

Finance 510 Midterm #2 Practice Questions

- 1) 1) Consider the following pricing game between Dell and Gateway. There are two types of demanders in the market, High and Low.

High demanders value a computer at \$4000. There are 100 of these people in the market.

Low demanders value a computer at \$1000. There are 200 of these people in the market.

If Dell and Gateway set the same price, they split the market. If they set different prices, the lower price takes the entire market. Assume that the marginal cost of a computer is \$500.

- a) Write the strategic form of the game (i.e. possible actions and payoffs). Assume that there are only two options for price \$4,000 or \$1000.
- b) What is each player's strategy? Explain the Nash equilibrium of the game.
- c) Suppose that Dell has the following beliefs about Gateway:

$$\Pr(P = \$4,000) = 2/3$$

$$\Pr(P = \$1,000) = 1/3$$

Can this strategy be consistent with a Nash equilibrium?

- d) Calculate the mixed strategy equilibrium for this game.
 - e) What percentage of the time will computer prices be low?
- 2) Consider the following version of the prisoners dilemma game (Player one's payoffs are in bold):

		Player Two	
		Cooperate	Cheat
Player One	Cooperate	\$15 \$15	\$0 \$50
	Cheat	\$50 \$0	\$10 \$10

- a) What is each player's dominant strategy? Explain the Nash equilibrium of the game.
- b) Why is an infinite horizon required for cooperation to occur? Explain.
- c) Now, suppose that this game was played an infinite number of times. For what values of the interest rate is the present value of cooperating higher than the value of cheating (so that a cooperative equilibrium could occur)?

- 3) Suppose that you operate a water park. You have the following demands for your rides. Rides have a marginal cost of \$5.

$$Q = \begin{cases} 50 - P, & \text{(Adults)} \\ 30 - P, & \text{(Children)} \end{cases}$$

- a) If you could set different ride prices for adults and children, what would you charge? What would you charge if you were required to charge everybody the same ride price?
 - b) Suppose you could engage in *two part pricing* (i.e a price per ride plus an entry fee. What would you charge for adults and children?
 - c) Now, suppose that you set *menu prices* (that is, you sell books of tickets – 1 ticket per ride). What ticket packages would you sell?
- 4) Suppose that the elasticity of demand for tennis shoes is 4 (and is constant). Calculate the markup that would be charged is a monopoly controlled the market. How would your answer change if the market was oligopolistic with an HHI index of 5,000.
- 5) Suppose that the (inverse) demand curve for bananas is given by
- $$P = 400 - 5Q$$
- Where Q is total industry output. The market is occupied by two firms, each with constant marginal costs equal to \$5.
- a) Calculate the equilibrium price and quantity assuming the two firms compete in quantities. Calculate the elasticity of demand facing each firm. How does this differ from industry elasticity?
 - b) Repeat parts (a) assuming the competition is in prices rather than quantities.
 - c) Suppose that each firm was capacity constrained. That is, each firm can only produce 100 units. How does this change your answers to (b)?
- 6) What is bundling? Give an example, of how bundling can increase a firms profits. What characteristics of market demand make bundling desirable?
- 7) Explain the similarities/difference between Cournot competition and Bertrand competition. What are the key assumptions/results of each?
- 8) Explain the following statement: “If firms are competing in quantities, then it pays to be the first to the market. However, if firms are competing in price, its worthwhile to wait for your opponent to make his move”
- 9) What is the chain store paradox? What is the major lesson we get from this game?
- 10) Explain the concept of *spatial competition*. How can this concept be generalized to talk about product variety choices?