ECO201: PRINCIPLES OF MICROECONOMICS

FIRST MIDTERM EXAMINATION

October 5, 2006

Directions

1. There are 34 short answer questions worth 3 points each and 2 essay questions worth a total of 16 points. All answers to the first 34 questions should be placed on the scantron sheet. 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 100 Hawkeyes and 50 Buckeyes. In a given day, a Hawkeye can produce either 30 beaded necklaces or 2 rugs. A Buckeye can produce either 20 beaded necklaces or 1 rug.

1) Who has the comparative advantage in rug production?

2) If the economy produces 1500 necklaces, what is the maximum number of rugs it can produce in a day?
   a. 100  b. 150  c. 200  d. none of the above

3) A combination of 1500 necklaces and 200 rugs is:
   a. technologically efficient.
   b. technologically inefficient.
   c. allocatively efficient
   d. unattainable without additional resources or better technology.

4) If the economy is organized efficiently, the opportunity cost of an additional rug is
   a. 15 necklaces until rug production reaches 200, at which point the opportunity cost rises to 20 necklaces.
   b. 15 necklaces until rug production reaches 50, at which point the opportunity cost rises to 20 necklaces.
   c. 20 necklaces until rug production reaches 200, at which point the opportunity cost drops to 15 necklaces.
   d. none of the above.
5) Suppose that the equilibrium price and quantity of lettuce simultaneously increase. Which of the following could 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 (e.g. cabbage).
   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) If oysters and pearls are complements in production, an increase in demand for the oysters will cause the equilibrium price of pearls to ____ and the equilibrium quantity to ____.
   a. decrease; decrease.
   b. decrease; increase.
   c. increase; increase.
   d. increase; decrease.

8) Which of the following would cause the equilibrium price of coal to fall and the equilibrium quantity to rise?
   a. an increase in the price of a substitute in consumption for coal.
   b. an increase in the price of a complement in consumption for coal.
   c. an increase in the price of a substitute in production for coal.
   d. an increase in the price of a complement in production for coal.
9) A recent study estimates that the price elasticity of demand for airline tickets is 2.4. Based on this information, a 20 percent increase in the price of airline tickets would cause consumers to buy _____ percent fewer tickets. (Round your answer to nearest one-tenth of one percent.)
   a. 8.33     b. 48     c. 0.833     d. 0.48

10) If the price elasticity of demand for airline tickets is 2.4, how much would the airline 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.)
   a. 4.2 percent     b. 24 percent     c. 2.4 percent     d. 42 percent.

11) The price elasticity of demand for a product will generally be (greater, lesser) if there are fewer substitutes available for the product and will be (greater, lesser) if people spend a small fraction of their income on the product.
   a. greater; lesser.     b. greater; greater.     c. lesser; lesser.     d. lesser; greater.

12) The cross-price elasticity of demand between two products will:
   a. never be negative.
   b. be positive only if the two products are complements in consumption.
   c. be positive only if the two products are substitutes in consumption.
   d. never be positive.
To answer the next 5 questions, consider the following hypothetical supply and demand curves for long distance phone calls.

13) What is the elasticity of demand for long distance phone calls over the price range of $.12 to $.14 per minute?
   a. 4.33  b. 0.23  c. 1.24  d. 1.79

14) At the equilibrium price of $.10 per minute, what is the dollar value of consumer's surplus? (note that quantity is measured in millions of minutes).
   a. $45 million  b. $60 million  c. $90 million  d. none of the above.

15) At the equilibrium price of $.10 per minute, what is the dollar value of producer's surplus? (note that quantity is measured in millions of minutes).
   a. $45 million  b. $60 million  c. $90 million  d. none of the above.

Suppose there are no positive or negative externalities associated with long distance phone calls and the government imposes a price ceiling of $.08 per minute. Ignore any search costs or black markets that might emerge.

16) Compared to the equilibrium price of $.10 per minute, with the $.08 price ceiling consumers would be
   a. better off by $20 million  b. better off by $15 million
   c. worse off by $20 million  d. none of the above.

17) Compared to the equilibrium price of $.10 per minute, with the $.08 price ceiling producers would be *(better off, worse off)* by $________.
   a. better off by $25 million  b. worse off by $15 million
   c. worse off by $25 million  d. none of the above.

18) With the price ceiling of $.10 per minute, there would be a deadweight loss of
   a. $5 million  b. $10 million  c. $15 million  d. none of the above.
Suppose that the government imposes a new tax on imported oil and the supply curve is shifted from S0 to S1 in the diagram below.

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

19) How much tax revenue would be generated by this tax?
   a. $7.5 billion       b. $5 billion       c. $500 million       d. none of the above.

20) This tax would make oil buyers worse off by
   a. $0                b. $3.125 billion.   c. $4.750 billion       d. $5 billion

21) This tax would make oil sellers worse off by
   a. $0                b. $3.125 billion.   c. $4.750 billion       d. $5 billion

22) The consumers share of this tax would be greater if
   a. demand was more inelastic or supply was more elastic
   b. demand or supply was more inelastic
   c. demand or supply was more elastic.
   d. demand was more elastic or supply was more inelastic

23). The excess burden of this tax is
   a. the total loss in consumer and producer surplus minus the tax revenue created.
   b. the total loss in consumer and producer surplus plus the tax revenue created.
   c. the total loss in consumer and producer surplus
   d. none of the above.
24) A price ceiling on gasoline set below the equilibrium price would:
   a. definitely make gasoline producers worse off and definitely make gasoline buyers better off.
   b. definitely make gasoline producers worse off, but could make gasoline buyers better or worse off.
   c. definitely make gasoline buyers better off, but could make gasoline producers better or worse off.
   d. none of the above.

25) If the government imposes a quota that restricts orange production below the equilibrium level for the market, the quota would:
   a. definitely make orange producers and orange consumers better off.
   b. definitely make orange producers and orange consumers worse off.
   c. definitely make orange consumers worse off, but orange producers could be better or worse off.
   d. definitely make orange producers better off, but orange consumers could be better or worse off.

26) Suppose that the government increases the tax on each gallon of gasoline from $.40 to $.50.
    The total tax revenue from the gas tax would:
    a. definitely increase if the demand for gasoline is perfectly inelastic.
    b. definitely decrease if the demand for gasoline is perfectly inelastic.
    c. remain the same if the demand for gasoline is perfectly inelastic.
    d. could either increase or decrease if the demand for gasoline is perfectly inelastic.

27) If the demand for gasoline is perfectly inelastic, an increase in the gas tax charged to sellers will cause:
    a. no change in gas prices for consumers.
    b. gas prices for consumers to increase as much as the tax increase.
    c. the equilibrium quantity of gasoline to fall.
    d. both a and c.
    e. both b and c.

28) The allocatively efficient amount of a commodity is produced when production is at the level where:
    a. SMB=SMC
    b. PMB=SMB
    c. PMC=SMC
    d. PMB=PMC
29) When a person receives a flu shot, she has a lower chance of getting the flu but also reduces the chance that others get the flu from her. Because of this, flu shots have:

a. positive externalities and the market would under-provide without government intervention.
b. positive externalities and the market would over-provide without government intervention.
c. negative externalities and the market would under-provide without government intervention.
d. negative externalities and the market would over-provide without government intervention.

To answer the next 3 questions, refer to the diagram below describing the market for gadgets.

30. Based on the diagram above, there must be a (positive, negative) externality of $____ per gadget produced.
   a. positive; $.10   b. positive; $.05   c. negative; $.05   d. none of the above.

31. If the production of gadgets is increased from 800 to 1000, the additional benefits to society of the additional gadgets would be $______.
   a. $100   b. $125   c. $150   d. none of the above.

32. If the production of gadgets is increased from 800 to 1000, the additional cost to society of the additional gadgets would be $______.
   a. $125   $135   c. $150   d. none of the above.

33. Based on the diagram above, the market equilibrium would generate (more, less) than the socially efficient amount to be produced and a deadweight loss of ______.
   a. more; $20   b. more; $10   c. less; $20   d. less; $10

34. The market could be moved to the socially efficient outcome with a (subsidy, tax) of ____.
   a. subsidy; $.10   b. subsidy; $.05.   c. tax; $.10   d. tax; $.05

ESSAY QUESTIONS.
1. (8 points) In Ohio, there is a 46.4 cent tax on every gallon of gas purchased (18.4 cents federal; 28 cents state). In 2005, this tax generated $1.7 billion in revenue for the state of Ohio. Suppose that Ohio decides to double its tax from 28 to 56 cents per gallon.

   a. **Draw two demand curves in the space below.** The supply curves are identical in the two drawings, but draw one with a more elastic demand curve than the other.

      Supply with relatively elastic demand  
      Supply with relatively inelastic demand

   b. **Illustrate the effect of doubling the Ohio tax rate in the above supply/demand diagrams and use the results to describe in the space below how the elasticity of demand for gasoline affects the amount of additional tax revenue that Ohio can expect to receive from doubling the tax. Be sure to refer to your supply/demand diagrams to justify your answer.**
2. (8 points) Many scientists argue that global warming results from the emission of greenhouse gases (such as carbon dioxide) associated with the burning of fossil fuels such as oil, natural gas, and coal. Trees help absorb greenhouse gases and reduce global warming.

a. Based upon the above information, explain why the market may result in an "inefficient" level of oil consumption. In your explanation, refer to a diagram with appropriately labeled curves to contrast the market and efficient outcomes.

b. Explain how the use of a tax or subsidy could be used to "correct" the market failure described above. Also, how should governments decide on the size of the appropriate tax or subsidy?