

ECO2145A TEST # 1 TIME: 70 minutes October 9, 2014

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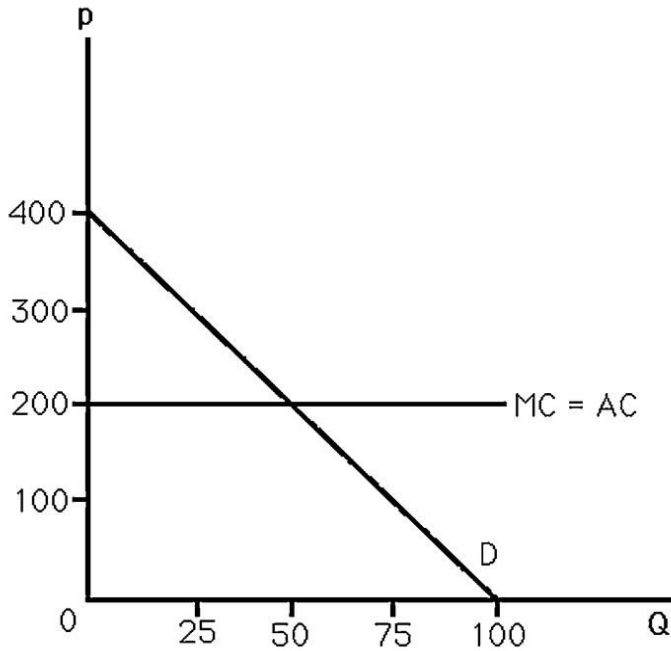
Fall 2014

Multiple choice (3x5 = 15. Please write your answer in the booklet)

1. Does a competitive long-run equilibrium require cost-minimization?
 - A. Yes, if firms fail to be as efficient as their competitors they are driven out of the market.
 - B. No, in the long-run firms make zero profits.
 - C. Yes, if they didn't even less efficient firms would enter the industry.
 - D. No, because competition ensures their survival.

2. If a monopoly is operating on the demand curve where price elasticity is equal to -3, and price equals 3, then MR is equal to
 - A. -1.
 - B. 1.
 - C. -2.
 - D. 2.

3. The figure below shows the demand and cost curves facing a monopoly. If the firm is a profit maximizer, its Lerner Index will equal
 - A. 1.
 - B. 1/3.
 - C. 1.5.
 - D. 3.



4. Suppose all individuals are identical, and their monthly demand for Internet access from a certain leading provider can be represented as $p = 5 - (1/2)q$ where p is price in \$ per hour and q is hours per month. The firm faces a constant marginal cost of \$1. If the firm will charge a monthly access fee plus a per hour rate, the monthly access fee will equal
- A. \$1.
 - B. \$5.
 - C. \$8.
 - D. \$16.
5. Tie-in sales are most advantageous to the seller when
- A. the demands for the two goods are negatively correlated.
 - B. the demands for the two goods are positively correlated.
 - C. the demands for the two goods are unrelated.
 - D. there are economies of scope.

Problem part (Please write your answer in the booklet. Show your derivations and calculations as required)

1. Assume that a monopolist faces the following demand for his product:

$$P = 100 - (1/10) Q.$$

His total cost of production may be expressed as

$$C = 200 + 20Q + (1/10) Q^2.$$

- (a) Find the monopolist's profit maximizing quantity and price. **(4 + 3 = 7 points)**
(b) If the monopolist has to pay a tax of \$8 per unit of output, find his new profit maximizing quantity, price and the level of profit. **(3 + 3 + 2 = 8 points)**
(c) If the government's objective is to maximize the total tax revenue, find the optimal level of tax per unit of output which will maximize the total tax revenue. **(4 + 1 + 3 = 8 points)**
- 2(a) A single-price monopoly faces a demand curve of $p = 90 - Q$ and a constant marginal (and average) cost of $m = \$30$. Find the profit maximizing quantity and price. **(3 + 3 = 6 points)**
- 2(b) Now, suppose that this monopoly is a nonlinear price discriminating monopoly and can set two prices, depending on the quantity a consumer purchases. The firm's profit is

$$\pi = p_1 Q_1 + p_2 (Q_2 - Q_1) - m Q_2,$$

- where, p_1 is the high price charged on the first Q_1 units (first block), and p_2 is lowest price charged on the $Q_2 - Q_1$ remaining units, Q_2 is the total number of units actually purchased, and $m = \$30$ is the firm's constant marginal and average cost. Determine profit maximizing prices and outputs. Calculate consumer surplus, producer surplus, welfare and deadweight loss due to this block pricing. **(5+5+3+3+3+3 = 22 points)**
3. A monopolist is deciding how to allocate output between two markets. The two markets are separated geographically (East Coast and West Coast). Demands for the two markets are:

$$P_1 = 15 - Q_1, P_2 = 25 - 2Q_2,$$

The monopolist's total cost $C = 5 + 3Q$, where $Q = Q_1 + Q_2$.

What are price, output, profits, and deadweight loss?

- (a) if the monopolist can price discriminate? **(17 points)**
(b) if the law prohibits charging different prices in the two regions? **(17 points)**