Principles of Economics I: Microeconomics - Final A [1/15/10]

Note: You have 3 hours (9:10am-12:10pm), and there are 120 points. Allocate your time wisely.

Part I: Multiple Choice (15 questions, 15%)

1. A firm in a competitive market currently produces and sells 500 doorknobs for a price of $10 per doorknob. Which of the following events would decrease the firm's average revenue?

   a. The firm increases its output above 500 doorknobs.
   b. The firm decreases its output below 500 doorknobs.
   c. The market price of doorknobs rises above $10.
   d. The market price of doorknobs falls below $10.

2. A corporation has been steadily losing money on one of its product lines, Wally's Widgets. The firm produces Wally's Widgets in a factory that cost $20 million to build 10 years ago. The firm is now considering an offer to buy that factory for $15 million. Which of the following statements about the decision to sell or not to sell is correct?

   a. The firm should turn down the purchase offer because the factory cost more than $15 million to build.
   b. The $20 million spent on the factory is a sunk cost; that cost should not affect the decision.
   c. The $20 million spent on the factory is an implicit cost, which should be included in the decision.
   d. The firm should sell the factory only if it can reduce its costs elsewhere by $5 million.

3. If a monopolist's marginal costs increase by $1 for all levels of output, then

   a. the monopoly price will rise by $1.
   b. the monopoly price will rise by more than $1.
   c. the monopoly price will rise by less than $1.
   d. there is no change in the monopoly price and profits fall.

4. Monopolies are inefficient because they

   (i) eliminate barriers to entry.
   (ii) price their product at a level where marginal revenue exceeds marginal cost.
   (iii) restrict output below the socially efficient level of production.

   a. (i) and (ii) only
   b. (ii) and (iii) only
   c. (iii) only
   d. (i), (ii), and (iii)

5. Price discrimination is a rational strategy for a profit-maximizing monopolist when

a. the monopolist finds itself able to produce only limited quantities of output.
b. consumers are unable to be segmented into identifiable markets.
c. the monopolist wishes to increase the deadweight loss that results from profit-maximizing behavior.
d. there is no opportunity for arbitrage across market segments.

6. Which of the following markets impose deadweight losses on society?

(i) perfect competition
(ii) monopolistic competition
(iii) monopoly

a. (i) and (ii) only
b. (ii) and (iii) only
c. (i) and (iii) only
d. (i) only

7. The primary claim of defenders of advertising is that it

a. conveys information about firm profitability.
b. is psychological rather than informational.
c. enhances the information available to consumers.
d. reduces the elasticity of demand for a firm's product.

8. Which of the following statements is correct?

a. If duopolists successfully collude, then their combined output will be equal to the output that would be observed if the market were a monopoly.
b. Although the logic of self-interest decreases a duopoly's price below the monopoly price, it does not push the duopolists to reach the competitive price.
c. Although the logic of self-interest increases a duopoly's level of output above the monopoly level, it does not push the duopolists to reach the competitive level.
d. All of the above are correct.

9. Which of the following statements is (are) true of the prisoners' dilemma?

(i) Rational self-interest leads neither party to confess.
(ii) Cooperation between the prisoners is difficult to maintain.
(iii) Cooperation between the prisoners is individually rational.

a. (ii) only
b. (ii) and (iii)
c. (i) and (iii)
d. (i), (ii), and (iii)

10. Dan owns one of the many bakeries in New York City. Which of the following events will lead to an increase in Dan's demand for the services of bakers?

(i) The price of muffins increases. (Muffins are Dan's specialty.)
(ii) Dan adds three new ovens to the kitchen area to help the bakers work faster.
(iii) Local bakers form a union to protect themselves from low wages.

a. (i) and (ii)
b. (ii) and (iii)
c. (i) and (iii)
d. All of the above are correct.

11. Which of the following is *not* an explanation for why better educated workers earn more, on average, than less educated workers in the United States?

a. Better educated workers have higher marginal productivities, on average.
b. Compensating differentials lower the wages of skilled workers relative to unskilled workers.
c. The United States tends to import goods produced with unskilled labor, which reduces the U.S. demand for unskilled labor.
d. The demand for skilled labor has risen over time relative to the demand for unskilled labor.

12. A decrease in the price of DVD players leads consumers to buy more DVD players. From this information we can conclude that DVD players

a. are normal goods.
b. are inferior goods.
c. are luxury goods.
d. None of the above is correct.

13. Bundle J contains 10 units of good X and 5 units of good Y. Bundle K contains 5 units of good X and 10 units of good Y. Bundle L contains 10 units of good X and 10 units of good Y. Assume that the consumer's preferences satisfy the four properties of indifference curves. The price of X is $1, the price of Y is $2, and the consumer has an income of $20. Which bundle will the consumer choose?

    a. bundle J
    b. bundle K
    c. bundle L
    d. either bundle J or bundle K

14. Carlos, who knows nothing about construction, paid Joe to remodel a room in his house. Two years later, one wall in the remodeled room crumbled because Joe used poor-quality materials. This illustrates which economic problem?

    a. Adverse selection
    b. Screening
    c. Moral hazard
    d. Signaling

15. Which of the following statements captures the meaning of transitivity of preferences?

    a. If A is preferred to B, then B is less preferred than A.
    b. If A is preferred to B, and B is preferred to C, then A is preferred to C.
    c. If A is preferred to B and B is preferred to C, then the preference for A over B is stronger than the preference for B over C.
    d. If A is preferred to C, then there exists B such that A is preferred to B and C is preferred to A.

Part II: Economics in the News

A. (60%) Nexus One, iPhones, and jPhones

Read the following excerpts of an article from Wall Street Journal, January 6, 2010:
Google Opens New Front in Smart Phone Battle (By Jessica E. Vascellaro & Niraj Sheth)

Google Inc. muscled its way further into the mobile industry, unveiling its own branded mobile phone dubbed Nexus One and debuting a new online phone store through which it plans to sell the device and others directly to consumers.

The launch of Nexus One, a thin touch-screen device that runs Google's Android mobile operating system, thrusts the Mountain View, Calif., company deeper into competition with Apple Inc., which makes the popular iPhone.

But unlike Apple, which sells its devices through wireless carriers as well as through Apple stores and retail outlets such as Best Buy, Google is banking on a new business and distribution model to sell Nexus One. The device, built by partner HTC Corp., is being sold exclusively online and Google is lining up operators to offer wireless plans through its site.

Most U.S. consumers buy their phones from carriers like AT&T Inc. and Verizon Wireless who play a big role designing devices and spend to market them. The carriers also subsidize the cost for consumers, in exchange for getting them to sign up for service contracts.

Google, which has butted heads with carriers about which Google applications the carriers will support, believes selling phones directly to consumers online will get mobile devices with more advanced features into the market faster and lower the costs of high-end phones over time, executives said…

Answer the questions below:

1. (3%) Consider the industry of smart phones. Assume that all firms have the same marginal cost, which is constant for any smart phone produced. Assume firms pre-commit (in the short run) to a fixed cost, which is spent on innovating new designs and/or advertisement. There are several types of firms in this industry:
   a. Apple spent a lot to design its iPhone and captured a growing group of loyal customers since it was launched, and was the only company focused on stylist smart phones (before Nexus One came about).
   b. Google recently launched its own Android mobile phone Nexus One, and decided to sell it exclusively online, making Google one of the several brand names that are in the smart phone market.
   c. Pineapple Inc. is one of the numerous companies in Tailiok who buy smart phone chips from Mediatek (聯發科), and make jPhones, the copy-cat version (山寨版) of iPhones.

   Classify the above three firms as either monopoly, perfectly competitive, or monopolistic competition firms.
2. (19%) Consider Apple, who spends a one-time fee of US$90,000,000 on design, but then has a constant marginal cost of US$99 per iPhone produced.
   a. Suppose the demand for iPhone is P=899-18.4Q (Q in millions) and the marginal revenue is MR=899-36.8Q. Solve for Apple's profit maximization quantity, price and profit.
   b. Draw a diagram showing Apple's demand, marginal-revenue, average-total-cost and marginal-cost curves. Label Apple's profit-maximizing prices and quantity. Also indicate Apple's markup over marginal cost and profit on the graph.
3. (13%) Now consider Pineapple Inc. , who spends zero on design and innovation, but can produce up to 100 million jPhones with a same constant marginal cost of US$99 as Apple (and no more beyond):
   a. Draw a diagram showing Pineapple Inc.'s demand, marginal-revenue, and marginal-cost curves. Label Pineapple Inc.'s profit-maximizing prices and quantity. Also show Pineapple Inc.'s markup over marginal cost and profit.
   b. How does the diagram differ from Apple's diagram? Which company has the bigger markup? Explain.
   c. Which company has the bigger incentive for careful quality control? Why?
4. (25%) Final, consider Google who just spent US$9,000,000 on design for its Nexus One, and has the same constant marginal cost of US$99 as Apple, and competes with many other brand names, such as Blackberry, Nokia and Samsung.

a. Suppose the demand for Google's Nexus One is P=499.5-9.2Q (Q in millions) and the marginal revenue is P=499.5-18.4Q. Solve for Google's profit maximization quantity, price and profit. (Hint: You can use what you learned from question 2a.)
b. Draw a diagram showing Google's demand curve, marginal-revenue curve, average-total-cost curve, and marginal-cost curve. Label Google's profit-maximizing output and price.
c. What is Google's markup and profit? Is the market in its long-run equilibrium? Explain.
d. On your diagram, show the consumer surplus derived from the purchase of Nexus Ones. Also, show the deadweight loss relative to the efficient level of output.
e. If the government forced Google to produce the efficient level of output, what would happen to the firm? What would happen to Google's customers?

B. (30%) Labor Market after Mergers

Read the following excerpts of an article of Taiwan News on 2010/01/11:

Taiwan Labor Ministry opposes layoffs after financial mergers

TAIPEI (Taiwan News) – Mergers of financial institutions should not result in staff layoffs, the Council of Labor Affairs said Monday despite objections from the Financial Supervisory Commission.

The CLA announced the proposal on its web site as part of plans to amend the Labor Standards Act. In the case of mergers, splits and other changes of status by financial institutions like banks, insurance companies and stockbrokers, staff should not be laid off and labor contracts should not be changed for two years after the merger unless the employees agreed, the CLA said.

Even if the employee disagreed with his layoff or with a new contract, he could not be forced to leave the company, according to the CLA proposal.

If the employee decided not to stay after a merger, the employer would still be forced to give him time off to search for a new job, as well as severance pay and a pension.

The FSC expressed reservations, saying the financial sector would be handicapped if regulations for its mergers were different from those for other businesses… (omitted)

The banking sector itself also opposed the measure, the Chinese-language United Evening News reported Monday. Chinatrust Financial Holdings' current involvement in Nan Shan Life Insurance might be the first case to fall under the new rules if they take effect, the paper said. The takeover is already marred by allegations of potentially illegal involvement of funds from China.

Answer the following questions:

1. (2%) Consider the labor market for Nan Shan Life Insurance employees after the merger, in which the take-over firm, Chinatrust Financial Holdings, is the monopsony (single buyer), and former Nan Shan Life Insurance employees are the only group of sellers. How does Chinatrust determine its "demand" for Nan Shan employees?

2. (7%) Draw a diagram and find Chinatrust's profit maximizing wage and quantity. (Hint: This is the "reverse" of a monopoly, with a "supply curve + marginal cost curve" instead of a "demand curve +marginal revenue curve.")
3. (2%) Is the monopsony outcome efficient? Why or why not?
4. (5%) Now consider a binding "quantity floor" which bans Chinatrust from firing Nan Shan workers. Illustrate on your diagram the new profit maximizing wage and quantity. Is this outcome more efficient than that without the quantity floor? Why or why not?
5. (14%) Suppose Chinatrust is no longer a monopsony and Nan Shan employees could provide their services to any other company.
    a. Draw a diagram and find Chinatrust's profit maximizing wage and quantity.
    b. Is this outcome efficient? Why or why not?
    c. Now consider a binding "quantity floor" which bans Chinatrust from firing Nan Shan workers. Illustrate on your diagram the new profit maximizing wage and quantity. Is this outcome more efficient than that without the quantity floor? Why or why not?

C. (15%) Retail vs. e-tail

Read the following excerpts of an article from the Economist, Nov 26th 2009:

Bleak Friday: Bricks-and-mortar shops struggle to win customers back from virtual ones

SHOPPERS on Black Friday, the traditional start of the holiday shopping season in America, which falls on November 27th this year, are notoriously aggressive… Despite the frenzy at many stores, however, the recession appears to have accelerated the pace at which shoppers are abandoning bricks and mortar in favour of online retailers—e-tailers, in the jargon. So this year Black Friday (so named because it is supposed to put shops into profit for the year) also marks the start of many conventional retailers' attempts to regain the initiative.

E-commerce holds particular appeal in straitened times as it enables people to compare prices across retailers quickly and easily. Buyers can sometimes avoid local sales taxes online, and shipping is often free. No wonder, then, that online shopping continues to grow even as the offline sort shrinks. In 2008 retail sales grew by a feeble 1% in America and are expected to decline by more than 3% this year, according to the National Retail Federation, a trade body. In contrast, online sales grew by 13% in 2008 to over $141 billion and are predicted to grow by 11% in 2009, according to Forrester, a consultancy … (omitted)

The shift in spending to the internet is good news for companies like P&G that lack retail outlets of their own. But it is a big concern for brick-and-mortar retailers, whose prices are often higher than those of e-tailers, since they must bear the extra expense of running stores. Happily, however, conventional retailers are in a better position to fight back than last year, when overstocking forced them to resort to ruinous discounting. Inventories are about 15% lower this year. Some big retailers, such as Saks and Target, have recently reported rising revenues and margins.

The most obvious response to the growth of e-tailing is for conventional retailers to redouble their own efforts online…

The concept of “multichannel” shopping, where people can buy the same items from the same retailer in several different ways—online, via their mobile phones and in shops—is gaining ground, and retailers are trying to encourage users of one channel to try another. Growing online traffic may actually increase sales in stores too. According to a spokesman for Macy’s, a department-store chain, every dollar a consumer spends online with Macy’s leads to $5.70 in spending at a Macy’s store within ten days, because consumers learn about other products online and come into stores to look them over before buying them. Many online retailers offer tools that let people locate the nearest outlet that has a given item in stock…

Stores are also trying to lure customers by offering services that are not available online. Best Buy, a consumer-electronics retailer, has started selling music lessons along with its musical instruments. Lululemon athletica, which sells sports clothes, offers free yoga classes. The idea is to bring people back to its shops regularly, increasing the likelihood that they will develop the habit of shopping there…

Answer the following question:

1. (3%) Conventional retailers and online e-tailers sell the same product. Is this market structure closer to monopoly, perfect competition, monopolistic competition or oligopoly? How would retailers and e-tailers choose their prices under this market structure?
2. (2%) According to the article, which has lower marginal cost, conventional retailers or online e-tailers? Who is more likely to survive?
3. (5%) What is the reaction of the other group of retailers? Why can such action avoid the usually outcome of this market structure?
4. (5%) According to Beijing Daily News, 1/12, 2010, three publisher associations in China decided to impose a price floor on all new books sold in China. In particular, this “retail price fixing” requires online bookstores to sell at prices at least 85% of the listed price on the copyright page.
    a. Provide an reason why such “retail price fixing” could be a good idea.
    b. Provide an reason why such “retail price fixing” may not be a good idea.
    c. In the case of China, which of the two cases above is more likely?