ECO201: PRINCIPLES OF MICROECONOMICS

FIRST MIDTERM EXAMINATION

OCTOBER 3, 2002

Directions

1. There are 32 short answer questions worth 3 points each and short answer questions worth a total of 20 points. All answers to the first 32 questions should be placed on the answer sheet attached to the end of the exam. No credit will be given for answers placed elsewhere. For the essay questions, put your answers in the space provided beneath each question.

2. A calculator is allowed.

3. You have the entire class period to finish the exam. However, no additional time will be allowed.
To answer the next 5 questions, suppose there is a small island economy with 50 Hawkeyes and 40 Buckeyes. In a given day, a Hawkeye can produce either 40 beaded necklaces or 2 rugs. A Buckeye can produce either 30 beaded necklaces or 1 rug.

1) Who has the comparative advantage in rug production?
a. Hawkeyes  
 b. Buckeyes

2) Draw the PPF for this economy in the space provided on the answer sheet. Be sure to label the axes and indicate the numeric value of the vertical intercept, the horizontal intercept, and the value at which the "kink" in the PPF occurs.

3) If the economy produces 80 rugs, what is the maximum number of necklaces it can produce in a day?

4) A combination of 80 rugs and 3000 necklaces:
a. technologically efficient.  
b. technologically inefficient.  
c. unattainable without additional resources or better technology.
5) Suppose that the equilibrium price and quantity of lettuce simultaneously decrease. Which of the following would be most likely to explain this combination of events?
   a. Poor weather conditions that lead to a small crop of lettuce.
   b. New technology that reduces the cost of producing lettuce.
   c. An increase in the price of other vegetables that are considered to a substitute in consumption for lettuce.
   d. An increase in the price of a complement in consumption for lettuce (e.g. salad dressing).

6) Which of the following statements is true?
   a. a price ceiling above the equilibrium price causes a surplus.
   b. a price ceiling below the equilibrium price causes a shortage.
   c. a price floor above the equilibrium price causes a shortage.
   d. a price floor below the equilibrium price causes a surplus.

7. Leather belts and leather shoes are substitutes in production. If style changes increase the demand for leather belts,
   a. the supply curve of leather shoes will shift leftward and the price will rise.
   b. the demand curve for leather shoes will shift leftward and the price will fall.
   c. the supply curve of leather shoes will shift rightward and the price will fall.
   d. the demand curve for leather shoes will shift rightward and the price will rise.

8. Which of the following could explain a decrease in the equilibrium price of coffee and an increase in the equilibrium quantity?
   a. bad weather that destroys much of the coffee crop.
   b. a series of news reports indicating that coffee is very bad for your health
   c. a reduction in the wages of workers that harvest coffee.
   d. an increase in the price of tea which many consider to be a substitute for coffee.
9) What is the price elasticity of demand for hamburger if a rightward shift of the supply curve for hamburger causes a 6 percent decrease in price and a 20 percent increase in quantity demanded? (round your answer to the nearest one-tenth.)

10) If the elasticity of demand for Bengals tickets is .8, then a 10 percent increase in the price of Bengals tickets would cause the number of tickets sold to \((rise, \ fall)\) by _____ percent and the total revenue from tickets sold to \((rise, \ fall)\) by _____ percent. (Round your answers to the nearest one-tenth of one percent.)

11) If the price elasticity of demand for Bengals tickets is .8 how much would the Bengals have to cut ticket prices if it wanted to increase the number of tickets sold by 10 percent? (Round your answer to nearest one-tenth of one percent.)

12. A fall in the price of lemons from $10.50 to $9.50 per bushel raises the quantity demanded from 2.8 million to 3.6 million bushels. The price elasticity of demand in this part of the demand curve is _______ (give your answer to the nearest one-tenth.)

13. Suppose that your company sells its brand of potato chips in two stores. In addition to your product, store A carries 3 other brands of potato chips and store B carries 6 other brands of potato chips. If you cut the price of potato chips, the percentage change in sales is likely to be greater at:
   a. store A because demand will be more elastic at A.
   b. store A because demand will be more inelastic at A.
   c. store B because demand will be more elastic at B.
   d. store B because demand will be more inelastic at B.

14) The cross-price elasticity of demand between two products will:
   a. be positive if the two products are complements in production.
   b. be positive if the two products are complements in consumption.
   c. be positive if the two products are substitutes in consumption.
   d. be positive if the two products are substitutes in production.
To answer the next 5 questions, consider the following hypothetical supply and demand curves for corn.

15) At the equilibrium price of $1.30 per minute, what is the dollar value of producer’s surplus? (note that quantity is measured in millions of bushels).

16) At the equilibrium price of $1.30 per minute, what is the dollar value of consumer's surplus? (note that quantity is measured in millions of bushels).

Suppose there are no positive or negative externalities associated with corn and the government imposes a price ceiling of $1.20 per bushel.
17) Compared to the equilibrium price of $1.30 per bushel, with the $1.20 price ceiling consumers would be (better off, worse off) by $_______.

18) Compared to the equilibrium price of $1.30 per bushel, with the $1.20 price ceiling producers would be (better off, worse off) by $_______.

19) With the price ceiling of $1.20 per bushel, there would be a deadweight loss of $_______.

Suppose that the supply and demand curve for imported peanuts is given in the diagram below.

![Supply and Demand Diagram](chart.png)

**NOTE THAT QUANTITY IS MEASURED IN MILLIONS.**

To answer the next 5 questions, suppose that government imposes a quota that limits peanut imports to **500 million** pounds annually.

20) The quota will make peanut consumers *(better off, worse off)* by $______.

21) The quota will make foreign peanut producers *(better off, worse off)* by $______.

22) The quota will cause the price of imported peanuts to change to $______.

23) The quota will generate a deadweight loss of $______.

24) If the demand curve passed through the original market equilibrium (*P*=$.50 and *Q*=750 million) but was more inelastic than the one drawn above, the quota would cause the price to:
   a. increase more    b. increase less
   c. decrease more    d. decrease less
To answer the next 4 questions, consider the supply and demand curves for tires given below. Assume that S0 is the supply curve when there is no tax on tires and that S1 is after a tax is imposed on tires.

![Supply and Demand Diagram]

25. Given the effect of the tax on the supply curve, the tax must be $______ per tire.

26. The tax will generate revenue of $______ per day (note quantity is measured in 1000s.)

27. The excess burden of the tax will be $______ per day.

28. If the original demand curve passed through the original equilibrium (i.e. price of $40 and quantity of 4 million gallons) but demand was more elastic, the consumer's share of the tax would be (*smaller, larger*) and the producer's share of the tax would be (*smaller, larger*).
   a. smaller; smaller.       b. smaller; larger.       c. larger; larger.       d. larger; smaller.
To answer the next 4 questions, refer to the diagram below describing the market for gadgets.

29. Based on the diagram above, there must be a (positive, negative) externality of $____ per gadget produced.

30. If the production of gadgets is increased from 1000 to 1200, the benefits to society of the additional gadgets would be $________.

31. If the production of gadgets is increased from 1000 to 1200, the additional cost to producers of the additional gadgets would be $_______.

32. To move the market from the equilibrium level of output to the allocatively efficient level of output, the government could introduce a (subsidy, tax) of $____ per gadget.
SHORT ANSWER QUESTIONS.

Read the question carefully and be concise in your answer. Use the economic concepts developed in the course to construct your answers. You should be able to answer the questions in one or two carefully constructed sentences.

1. (12 points) Suppose that government uses taxes strictly to encourage markets to produce the allocatively efficient level of output. If this is true, how can you justify a tax on cigarettes? To help you justify your answer,

a. Draw PMB, SMB, PMC, and SMC curves. Label what the market would produce in the absence of the tax as \( Q_M \) on your diagram. Label what is allocatively efficient as \( Q_A \) on your diagram.

b. Why should society as a whole prefer to be at \( Q_A \) instead of \( Q_M \)? Don't use the term allocatively efficient in your answer. Explain how \( Q_A \) is "better" than \( Q_M \).

\( Q_A \) is "better" than \( Q_M \) because as the market moves from \( Q_M \) to \( Q_A \), benefits to society drop by \( ebdf \) and costs to society drop by \( ebcf \). On net, costs drop by \( bcd \) more than benefits, so society is better off.

c. With reference to the diagram you drew in (a), explain (i) how a cigarette tax would "move" the market to the allocatively efficient level of output, and (ii) how the government should decide on the size of the tax.

A cigarette tax equal to the size of the negative externality (the vertical distance between SMC and PMC) would shift the supply curve from PMC to SMC. As a consequence, the equilibrium output in the market would shift from \( Q_M \) to \( Q_A \).
Answer 2 of the next 3 questions (if you answer all 3, I'll grade the first 2).

2. (4 points) Suppose state governments use cigarette taxes strictly to raise tax revenue. Would it be correct to conclude that an increase in the tax per pack of cigarettes will always increase the tax revenue from cigarettes? Why or why not?

An increase in the tax per pack will not necessarily increase tax revenue. As the tax per pack increases, the supply of cigarettes decreases, pushing the equilibrium quantity of cigarettes downward. Since the tax revenue is the tax rate times the number of packs sold, the net effect on tax revenue is ambiguous. It will depend on whether the tax rate increases by more or less in percentage terms than the quantity of cigarettes decreases.

3. (4 points) Suppose that you own a golf course. You currently charge all your customers $30 per round of golf. You have hired a consultant who estimates that the price elasticity of demand for golf is currently .6. How should you adjust your price and why?

If the price elasticity of demand for golf is .6, an increase in the price of golf would lead to an increase in total revenue. For example, a 10 percent increase in the price of golf would lead to a 6% decrease in the number of rounds sold and a 4 percent increase in total revenue. Moreover, maintenance costs would drop since fewer golfers would play the course. Consequently, profits would increase.

4. (4 points) Given what you read about the U.S. sugar quotas, name two DISTINCT groups of people in the U.S. that should be opposed to the sugar quotas and indicate WHY they should be opposed.

1. The U.S. sugar consumer because the quota forces them to pay almost four times the world price for sugar.

2. Environmentalists because the restrictions on the import of sugar have caused expansion of sugar production in environmentally sensitive areas (e.g. the Everglades).

3. Firms who use sugar in their production process (and/or their employees) since they must charge a higher price for their product to cover the high cost of sugar and are less competitive in a world market.
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<td>a</td>
<td>18</td>
<td>worse off, 250 m.</td>
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<td>2</td>
<td>draw ppf on graph at bottom of page.</td>
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<td>100 m.</td>
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<td>3</td>
<td>1600 necklaces</td>
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<td>worse off, 62.5 m.</td>
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<td>c</td>
<td>21</td>
<td>better off, 37.5 m.</td>
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<td>fall 8%, rise 2%</td>
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<td>$60 m.</td>
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<td>450 m.</td>
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<td>subsidy, $.10</td>
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<td>better off, $150m.</td>
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**Diagram:**

- **X-axis:** Rugs (100 to 140)
- **Y-axis:** Necklaces (3200 to 1200)

The graph shows a downward trend in necklaces as the number of rugs increases. The point (100, 1200) indicates the initial number of necklaces when no rugs are present. The slope of the line indicates the rate of decrease in necklaces as the number of rugs increases.