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Economics 111: Intermediate Microeconomics
Spring 2005
Practice Final

You have 3 hours. Only clarifying questions are allowed. Do not cheat. Do not panic. Enjoy the exam.

Questions 1 to 10 are multiple choice or true/false. Circle the correct answer. (5 points each correct answer).

1. If a consumer has utility function $U = x_1^3 x_2$, what fraction of her income will she spend on good 1?:

a. $\frac{1}{3}$.

b. $\frac{1}{4}$.

c. $\frac{2}{3}$.

d. $\frac{3}{4}$.

e. $\frac{1}{2}$.

2. Suppose a consumer has preferences between two goods, x and y, that are perfect substitutes. Imagine that an increase in the price of good x resulted in a decrease in the consumption of that good of 10 units. The following is true about the effect of the price change:

a. Total effect=-10, substitution effect=-10, income effect=0

b. Total effect=0, substitution effect=-5, income effect=5

c. Total effect=-10, substitution effect=-5, income effect=-5

d. Total effect=-10, but not enough information to distinguish the other effects.

e. Total effect=-10, substitution effect=0, income effect=-10

3. If a consumer is consuming exactly two goods, and she is always spending all her money, then both goods can be inferior.

True False

4. According to the First Welfare Theorem (under certain conditions):

a. every competitive equilibrium is fair.

b. every competitive equilibrium is efficient.

c. a competitive equilibrium always exists.

d. every efficient allocations is preferred to every inefficient allocation.

e. none of the above.

5. In a perfect competitive market, a change in preferences that reduces the demand for the good will result in:

a. higher quantities and higher prices.

b. higher quantities and lower prices.

c. lower quantities and higher prices.

d. lower quantities and lower prices.

e. none of the above.

6. If the minimum cost function is $C(y) = 100 + y^3$, the following is true:

a. $AC(y) = 100 + y^2$ and $AVC(y) = y^2$.

b. $AC(y) = 100 + y$ and $AVC(y) = 2y$.

c. $AC(y) = y$ and $AVC(y) = y$.

d. $AC(y) = \frac{100}{y} + y^2$ and $AVC(y) = 2y$.

e. $AC(y) = \frac{100}{y} + y^2$ and $AVC(y) = y^2$.

(AC is average cost and AVC is average variable cost)

7. Every Nash Equilibrium is Pareto efficient.

True False

8. The following kind of price discrimination by a monopolist results in an efficient allocation:

a. First-degree (perfect price discrimination).

b. Second-degree (like bulk discounts).

c. Third-degree (like senior discounts).

d. all of the above.

e. none of the above.

9. The utility function $U(I) = I^{\alpha}$, with $\alpha > 0$, displays risk aversion if the following is true:

a. $\alpha = 1$.

b. $\alpha < 1$.

c. $\alpha > 1$.

d. all of the above.

e. none of the above.

10. Which of the following is NOT the basis for a good explanation of why popcorn is expensive in movie theaters:

a. different consumers value popcorn differently.

b. popcorn eaters like movies more.

c. once you are in the theater there is a popcorn-monopoly.

d. popcorn increases cleaning costs.

e. popcorn eaters generate a negative externality.

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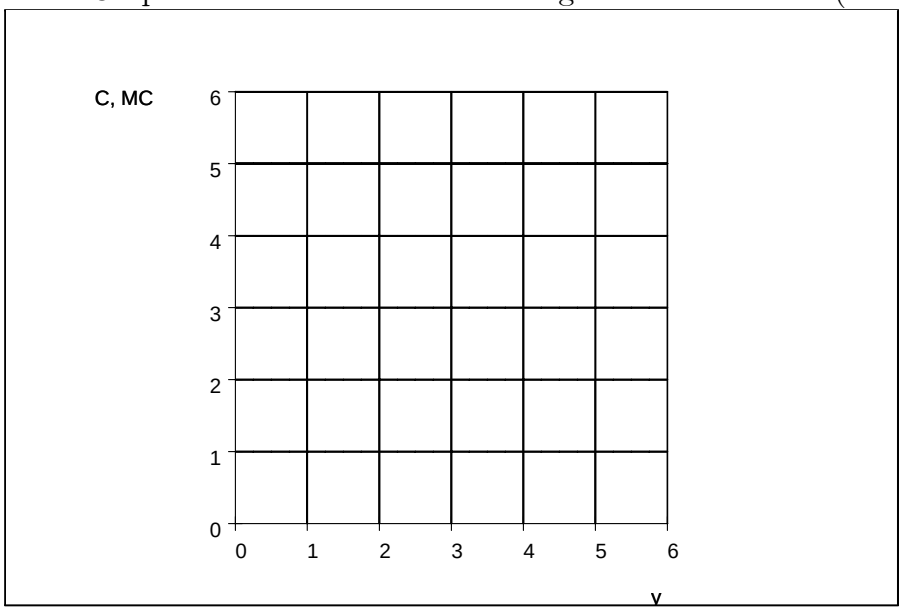
11. (20 points) Consider the following production function: $f(x) = x_1^{\frac{1}{3}} x_2^{\frac{1}{3}}$.

a. Find the minimum cost function. How does it depend on w_1, w_2 and y?

b. Find the marginal cost function. How does it depend on w_1, w_2 and y?

c. Graph the minimum cost and marginal cost functions (assume $w_1 = w_2 = 1$).



d. Find the optimal amount of output y^*.

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12. (20 points) Consider the following market:

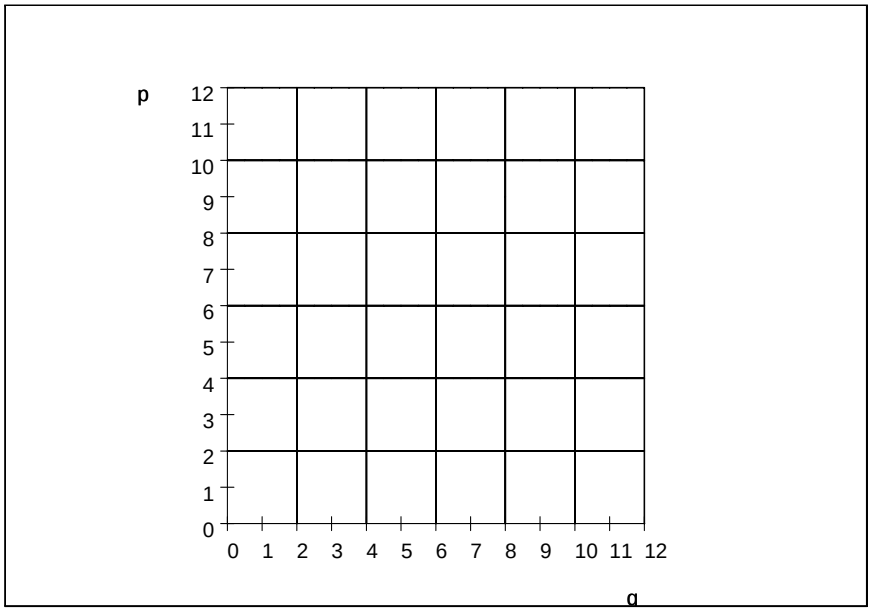
Demand: $D(p) = 12 - p$.

Production comes from two regions. The supply from region A is $S_A(p) = p$ and the supply from region B is $S_B(p) = p$.

a. What is the total supply function in this market for a given price p?

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

c. What is the consumer surplus, producer surplus by region and total surplus? Show the consumer and producer surpluses graphically.

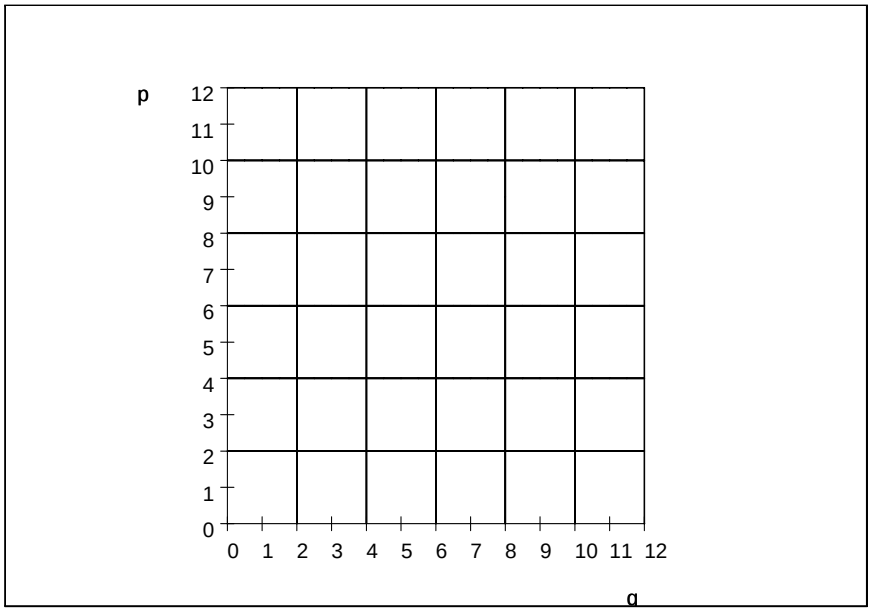


Technicians in region A had improved the production processes resulting in a decrease of marginal cost of production and, hence, in a new supply function: $S_A(p) = 2p$.

d. What is the total supply function in this market for a given price p?

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

f. What is the consumer surplus, producer surplus by region and total surplus? Show the consumer and producer surpluses graphically.



e. What happened to the producer surplus from region A? Why?

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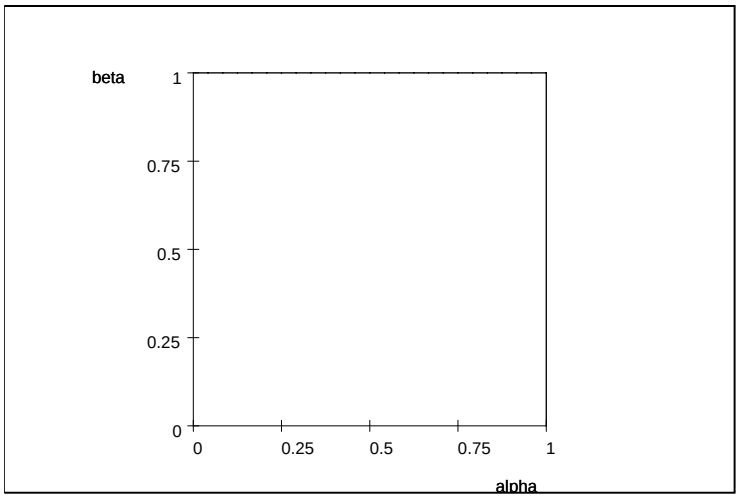
13. (20 points) Consider the following simultaneous-moves game:

		2: A	2: B
1	A	1, 1	0, 0
	B	0, 0	3, 3

a. Find the pure strategy Nash equilibria.

b. In the following graph draw the best response curves for both players. α denotes the probability that player 1 plays A and β denotes the probability that player 2 plays A.



c. Find the mixed strategy Nash equilibria.

d. How does α and $1 - \alpha$ compare? Why?

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14. (20 points) Consider a monopolist who faces an inverse demand function $P = 100 - Q$. The monopolist owns to factories, A and B, with the following cost functions: $C_A(q_A) = q_A^2$ and $C_B(q_B) = 2q_B^2$.

a. Write the profit function for the monopolist as a function of q_A and q_B.

b. Find the optimal quantities produced in both factories, total production and price.

c. Find the value of the marginal revenue and marginal cost by factory at the optimal solution.

d. Find the consumer surplus and producer surplus at the optimal solution.

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15. (20 points) A consumer has the following utility function $U(I) = \sqrt{I}$. His income for the next month is \$1000. There is an asset with price \$10 per unit which will be worth \$5 next month if there is a recession, and \$15 if there is a boom. The probability of a recession is $\frac{1}{2}$ and the probability of a boom is $\frac{1}{2}$.

a. What will be his expected income if he buys x units of the asset? (Assume that he pays the price of \$10 per unit from the \$1000 he has for the next month).

b. Write the formula for the expected utility of the consumer if he buys x units of the asset.

c. How many units of the asset will he buy?

Assume now that the asset will be worth \$20 if there is a boom.

d. What will be his expected income if he buys x units of the asset? Is this greater or smaller than \$1000?

e. Write the formula for the expected utility of the consumer if he buys x units of the asset.

f. How many units of the asset will he buy?