1 Part I. Short answers.

1. Publishers of best-selling books typically price a hardcover edition at about $30 and then offer a paperback edition about a year later for about $15. Which of the following does this exemplify? List all relevant items.

   - Perfect price discrimination
   - Segmented markets
   - Signaling
   - Screening
   - One-sided private information (of buyers)
   - None of these apply

   This can be a case of segmented markets as the book publisher is practicing third degree price discrimination. The publisher is selling to customers which may have different demand functions and hence different prices.

2. New internet advertising increases your company's demand elasticity with respect to price and also with respect to advertising, so it will pay to increase your advertising budget. TFU

   Uncertain. (Look at the cheat sheet) We have the optimal ad budget, which is a ratio of the elasticity wrt advertising and elasticity wrt price. The ratio can vary with the elasticities. Depending upon the ratio, we can set the optimal ad budget.

3. In Rose City, all lumber yards advertise that they have the lowest price in town, and often offer to match the advertised prices of any other lumber yard. This is an example of Bertrand competition that brings about zero economic profits. TFU *False. This is price matching by the supplier. All lumber yards will be selling at the lowest price. More like an example of Sweezy oligopoly.*

4. Because firm managers are risk averse, an incumbent usually charges a higher price than a new entrant does. TFU *Uncertain. An incumbent would charge a higher price if he can differentiate the quality of the product sold. This is the case of homogeneous versus differentiated products. If the product is homogeneous and consumers do not care about quality, incumbent may be forced to sell at the same price as a new entrant.*

5. Your firm is planning to hold an auction to sell its mining facility. Which auction format would you recommend to maximize the price? Why? *The mining facility is most likely to have a common value instead of independent values, hence we should prefer an English auction. The buyers bid and the one with the highest price is the one who is able to purchase the mining facility. This could allow the seller to receive the maximum price.*

6. Your company is launching a new internet dating service. How might limit pricing, predatory pricing or penetration pricing help you succeed? Pick one and explain very briefly. *This would be more of a penetration pricing strategy as you would want to set a low price initially in order to attract customers. For instance, provide initial discounts such as providing first four months free for a customer.*

2 Part III

1. Airline analysts estimate that demand in the Bay Area for tickets to Los Cabos is usually given by where P is the ticket price and I is average customer income. However, when they analyze only data for students during spring

break, the coefficient on ln P becomes -3.0. Assuming that the estimates are correct and that airlines maximize profit, please find:

(a) the income elasticity and own price elasticity for the usual demand; *-2.0 and 1/10*

(b) airlines marginal cost if the usual ticket price is $360; *use p = markup * mc → mc=180*

(c) the profit maximizing ticket price for students on spring break; *270. using the same formula but now elasticity is -3.0.*

(d) ways to overcome the standard problems for charging a different price for different customers (in b and c). *check student id.*

2. You are the CEO of Comchip, a firm that sells specialized computers. Each of the firmÕs computers contain a unique chip that is produced at ComchipÕs west coast plant at a cost of CW(QC) = QC^2. Once produced, the chips are shipped exclusively to the firmÕs east coast plant. There, the computers are assembled, boxed, and shipped to the market at an additional cost of CE(Q) = 200Q. An economic consultant recently estimated the (inverse) demand for Comchip's computers as $P = 5000 - Q$.

   (a) Determine the optimal quantity and price for computers, (5 points) $MR = MC_W + MC_E$ $5000 - 2Q = 2Q + 200$, $Q = 4800/4 = 1200$

   (b) explain how you can offer incentives to both plant managers to produce the required number of chips and computers. (5 points) *This problem is related to transfer pricing. the incentive that west produces 1200 is* $2 * 1200 = 2400$.

3. Skip Problem 3. Not relevant for the final.

4. Stints are a standardized device produced by only two firms. Each of the firms independently chooses how many to produce, say Q_1 and Q_2, and price is determined by the (inverse) market demand curve $P = 280 - 2(Q_1 + Q_2)$. Currently the firms' costs are $C_1(Q_1) = 3Q_1$ and $C_2(Q_2) = 2Q_2$.

   (a) Determine the marginal revenue for each firm. (4 points)

$$MR_1 = 280 - 4Q_1 - 2Q_2$$

$$MR_2 = 280 - 2Q_2 - 4Q_2$$

   (b) Determine the reaction function for each firm. (4 points) *we get the reaction function from MR = MC. Notice that* $MC_1 = 3$ *and* $MC_2 = 2$

$$Q_1(Q_2) = 277/4 - Q_2/2$$

$$Q_2(Q_1) = 278/4 - Q_1/2$$

   (c) What are the equilibrium output choices, price and profits for each firm? (4 points) *dividing for firm 2 by 2,* $Q_2/2 = 278/8 - Q_1/4$

$$Q_1 = (277 * 2 - 278)/8 + Q_1/4$$

$$Q_1 = (277 - 278/2)(1/3) = 46 \rightarrow Q_2 = 278/4 - 46/2 = 46.5$$

Therefore, $p = 95$, $\pi_1 = 4232$ and $\pi_2 = 4324.5$

(d) Firm 2 cost advantage is due to a subsidy granted by its home state. How much would Firm 1 be willing to pay (say in campaign contributions) to remove the subsidy and thus increase firm 2's costs to $C_2(Q_2) = 3Q_2$? (4 points) *compute profits for the symmetric case. the difference between profits is the willingness to pay*.

5. Slug Insurance (SI) is planning to sell policies to 20,000 UCSC and Cabrillo students. They estimate that 80% of the students are low risk with average health costs CL = \$1000 per year and standard deviation = 1000. The other 20% are high risk with average health costs CH = \$ 2000 and standard deviation = 4000. All students have risk aversion coefficient r = 0.0002. SI is a risk neutral, for-profit company with negligible overhead costs. It can't tell whether an individual student is low or high risk.

   (a) Compute the willingness to pay for health insurance by each type of student, L and H. (4 points) *using the concept of certainty equivalent, for low 1100 and high 3600*

   (b) What annual premium (price of an insurance policy) would allow SI to break even, if all students joined? (3 points) *premium equal to* $1200 = 80\%1000 + 20\%2000$.

   (c) SI is thinking about charging \$400 above that break-even point. At that premium, which students would find it worthwhile to join SI, and what will be SI's profits? (4 points) *only high join. and negative profits!* $= 1600 - 2000$ *per person.*

   (d) How can SI adjust their strategy to increase profits? How much could they make? (2 points). *design self-selection mechanisms such as a program* (i) *high premium and low deductible for the high risk types and* (ii) *low premium and high deductible for the low risk types.*