Name:_____

Last 4 digits of your Student ID Number: _____ Section _____

ECON 100A FALL 2006
University of California, Berkeley
Homework 5
Due date: 2006.11.21 [on Tuesday's Lecture]

Question #	Answer	Points
1.1		
1.2		
1.3		
1.4		
1.5		
1.6		
1.7		
1.8		
1.9		
1.10		
Multiple Choice Total		
2		
3		
4		
Total Score		

Instructions *For Problem 1: Put your answers in the table above (column 2).*
For Problems 2 - 5: Write your answers NEATLY and CONCISELY. Please staple your homework answers together.

Problem 1: (10 multiple choice questions) Showing your work is not necessary for multiple choice problems. Place all multiple choice answers in the table above. **No credit is given if more than one letter was provided as an answer in the table.**

1.1 Mr. Orange Marmalade Lemon is a monopolist, who owns a brewery in Wichita, Kansas. The demand for his ale is given by $P = 300 - 6Q$ (the price is for barrel) and his marginal cost is given by $MC = 3Q$. The profit-maximizing price for Mr. Orange is

a. 100
b. 180
c. 60
d. 150

1.2 Suppose that Cardinal Sin (The Archbishop of Manila, Philippinia) is a monopolist, and a sole seller of indulgences in Philippinia. He has constant marginal cost for producing

indulgences and market demand for the indulgences is downward sloping. Further suppose that there is an exogenous shock (such as increase in the number of his followers due to a Miracle widely reported by the Yellow Press) to the market for indulgences, resulting in an increase in demand for the indulgences. Which of the following statements is correct regarding the equilibrium price and quantity of the indulgences?

a. Both price and quantity will rise.
b. Both price and quantity will fall.
c. Price will rise; quantity will fall.
d. Price will fall; quantity will rise.

1.3 The detective firm Wyre and Tapping has two branch offices: one office is located in New York, NY and another – in San Francisco, CA. The firm is a monopolist, who produces identical product in both locations, but the marginal cost of producing currently differs for the NY and CA branches. How should the firm allocate production?

a. Produce in both plants where $MC_1 = MR_1$ and $MC_2 = MR_2$.
b. Produce all output in the plant with the higher marginal cost.
c. Produce 50 percent in plant 1 and 50 percent in plant 2.
d. Produce to equate the marginal costs at each plant. (In other words, reallocate production so that $MC_1 = MC_2$.)

1.4 Suppose that Cardinal Sin faces demand $P = 400 - 4Q^d$ and has constant marginal cost $MC = 80$. If he engages in first-degree price discrimination, total output will equal

a. 20 units
b. 40 units
c. 60 units
d. 80 units

1.5 Identify the truthfulness of the following statements.

I. If a seller engages in second-degree price discrimination, the seller captures more producer surplus than with uniform pricing.
II. The seller captures the maximum producer surplus by engaging in third- degree price discrimination.

a. Both I and II are true.
b. Both I and II are false.
c. I is true; II is false.
d. I is false; II is true.

1.6 Which of the following is NOT a real-world example of third-degree price discrimination?

a. A railroad charges more to haul 100 tons of coal than it does to haul 100 tons of grain.

b. An airline charges a lower price for a coach ticket purchased four weeks in advance than for the same type of ticket purchased three days in advance.

c. A movie theater charges senior citizens a cheaper price for movie tickets than it charges non-senior citizens for the same movie ticket.

d. Sam's Club® warehouses sell bulk quantities of macaroni and cheese for a cheaper per unit price than a grocery store, but the boxes are packaged together so that the customer must buy six boxes at a time.

1.7 Rabelaisian Restaurants has a monopoly in the town of Upper Glutton. Its production function is $Q = 10L$, where L is the amount of labor it uses and Q is the number of meals produced. Rabelaisian Restaurants finds that in order to hire L units of labor, it must pay per unit of labor a wage of $10 + .1L$. The demand curve for meals at Rabelaisian Restaurants is given by $P = 49 - Q/1{,}000$. The profit-maximizing output for Rabelaisian Restaurants is

a. 3,000 meals.
b. 12,000 meals.
c. 2,500 meals.
d. 24,000 meals.
e. 1,500 meals.

1.8 The demand for a monopolist's output is $6{,}000/(p + 2)^2$, where p is the price it charges. At a price of \$3, the elasticity of demand for the monopolist's output is

a. -1.
b. -2.20.
c. -1.20.
d. -1.70.
e. -0.70.

1.9 A monopolist has constant marginal costs of \$1 per unit. The demand for her output is $1{,}000/p$ if p is less than or equal to 50. The demand is 0 if $p > 50$. What is her profit maximizing level of output?

a. 5
b. 10
c. 15
d. 20
e. 25

1.10. A monopolist sells in two markets. The demand curve for her product is given by $p_1 = 122 - 2x_1$ in the first market and $p_2 = 306 - 5x_2$ in the second market, where x_i is the quantity sold in market i and p_i is the price charged in market i. She has a constant marginal cost of production, $c = 6$, and no fixed costs. She can charge different prices in the two markets. What is the profit-maximizing combination of quantities for this monopolist?

a. $x_1 = 58$ and $x_2 = 32$.

b. $x_1 = 29$ and $x_2 = 30$.
c. $x_1 = 59$ and $x_2 = 29$.
d. $x_1 = 39$ and $x_2 = 28$.
e. $x_1 = 49$ and $x_2 = 40$.

Problem 2: The demand for a monopolist firm's production is given as: $Q^D = 150{,}000 - 75P$.

The firm's total cost function is given as: $TC = 200Q + (1/40)Q^2$.

(a) If the firm acts as a monopolist, what price will it firm charge, how much will it produce, what are monopoly rents, and how much profit will it earn?

(b) Suppose instead the firm acts as a perfect competitor. What price will it charge, how much will it produce, and how much profit will it earn?

(c) Graph the monopoly and perfect competition solution. Show on your graph the (i) prices and quantities, as well as (ii) deadweight loss, (iii) monopoly rents and (iv) profits.

(d) What are the following values when moving to the monopolistic pricing policy from competition?:
(i) change in consumer surplus,
(ii) change in producer surplus,

(iii) deadweight loss.

(e) Calculate the own-price demand elasticity when evaluated at the optimal monopoly solution? What is the Lerner-Index of monopoly power? How are the Lerner Index and demand elasticity related?

Problem 3: A firm has two factories for which costs are given by:

Factory 1: $TC_1(q_1) = 5q_1 + 5q_1^2$.
Factory 2: $TC_2(q_2) = 5q_2 + 10q_2^2$.

The firm faces the following demand curve:

$P = 10{,}000 - 2Q$ (where Q is total output, i.e. $Q = q_1 + q_2$.)

(a) On a diagram, draw the marginal cost curves for the two factories, the average and marginal revenue curves, and the total marginal cost curve (i.e., the marginal cost of producing $Q = q_1 + q_2$).

(b) Indicate the profit-maximizing output for each factory, total output, and price. Calculate the values of q_1, q_2, Q, and P that maximize profit.

Problem 4:

The employment of teaching assistants by major universities can be characterized as a monopsony. Suppose the demand for and supply of TAs can be characterized by the following equations:

$L = 100{,}000 - 50w$. (Demand for labor; MV)
$L = -10{,}000 + 75w$. (Supply of labor; AE)

where w is the wage (as monthly salary), and L is the number of TAs hired.

(a) If the university takes advantage of its monopsonist position, how many TAs will it hire? What wage will it pay? What are the university's monopsony rents?

(b) If, instead, the university was forced to act as a perfect competitor, how many TAs would it hire?

(c) Calculate the change in consumers' surplus, the change in producers' surplus, and the deadweight loss when moving from the efficient solution to the monopsony solution.

(d) Calculate the Lerner Index of Monopsony Power using two different formulas.