EC 131.05 & EC 131.06

MIDTERM #1

Please put your name on any blue books you use. Clearly label the question and question subparts. Use as much space as you need and show *all* your work. Nothing here requires a very long answer. Graphs often help, as does neatness.

You have 75 minutes to complete this exam. Each question clearly states how many points it is worth. The exam is worth 88 points.

Questions 1-10 are worth a combined 30 points.
Question 11 is worth 12 points.
Question 12 is worth 16 points.
Question 13 is worth 30 points.

Use your time wisely.

For questions 1-10, circle the letter corresponding with your answer. No explanation is necessary.

1. (3 Points) Mike and Sandy are two woodworkers who both make tables and chairs. In one month, Mike can make 4 tables or 20 chairs, where Sandy can make 6 tables or 18 chairs. Given this, we know that the opportunity cost of 1 table is
    a.   1/5 chair for Mike and 1/3 chair for Sandy.
    b.   1/5 chair for Mike and 3 chairs for Sandy.
    c.   5 chairs for Mike and 1/3 chair for Sandy.
    d.   5 chairs for Mike and 3 chairs for Sandy.

2. (3 Points) By definition, imports are
    a.   people who work in foreign countries.
    b.   goods in which a country has an absolute advantage.
    c.   limits placed on the quantity of goods leaving a country.
    d.   goods produced abroad and sold domestically.

3. (3 Points) Assume that Aruba and Iceland can switch between producing coolers and producing radios at a constant rate.

	Labor Hours Needed to Make 1	
	Cooler	Radio
Aruba	2	5
Iceland	1	4

    Refer to Table above. Aruba has an absolute advantage in the production of
    a.   coolers and Iceland has an absolute advantage in the production of radios.
    b.   radios and Iceland has an absolute advantage in the production of coolers.
    c.   both goods and Iceland has an absolute advantage in the production of neither good.
   **d.   neither good and Iceland has an absolute advantage in the production of both goods.**

4. (3 Points) Assume that the farmer and the rancher can switch between producing meat and producing potatoes at a constant rate.

	Labor Hours Needed to Make 1 Pound of		Pounds Produced in 40 Hours	
	Meat	Potatoes	Meat	Potatoes
Farmer	10	2	4	20
Rancher	4	8	10	5

Refer to farmer rancher table above. Which of the following combinations of meat and potatoes could the rancher *not* produce in 40 hours?
a.   2.5 pounds of meat and 3.75 pounds of potatoes.
b.   5 pounds of meat and 2.5 pounds of potatoes.
c.   7.5 pounds of meat and 1.25 pounds of potatoes.
d.   10 pounds of meat and 0.5 pound of potatoes.

5. (3 Points) **Peru's Production Possibilities Frontier**
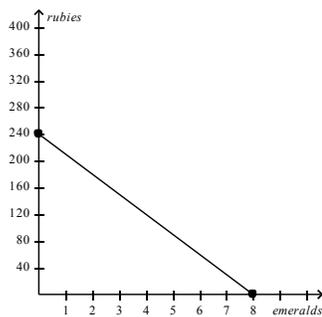
**Refer to PPF above.** Suppose Peru decides to increase its production of emeralds by 2. What is the opportunity cost of this decision?
a.   30 rubies
b.   40 rubies
c.   60 rubies
d.   120 rubies

6. (3 Points) A competitive market is a market in which
a.   an auctioneer helps set prices and arrange sales.
b.   there are only a few sellers.
c.   the forces of supply and demand do not apply.
d.   no individual buyer or seller has any significant impact on the market price.

7. (3 Points) A good will have a more inelastic demand,
a.   the greater the availability of close substitutes.
b.   the broader the definition of the market.
c.   the longer the period of time.
d.   the more it is regarded as a luxury.

8. (3 Points) Which of the following causes the price paid by buyers to be different than the price received by sellers?

     a.   a binding price floor
     b.   a binding price ceiling
     c.   **a tax on the good**
     d.   More than one of the above is correct.

9. (3 Points) Welfare Accounting
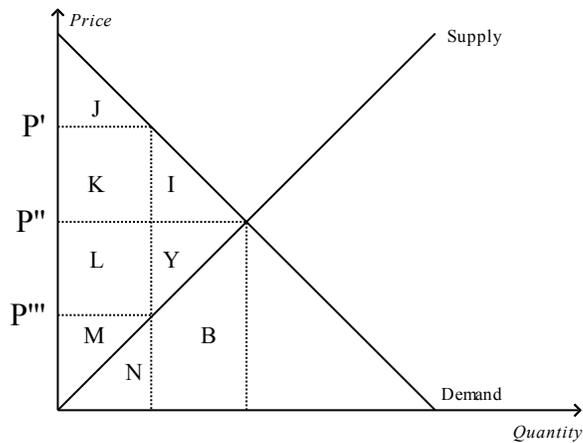
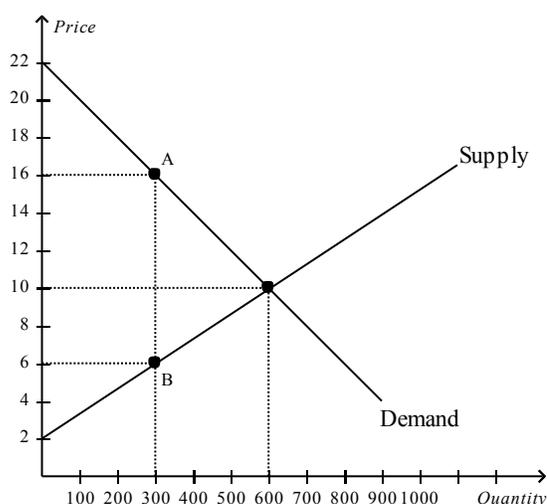**Refer to Supply and Demand graph above.**   Suppose the government imposes a tax of P' – P'''. The producer surplus before the tax is measured by the area

     a.   I+J+K.
     b.   I+Y.
     c.   **L+M+Y.**
     d.   M.

(OVER)

10. (3 Points) The vertical distance between points A and B represents a tax in the market.

Refer to Supply and Demand graph with tax above. When the tax is placed on this good, the quantity sold

a.   is 600, and buyers effectively pay $10.
b.   is 300, and buyers effectively pay $10.
c.   is 600, and buyers effectively pay $16.
d.   is 300, and buyers effectively pay $16.

11. (12 points) Suppose in a year an American worker can produce 100 shirts or 20 computers, while a Chinese worker can produce 100 shirts or 10 computers. There are 2 million workers in the US and 2 million workers in China.

a. Graph the production possibilities frontier for the US and a separate production possibilities frontier for China. Clearly label the axes and vertical and horizontal intercepts.

b. If the countries were to open to trade, which country would export shirts and which country would export computers? Explain.

Opportunity costs are:

China
Computer – 20
Shirts – 1/20

US
Computer – 10
Shirts – 1/10

Thus, China has comparative advantage on shirts and the US on computers. China will export shirts and the US will export computers.

c. Explain at what price of computers (in terms of shirts) the two countries might trade. There will be several correct answers here—you only need to provide one.

Any price between their opportunity costs for computers, that is, between 10 and 20 shirts.

12. (16 points) Consider the market for pencil sharpeners. Suppose the price of metal, an input into making pencil sharpeners, rises.
    a. How does this event affect the equilibrium price and equilibrium quantity for pencil sharpeners? A graph is required.

    Prices rise, Quantity reduces

    b. Using your answer from part (a), explain how this event affects the equilibrium price and equilibrium quantity for (non-mechanical) pencils. Here a graph and a *brief* explanation are required.

    Since pencils and sharpeners are complements, a rise in sharpeners price shifts the demand for pencils to the left. As a consequence, pencils prices and quantity are reduced.

    c. Now, suppose that the price of metal happens to increase right at the beginning of the school year. Explain why the occurrence of these two events would now make it difficult for you to determine what happens to the equilibrium price and equilibrium quantity in the market for (non-mechanical) pencils.

    An increase in the price of the metal shifts supply to the left. The beginning of the school year shifts the demand to the right. As a consequence the equilibrium quantity of sharpener rises, but the effect on the price is ambiguous.

    If as a result the price of sharpeners increase, the demand for pencils will shift to the left, lowering prices and quantity.

    If on the other hand the price of sharpeners decrease, the demand of pencils will shift to the right, increasing prices and quantity.

    That is, there's nothing that we can say with certainty about what happens to the pencils market.

(OVER)

13. (30 points) Suppose the demand and supply curves for jeans are:

$$Q_D = 150 - 10P \quad \text{and} \quad Q_S = 5P$$

where P is $/pair of jeans and Q_D and Q_S are in pairs of jeans per week.

    a. What is the equilibrium price for jeans, P*?

P*=10

b. What is the equilibrium quantity for jeans, Q*?

Q*=50

c. Calculate the total expenditure by consumers and total revenue to producers.

Total Expenditure = Total Revenue = $500

d. Graph both the equations (remember to get each in the P= … form) and label the equilibrium point. You should also be sure to clearly label the axes and vertical and horizontal intercepts.

e. On your graph from part (d) label consumer surplus and producer surplus.

f. Calculate the elasticity of demand at the equilibrium point. Be clear about any formula(s) you use.

Elasticity=2

g. Using your answer from part (f), is the demand for jeans elastic or inelastic at the equilibrium point?

Elastic

h. Now, suppose Mayor Levi imposes a $3 tax on the buyers of jeans. Thus, $P_c = P_s + 3$ and demand and supply are now given by:

$$Q_D = 150 - 10P_c \quad \text{and} \quad Q_S = 5P_s$$

Calculate P_c, P_s and the new equilibrium quantity.

P_c=11, P_s=8, Q=40

i. Using your answers to part (h) calculate the tax incidence. That is, how much of the $3 tax do the consumers pay and how much do the producers pay?

Consumers: 11-10 = $1
Producers: 10-8 = $2