Econ 1
First midterm
October, 2007

We will award 5 points for doing the following correctly. FILL IN THE BUBBLES on your scantron for your **name**, your **perm number**, and the **test form type**. Use **pencil only**. All bubbles must be completely filled in.

Each correct answer is worth 5 points. Answers left blank are worth 2 points. Wrong answers are worth 0 points.

True-False Questions: Fill in Bubble A for True, Bubble B for False.

1.   Suppose that the demand curve is downward-sloping and the supply curve is a horizontal line. If a sales tax of $10 per unit is collected from sellers for each unit they sell, the effect of the tax will be to increase the price by $10 per unit and to reduce the number of units sold.

2.   The fact that fresh raspberries are both cheaper and more plentiful in the summer than in the winter is best explained by a shift in the demand curve.

3.   Consumer's surplus is the difference between the number of units of a good demanded and the number of units supplied.

4.   If the demand curve slopes downwards and the supply curve slopes upwards, the total reduction in profits and consumers' surplus caused by a sales tax of $20 per unit will exceed the amount of revenue collected by the tax.

5.   If the demand curve slopes down and the supply curve slopes up, then when the demand curve shifts, the equilibrium price and quantity move in the same direction.

6.   Suppose that the supply curve for lettuce is vertical, the demand curve is downward-sloping, and the demand curve intersects the supply curve at a positive price. If the demand curve shifts up and the supply curve does not change, the equilibrium price of lettuce will rise and the equilibrium quantity of lettuce sold will not change.

7.   If the price elasticity of demand is E, then the price elasticity of supply is defined to be $-1/E$.

8. A competitive equilibrium price is defined to be a price at which buyers and sellers make equal profits.

Multiple Choice Questions

9. The supply function for potatoes is given by the equation $P_s(Q) = 5 + 7Q$. The demand function is given by the equation $P_d(Q) = 221 - 2Q$ where Q is the number of crates of potatoes sold. In competitive equilibrium, how many crates of potatoes will be sold.

(a) 24

(b) 29

(c) 21

(d) 173

(e) None of the above.

10. A small tropical island's banana market has 55 banana growers and 40 banana consumers. Each banana grower can sell at most one sack of bananas. Each consumer can consume either 0 or 1 sack of bananas. There are 15 low-cost banana producers, each of whom can produce bananas at a cost of $15 per sack and 40 high-cost banana producers, each of whom can produce bananas at a cost of $30 per sack. There are 10 consumers who are willing to pay up to $40 a sack and 30 consumers who are willing to pay up to $20 a sack for bananas. What is the competitive equilibrium price of bananas on this island?

(a) $30

(b) $35

(c) $15

(d) $20

(e) $40

11. What is the competitive equilibrium number of sacks of bananas sold on this island?

(a) 20

(b) 40

(c) 15

(d) 30

(e) 50

12. In competitive equilibrium, the total amount of profit made by banana growers will be:

(a) $175

(b) $135

(c) $25

(d) $75

(e) $125

13. In a market with 40 consumers, each of whom will buy at most one unit of a good, the distribution of Buyer Values is as follows: 10 consumers have Buyer Values of $40, 12 consumers have Buyer Values of $30, 9 consumers have Buyer Values of $20, and 9 consumers have Buyer Values of $10. If the price of this good is $51, how many units of the good will be demanded?

(a) 31

(b) 10

(c) 22

(d) 40

(e) 0

14. In the market discussed in the previous question, if the price of the good is $25, how much is the total consumers' surplus?

(a) 210

(b) 330

(c) 50

(d) 1,581

(e) None of the above.

15. Demand for cellular phones on the Isle of Jabberwock is as follows. There are 10,000 people with Buyer Values of $81, 20,000 people with Buyer Values of $61, and 50,000 people with Buyer Values of $41. The supply curve for cellular phones is horizontal at a price of $20. Which of the following sales tax rates on cellular phones would yield the greatest revenue for the government of Jabberwock?

(a) $40

(b) $10

(c) $80

(d) $20

(e) $60

16. There are 100 demanders in the frangles market. Demanders can choose to buy zero, one, or two frangles. Nobody wants more than two. There are 40 Type A demanders and 60 Type B demanders. Type A demanders are willing to pay up to $30 for a frangle and are willing to pay a total of $50 to have two frangles. Type B demanders are willing to pay up to $20 for their first frangle and are willing to pay up to $32 to have two frangles. If the price of frangles is $15, how many frangles will be demanded in total? (Hint: how much extra would each type of person be willing to pay to have a second frangle rather than just one?)

(a) 40

(b) 200

(c) 140

(d) 160

(e) 60

17. The town of Los Locos has 1000 motel rooms. The variable cost associated with renting a hotel room is $30 a night. In the summer, all of the rooms are occupied and the price of a room is $100 per night. In the winter, only half of the rooms are occupied and the room rate is $30 a night. The local authorities introduce an "occupancy tax" of $10 per night. That is, the motel owners must pay a tax of $10 per night for every room that they rent out. Assuming that the tax does not change the number of motels rooms available in town, which of the following would be the effect of the tax on competitive equilibrium rental rates charged to customers?

(a) Rates would rise in both summer and winter, but more in summer.

(b) Rates would rise by $10 per night in summer but would not change in winter.

(c) Rates would rise by $10 per night in winter but would not change in summer.

(d) Rates would rise by $10 per night both in summer and winter.

(e) Rates would rise by about $5 per night, both in summer and in winter.

18. The wheat market has some suppliers with high costs and some suppliers with low costs. There are some demanders who place a high value on wheat and some who place a low value on wheat. The demand curve for wheat slopes downward and the supply curve for wheat slopes upward. In a competitive equilibrium for the wheat market:

    (a) high-cost suppliers will charge a higher price than low-cost suppliers, but demanders will all pay the same price.

    (b) high-value demanders pay a higher price than low-value demanders, but suppliers all receive the same price.

    (c) there is a uniform price. All demanders pay the same price and all suppliers charge the same price.

    (d) high-cost suppliers charge a higher price than low-cost suppliers and high-value demanders pay a higher price than low-value demanders.

    (e) prices paid by different people can be different in either direction so long as both parties to every transaction either make a profit or at least break even.

19. A hurricane destroyed twenty percent of the banana crop. The price of bananas rose and the total revenue of banana producers fell. This suggests that:

    (a) the demand for bananas is price inelastic.

    (b) the supply of bananas is price elastic.

    (c) the supply of bananas is price inelastic.

    (d) the demand for bananas is price elastic.

    (e) there was excess supply of bananas before the hurricane.

20. The demand curve for a certain good has equation $P = 80 - Q$ and the supply curve has equation $P = 20 + 2Q$ where P is the price in dollars and Q is the quantity in tons. A sales tax of \$15 per ton is collected from consumers of this good. What effect does this tax have on the price paid to suppliers and on the quantity demanded of this good?

    (a) Quantity decreases by 5 tons and price paid to suppliers falls by \$10.

    (b) Quanity decreases by 10 tons and price paid to suppliers falls by \$7.50.

    (c) Quantity decreases by 10 tons and price paid to suppliers rises by \$10.

    (d) Quantity decreases by 10 tons and price paid to suppliers falls by \$10.

    (e) None of the above.