Name_____ Brown ID_____

Economics 111 S02: Intermediate Microeconomics
Spring 2009
Midterm 2

You have 1 hour and 20 minutes. Only clarifying questions are allowed. Do not cheat. Do not panic. Enjoy the exam.

Questions 1 to 5 are multiple choice. Circle the correct answer. (5 points each correct answer).

1. If the minimum cost function is $C(y) = 100 + y^2$, the minimum price at which the firm is willing to operate in the long run is:

   a. 0.

   b. 5.

   c. 10.

   d. 20.

   e. none of the above.

2. The production function $y = \min\{2x_1, x_2\}$, displays:

   a. decreasing returns to scale.

   b. constant returns to scale.

   c. increasing returns to scale.

   d. different returns to scale depending on (x_1, x_2).

   e. none of the above.

3. If the production function is $y = \sqrt{\min\{x_1, x_2\}}$ and the prices of inputs are w_1 and w_2, the minimum cost function is:

a. $C(w_1, w_2, y) = \frac{1}{2}(w_1 + w_2)\, y$.

b. $C(w_1, w_2, y) = (w_1 + w_2)\, y$.

c. $C(w_1, w_2, y) = \sqrt{(w_1 + w_2)}y$.

d. $C(w_1, w_2, y) = (w_1 + w_2)\sqrt{y}$.

e. $C(w_1, w_2, y) = (w_1 + w_2)\, y^2$.

4. Armando and Bernardo consume two goods. They trade with each other and there is no production. Armando's utility function is $U_A = 2x_{A1} + x_{A2}$ and Bernardo's is $U_A = x_{B1} + 2x_{B2}$. In equilibrium the following must be true:

a. $\frac{1}{2} \leq \frac{p_1}{p_2} \leq 2$.

b. $\frac{p_1}{p_2} > 2$.

c. $\frac{p_1}{p_2} < \frac{1}{2}$.

d. Armando and Bernardo have reach the same utility level.

e. none of the above.

5. Based on a story by J.M. Keynes, the Armchair Economist says that "drinking warm beer" can be:

a. A hidden cost of inflation.

b. A hidden cost of market inefficiencies.

c. A hidden cost of taxation.

d. A hidden cost of government regulation.

e. Disgusting.

6. (25 points) Consider the following production function: $f(x) = x^{\frac{1}{2}}$.

a. Assume that p and w are given. Write profits as a function of the level of input and find the optimal amount of input x^*.

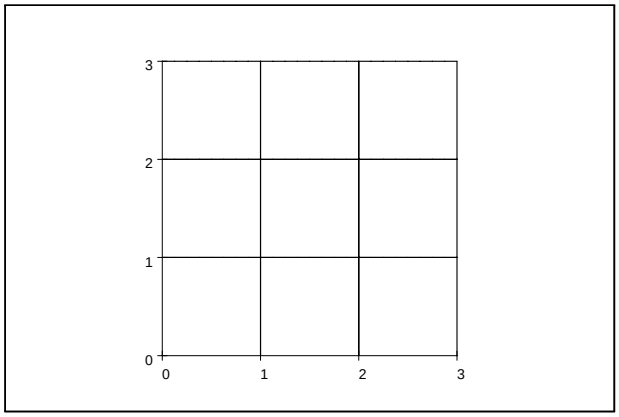
b. Using the previous solution find the supply function.

c. Find the minimum cost function given y and w.

d. Using the cost function from point c, find the supply function.

7. (25 points) Consider a world with two agents: A and B. The utility of A is $U_A = x_{A1}x_{A2}$ and the utility of B is $U_B = x_{B1}x_{B2}$. The initial endowments are $\omega_A = (1, 2)$ and $\omega_B = (2, 1)$.

a. In the following figure draw the Edgeworth Box labeling all axis and draw the initial endowment and the indifference curves that go through it.



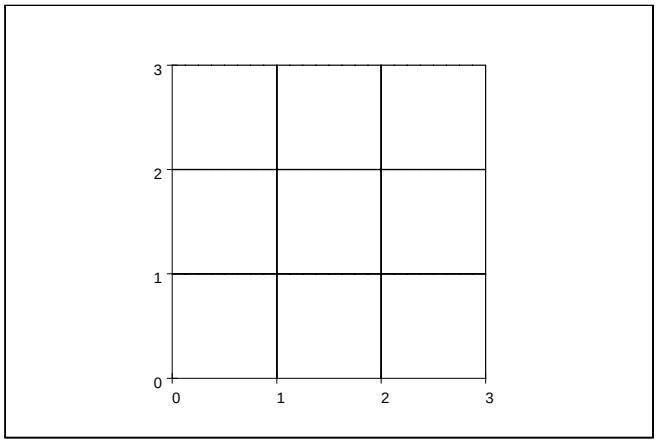
b. Find the Contract Curve. Draw the Contract Curve in the Edgeworth Box of point a.

c. Find the demand functions of A for general p_1, p_2 and m_A.

d. Find the demand functions of B for general p_1, p_2 and m_B.

e. Find the competitive equilibrium price p_1^* (assume that $p_2 = 1$). Find the equilibrium allocation ($x_{A1}^*, x_{A2}^*, x_{B1}^*$ and x_{B2}^*).

f. In the following figure draw the initial endowments, the equilibrium budget lines and the equilibrium consumption bundles. (Label each of them in the graph).



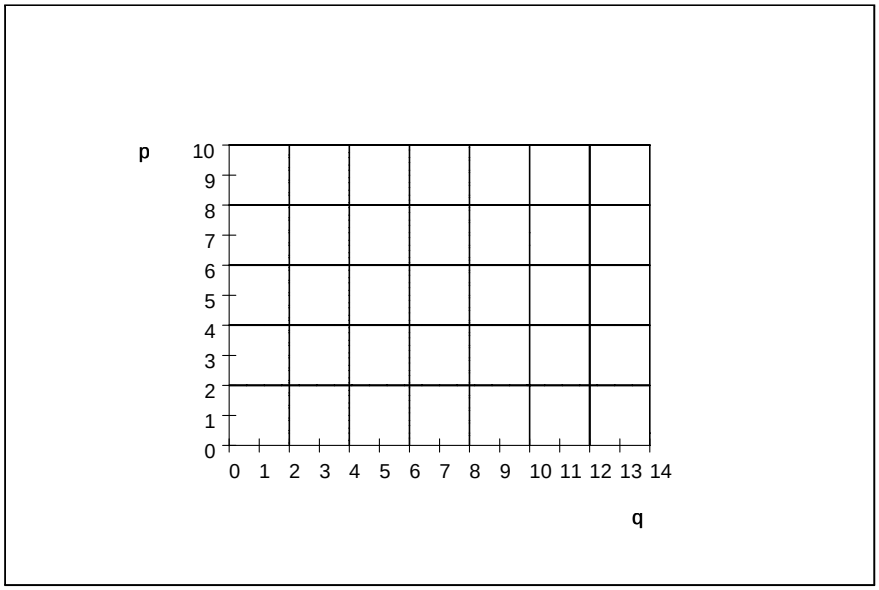
8. (25 points) Consider the following market:

Supply: $S(p) = 2p$.

Demand: $D(p) = 12 - 2p$.

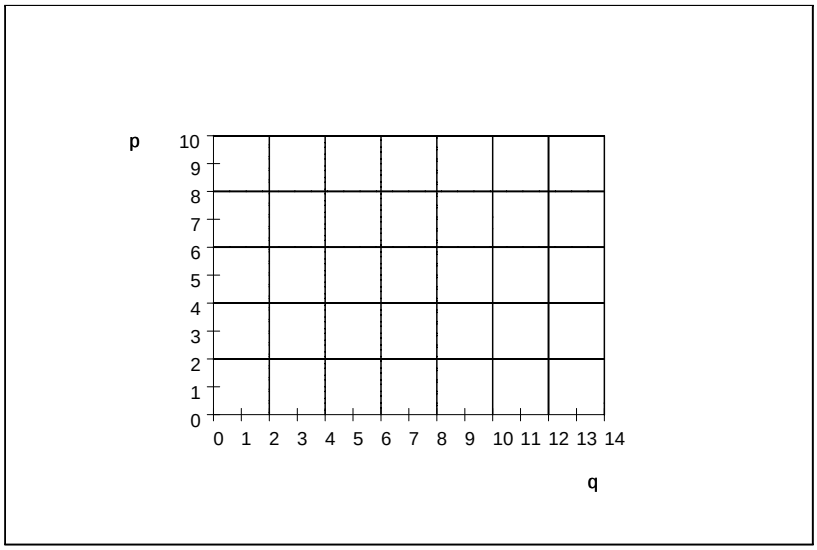
a. What is the perfect competitive equilibrium price and quantity?

b. What is the consumer surplus, producer surplus and total surplus? Show the consumer and producer surpluses graphically.



c. Consider now that a two dollar subsidy per unit is given to producers. What is the perfect competitive equilibrium price paid by consumers, earned by producers and the equilibrium quantity with the subsidy?

d. What is now consumer surplus and the producer surplus? How much is the government's expenditure? The total surplus? How much is the deadweight loss? Show all these graphically.



Have a nice spring-break!!