

**PRINCIPLES OF MICROECONOMICS (ECON 1101 SECTION 056)**  
**ASSIGNMENT #3**

**Due Monday, 27 Oct 2008, 5:00 pm.** Assignments should be typed and submitted in hardcopy. Graphs and calculations may be handwritten but must be neat and professional. Students are welcome to discuss homework in groups, but each student must prepare and submit a unique assignment and note the names of other group members. Answer all parts of all questions.

1. (15 points) Give two examples of industries that closely conform to the pure monopoly model. Describe how the industries exhibit each of the three defining characteristics of pure monopoly.
2. (5 points) Give an example of an industry that is not a monopoly. Which of the three defining characteristics of pure monopoly is not satisfied?
3. (20 points) A combination of copyright restrictions and high sunk costs give a company a monopoly in the historical dissertation database market. Suppose the market demand is given by  $P=1000-Q$ , and thus  $MR=1000-2Q$ . Suppose that marginal cost is zero, because an additional user costs the database company nothing. Suppose the fixed cost is 100,000.
  - (a) Calculate the price and quantity the profit-maximizing monopolist selects if no price discrimination is possible.
  - (b) Calculate the monopolist's profit if no price discrimination is possible.
  - (c) Calculate the monopolist's profit if it is able to perfectly price discriminate, that is charge everyone their maximum willingness to pay.
4. (20 points) In the early twentieth century, a nearly unregulated monopoly controlled streetcar service in Minneapolis and Saint Paul. Suppose that demand was given by  $P=200-0.1Q$ . Suppose that total cost was given by  $TC(Q)=15000+80Q+0.1Q^2$  and marginal cost was given by  $MC(Q)=80+0.2Q$ . The streetcar company could not price discriminate.
  - (a) Calculate the price and quantity the streetcar company would have selected.
  - (b) Calculate profits.

5. (20 points) A bank and an outlet store are both planning to open new branches in a city. Their profitability depends on both their own location and the location of the other business. In the payoff matrix below, the numbers before comma's are the bank's profits and the numbers after commas are the outlet store's profits.

		Outlet store	
		Locate downtown	Locate near freeway
Bank	Downtown	11, 17	8, 21
	Eastside neighborhood	7, 12	3, 20
	Near freeway	5, 10	9, 30

- Does the bank have a dominant strategy? If so, what is it?
- Does the outlet store have a dominant strategy? If so, what is it?
- Find all Nash Equilibria.

6. (20 points) In the payoff matrix below, the numbers before commas are firm 1's profits and the numbers after commas are firm 2's profits.

		Firm 2		
		Low output	Medium output	High output
Firm 1	Low output	750, 750	525, 850	350, 750
	Medium output	850, 525	550, 550	250, 350
	High output	750, 350	350, 250	0, 0

- Find all Nash Equilibria.
- For each Nash Equilibrium, list the outcomes that would have given higher profit to both firms.