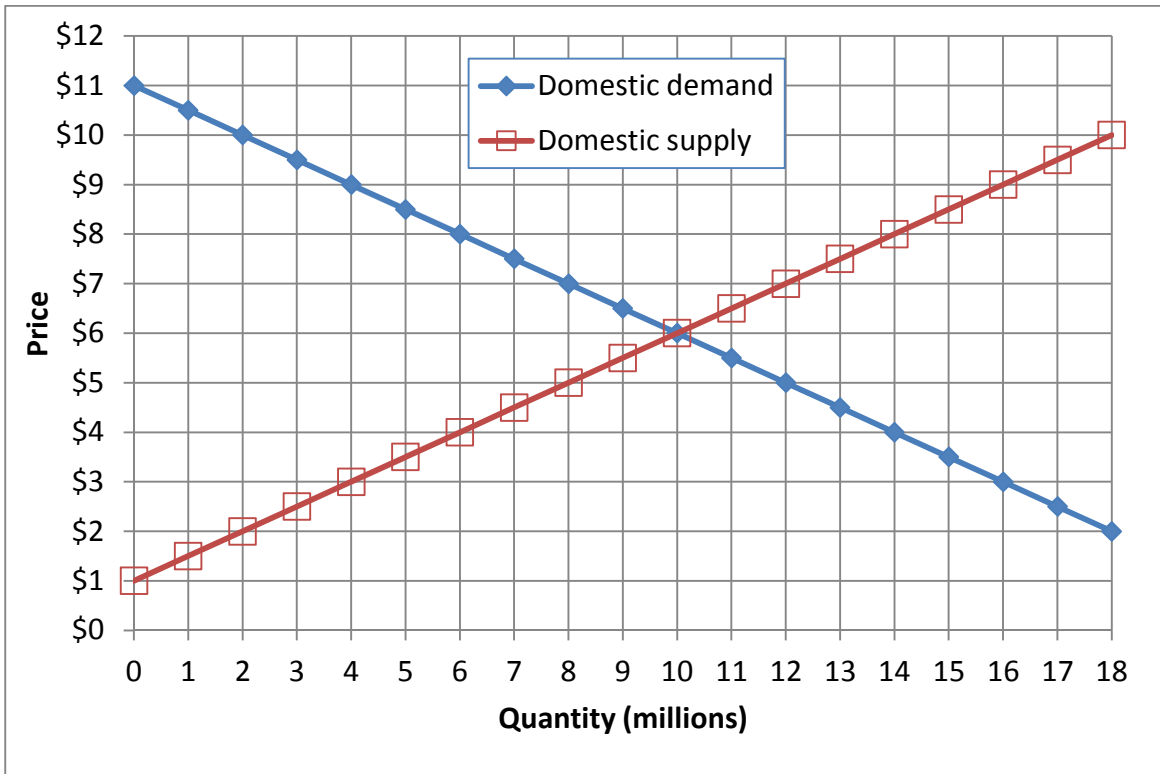
Price	Country A		Country B	
	Quantity demanded	Quantity supplied	Quantity demanded	Quantity supplied
\$1	24	0	17	5
\$2	22	1	16	10
\$3	20	2	15	15
\$4	18	3	14	20
\$5	16	4	13	25
\$6	14	5	12	30
\$7	12	6	11	35
\$8	10	7	10	40
\$9	8	8	9	45

Suppose Country A and Country B engage in international trade.

- a. Compute the equilibrium international price with trade.
- b. Which country exports corn?
- c. How much corn does that country export?

\$	per bushel
million bushels	

(5) [Welfare effects of international trade: 18 pts] Domestic supply and demand for sweatshirts in a particular country are given by the following diagram.



a. At first, international trade in sweatshirts is not permitted. Find the equilibrium price without international trade.

\$	
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Then this industry is opened to international trade and the international price of sweatshirts turns out to be \$9.

b. Will this country now *export* or *import* sweatshirts?

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c. How many?

million

d. Does consumer surplus in this country *increase or decrease* from international trade in sweatshirts?

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e. By how much?

\$	million
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f. Does producer surplus in this country *increase or decrease* from international trade in sweatshirts?

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g. By how much?

\$	million
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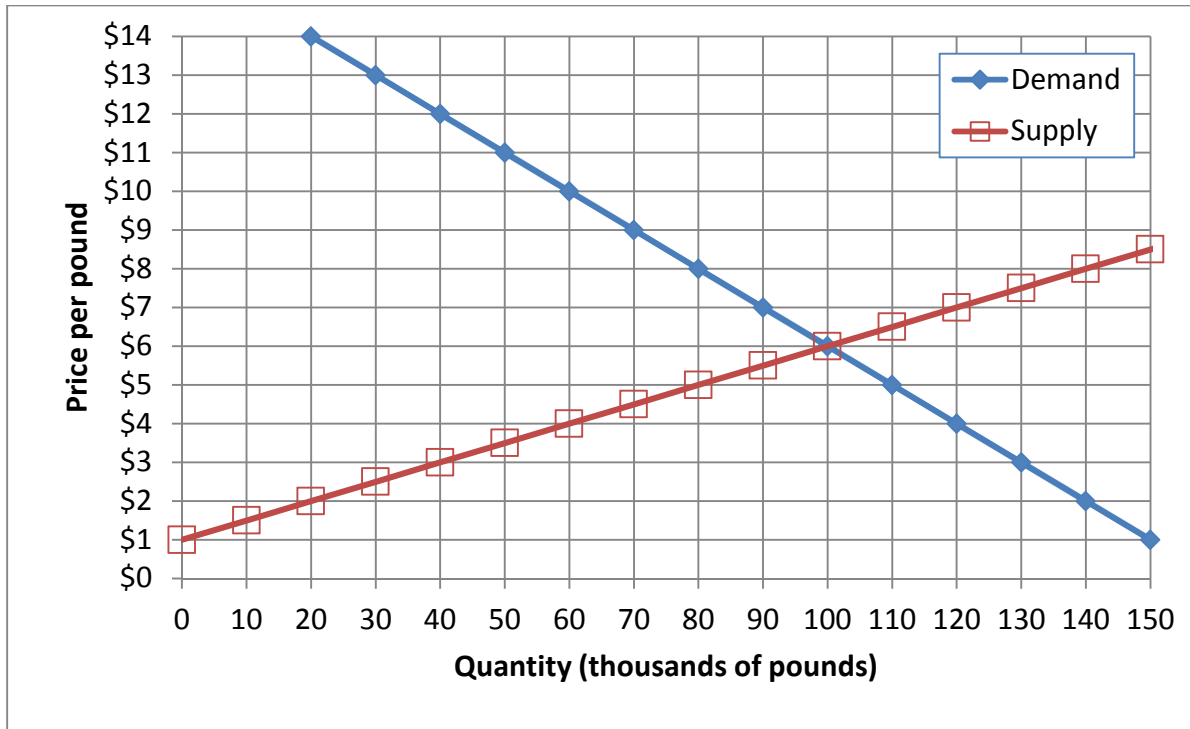
h. Does total social welfare in this country *increase or decrease* from international trade in sweatshirts?

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i. By how much?

\$	million
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(6) [Welfare effects of price controls or quotas: 18 pts] The following graph shows the market for arugula.



a. Find the equilibrium price without government intervention.

\$

Suppose the government imposes a quota on producers of **40** thousand pounds. No more than this amount of arugula may be sold.

b. What will be the new market price of arugula?

\$

c. Does producer surplus *increase, decrease, or remain constant* because of the price ceiling, as compared to the market without government intervention? (Assume optimistically that quota permits go to those producers whose cost of production is lowest.)

d. By how much?

\$	thousand
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e. Does consumer surplus *increase, decrease, or remain constant* because of the price ceiling, as compared to the market without government intervention?

f. By how much?

\$	thousand
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g. Compute the deadweight social loss caused by the price ceiling.

\$	thousand
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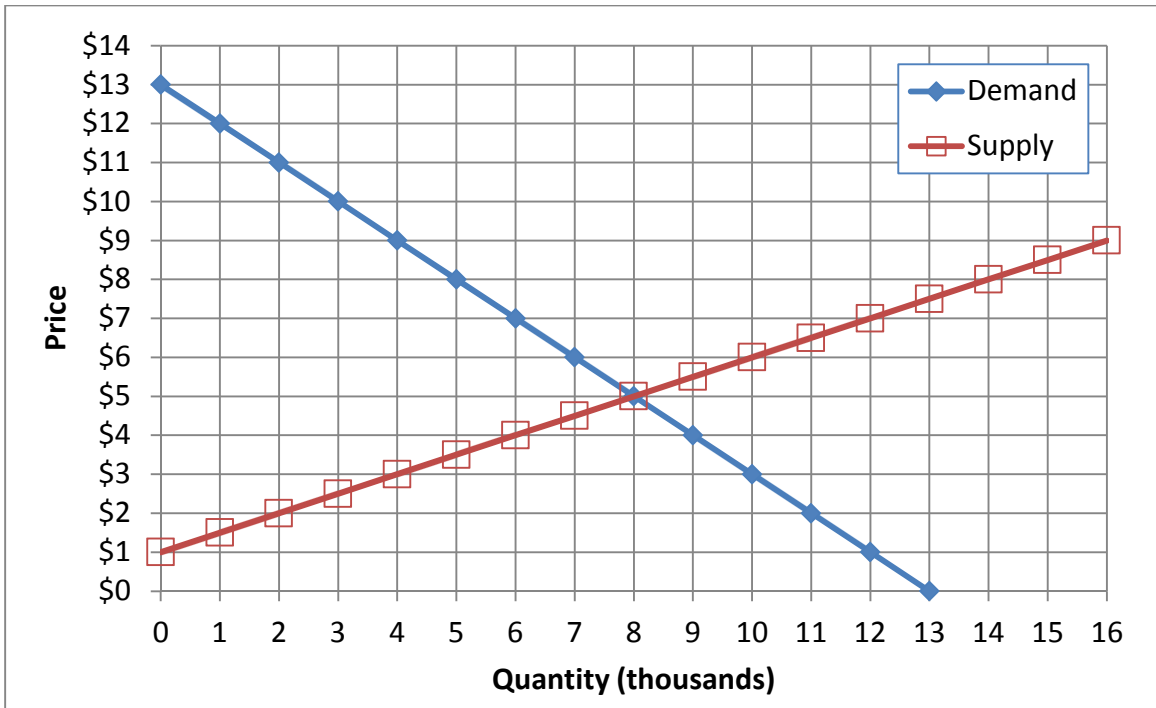
h. If the government sells the quota permits at auction to arugula producers, what will be the price of a *quota permit* to sell one pound of arugula?

\$

i. How much total revenue with the government receive from the auction of quota permits?

\$	thousand
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(7) [Welfare effects of taxes or subsidies: 20 pts] The following graph shows the market for frozen pizzas.



a. Find the equilibrium price without government intervention.

\$

Suppose the government offers a **subsidy of \$3** per frozen pizza.

- b. Compute the equilibrium quantity sold.
- c. Compute the equilibrium total price received by sellers (including the subsidy).
- d. Compute the equilibrium net price paid by buyers (excluding the subsidy).
- e. Does producer surplus *increase, decrease, or remain constant* because of the subsidy?
- f. By how much?
- g. Does consumer surplus *increase, decrease, or remain constant* because of the subsidy?
- h. By how much?
- i. Compute the direct cost of the subsidy program to the government. In other words, how much money should the government budget in total for subsidy payments?
- j. Compute the deadweight social loss caused by the subsidy.

	thousand
\$	per pizza
\$	per pizza
\$	thousand
\$	thousand
\$	thousand
\$	thousand

III. Critical thinking: Write a one-paragraph essay answering one question below (your choice). [3 pts]

- (1) Which product has *more* elastic supply, ordinary books by Ernest Hemingway (1899-1961), or autographed books by Ernest Hemingway? Why?
- (2) The price of petroleum is currently about \$100 per barrel. A blogger says the price of petroleum will rise in the next six months to \$500 per barrel. Do speculators agree? Explain your answer. Assume the market is in equilibrium.

Please circle the question you are answering. Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.

[end of exam]