

**Concordia University
Department of Economics**

**ECON 201 – INTRODUCTION TO MICROECONOMICS
Winter 2009**

COMMON FINAL EXAMINATION AND ANSWERS VERSION 1

STUDENT NAME: _____

STUDENT NUMBER: _____

Please read all instructions carefully.

1. This is a three-hour exam (180 minutes). The questions are worth 150 marks altogether. It is a good strategy to spend one minute per mark for your answers (150 minutes) and spend the remaining time (30 minutes) to review your answers.
2. The exam has 15 pages and it consists of four parts.
 - (i) Part I: 25 multiple-choice questions (25 marks);
 - (ii) Part II: Choose 5 out of 7 “true-false” questions (25 marks);
 - (iii) Part III: Choose 4 out of 5 long questions (80 marks), and
 - (iv) Part IV: Choose 2 out of 3 “current events” questions (20 marks).
3. Write your answers for the multiple-choice questions on the computer scan-sheet with a **pencil**. For Parts II to IV, write all your answers on this exam. Do not use additional booklets.
4. You are allowed to use a non-programmable calculator. You may use either pen or pencil to provide your answers for Parts II to IV.

Grades:

Part I: _____

Part II: _____

Part III: _____

Part IV: _____

Total: _____

Part I: Twenty-five (25) Multiple Choice Questions. Write your answers on the computer sheet provided. Please use a PENCIL (Total=25 marks).

1. If the price elasticity of demand is -1.5, then a 30% price hike will lead to a
 - a. 15% drop in quantity demanded.
 - b. 30% drop in quantity demanded.
 - c. 45% drop in quantity demanded.**
 - d. 60% drop in quantity demanded.
 - e. 150% drop in quantity demanded.

2. Joe and Maria work for Purely Pizza. Maria claims they would decrease their total revenue by increasing the price of their pizza while Joe believes they would be better off by increasing the price. We can conclude that
 - a. Maria thinks the pizza demand elasticity is zero, and Joe thinks it equals 1.
 - b. Maria thinks the demand for pizza is price inelastic and Joe thinks it is price elastic.
 - c. Maria thinks the demand for pizza has price elasticity equal to 1 and Joe thinks the price elasticity equals zero.
 - d. Maria thinks the demand for pizza is price elastic and Joe thinks it is price inelastic.**
 - e. they are both wrong.

3. Currently Joe and Helen are consuming the same amount of strawberries, but Joe's demand curve is less elastic than Helen's. Which statement is true?
 - a. Helen's consumer surplus exceeds Joe's.
 - b. Any comparison of consumer surplus depends on the price of strawberries.
 - c. Helen's consumer surplus equals Joe's.
 - d. No statement can be made regarding consumer surpluses.
 - e. Joe's consumer surplus exceeds Helen's.**

4. Where the marginal revenue curve corresponding to a downward sloping demand curve is positive, the demand elasticity
 - a. is greater than one in absolute value.**
 - b. is exactly unity.
 - c. is less than one in absolute value.
 - d. is zero.
 - e. is infinite.

5. A consumer maximizes his total utility when goods A and B are consumed such that MU_A/MU_B
 - a. equals the ratio of total utility of A to that of B.
 - b. equals the ratio of the price of B to the price of A.
 - c. equals the ratio of the price of A to the price of B.**
 - d. equals the ratio of the quantities demanded.
 - e. always equals unity.

6. A diminishing marginal rate of substitution implies that individuals
 - a. get more utility from a good when they have less of it.
 - b. get greater marginal utility when they have less of it.**
 - c. get less total utility as a result of consuming more.
 - d. get greater marginal utility when they consumer more.
 - e. none of the above.

7. By law, a company must:
 - a. pay all of its net profits to the shareholders because the shareholders are the legal owners.
 - b. retain some profits to protect the future of the company.
 - c. ensure that owners make a capital gain on their investment.
 - d. all of the above.
 - e. none of the above.**

8. Limited liability means that:
 - a. the chief executive cannot be sentenced to prison in case of malpractice.
 - b. the firm's proprietor has undefined risk.
 - c. the shareholders of the company have limited exposure to debt repayment.
 - d. the shareholders have no personal responsibility for debt incurred by the company.**
 - e. holders of corporate debt get last claim on a company's income.

9. The principal-agent problem refers to a situation where:
- the owner has the wrong objectives for her company.
 - the owner and the manager disagree over policy.
 - the manager may not maximize profits of the company, but may foster his own interests.**
 - the manager maximizes market share.
 - the manager always follows the directives from a corporation's directors.
10. For the following gamble, with a probability of 20% that one wins \$100 and an 80% probability of losing \$25, Regis takes the gamble and Bryan rejects it. One can infer that:
- both Regis and Bryan are risk averse.
 - neither Regis nor Bryan are risk averse.
 - Regis is risk averse and Bryan is risk neutral.
 - Bryan is risk averse and Regis is risk neutral.**
 - both are risk neutral.
11. Suppose that you are a risk averter and you have the opportunity to play a game and either win or lose \$500. We can conclude that you:
- will be unable to decide whether to play the game or not.
 - will play the game because the chance to win \$500 brings more pleasure than the potential pain received by losing \$500.
 - will play the game because the pain resulting from a \$500 loss is less than the pleasure resulting from the \$500 win.
 - will not play the game because the potential loss of \$500 generates more pain than the potential pleasure of winning \$500.**
 - will play any game where there is an equal chance of winning and losing the same amount.
12. Joe is a tax accountant. He receives \$80 per hour doing tax returns. He can type 16 pages per hour. He can hire an assistant who types 10 pages per hour. Which of the following statements is true?
- Joe should not hire an assistant because the assistant cannot type as fast as he.
 - Joe should hire the assistant as long as he pays the assistant less than \$100 per hour.
 - Joe should hire the assistant as long as he pays the assistant less than \$80 per hour.
 - Joe should hire the assistant as long as he pays the assistant less than \$50 per hour.**
 - Joe should hire the assistant as long as he pays the assistant less than \$40 per hour.
13. When asked in an interview what she missed the most because of the time she spent training for the Olympics, a rower revealed that she had given up a job that paid \$35,000 per year to train full-time. She received a grant of \$7,000 per year from Sports Canada, but this could not cover all her training expenses. Her food and rent were \$10,000 per year and training expenses were \$12,000 per year. What is the annual opportunity cost, expressed in dollars, to this rower of "Going for Gold"?
- \$28,000.
 - \$35,000.
 - \$40,000.**
 - \$52,000.
 - \$54,000.
14. At its current level of output, a perfectly competitive firm's, average variable cost is \$10, average total cost is \$12, and marginal cost is \$14. If the market price is \$16, this firm can increase profits by
- shutting down production.
 - decreasing output.
 - increasing output.**
 - increasing the market price.
 - not changing output because this firm is at its profit-maximizing position.
15. In the short run, a monopolist has a MC curve that is constant at \$10 per unit. At his present output the MR is \$16. To maximize profit he should:
- shut down.
 - expand output and raise price.
 - expand output and cut price.**
 - cut output and raise price.
 - cut output and price.

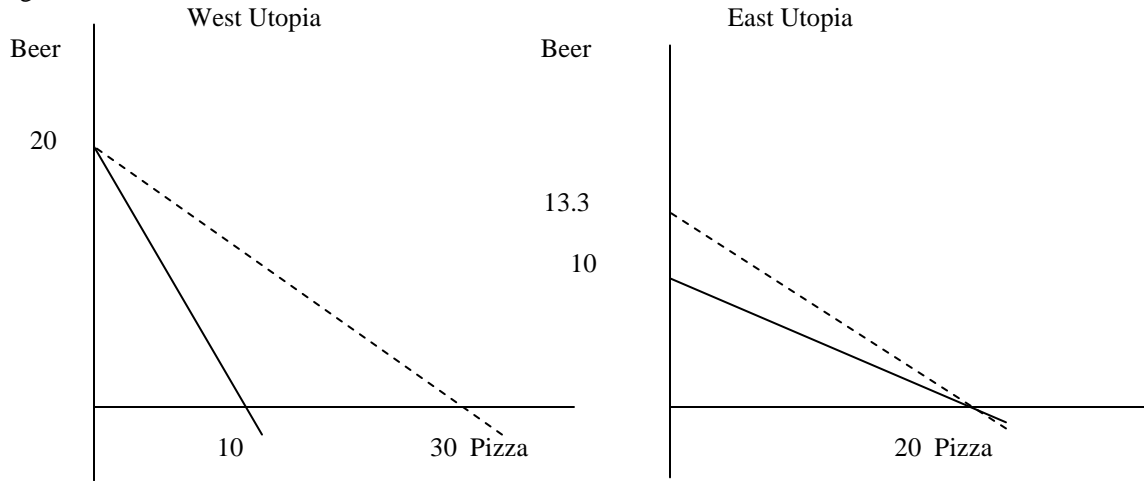
16. Table X: Costs of producing wine and windmills for electricity generation

	France (euros)	Germany (euros)
Wine	10	20
Generator	10,000	30,000

Referring to the above table X, we can say:

- a. France has a comparative advantage in both goods.
 - b. France has a comparative advantage in wine and Germany has a comparative advantage in generators.
 - c. Germany has a comparative advantage in wine and France has a comparative advantage in generators.**
 - d. Germany has a comparative advantage in both goods.
 - e. these countries gain no benefit from trading.
17. Excess capacity in monopolistically competitive firms is caused by
- a. the fact that rival firms enter the industry and reduce the demand for the products of the firms already in the industry.
 - b. the fact that each firm attempts to maximize profits.
 - c. cost curves being higher than they are under perfect competition.
 - d. the waste associated with many differentiated products serving almost the same purpose.
 - e. the fact that each firm faces a demand that is not perfectly elastic.**
18. Once a cartel determines the profit-maximizing price,
- a. each member will face the temptation to cheat on the cartel price in order to increase its sales and profits.**
 - b. changes in the output of any member firms will have no impact on the market price.
 - c. entry into the industry of rival firms will raise profits as long as they join the cartel.
 - d. entry into the industry of rival firms will have no impact on the profit of the cartel.
 - e. all members of the cartel have a strong incentive to abide by the agreed-upon price.
19. Which of the following is not a requirement of a game?
- a. Players.
 - b. Payoffs.
 - c. Dominant strategies.**
 - d. Knowledge of the payoffs.
 - e. Optimizing participants.
20. A Nash equilibrium is one where
- a. the game has only one winner.
 - b. each player could do better by adopting a different strategy.
 - c. each player is doing her best, given the strategy of the other player.**
 - d. the outcome is always a prisoners' result.
 - e. the participants make the maximum possible total profit for two firms combined.
21. An implicit or explicit agreement between two firms in an industry not to compete with each other is known as:
- a. the duopoly model.
 - b. collusion.**
 - c. non-cooperative oligopoly.
 - d. product differentiation.
 - e. prisoners' dilemma.
22. In Canada, competition policies are governed by _____, and it _____
- a. the Competition Bureau, prohibits the formation of monopolies.
 - b. the Competition Bureau, does not prohibit the formation of monopolies.**
 - c. the Department of Finance, prohibits the formation of monopolies.
 - d. the Department of Finance, does not prohibit the formation of monopolies.
 - e. Canada Revenue Agency, prohibits the formation of monopolies.

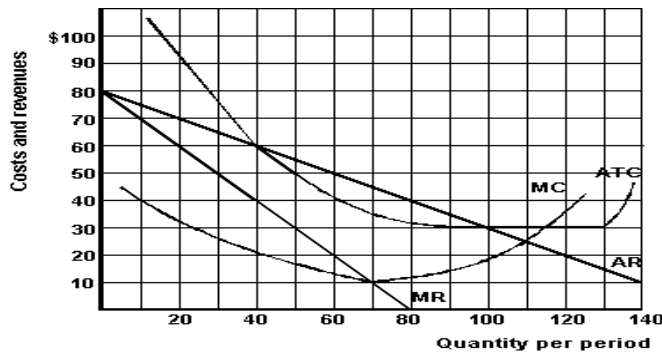
23. Figure Y:



Referring to the above figure Y: The solid lines are production possibilities curves; the dashed lines are trading possibilities curves. The opportunity cost of producing a:

- a. pizza is 2 beers in both countries.
- b. beer is 1/2 a pizza in both countries.
- c. pizza in East Utopia is 1 beer.
- d. beer in West Utopia is 1/2 a pizza.**
- e. beer in West Utopia 2 pizzas.

24. Figure Z:



Referring to figure Z above: If the monopolist wishes to maximize its **total revenue**, what will be its price and output?

- a. \$0 and 80.
- b. \$10 and 70.
- c. \$10 and 140.
- d. \$40 and 80.**
- e. \$45 and 70.

25. Table W:

Price of beer (\$/unit)	Total Quantities		
	Group A	Group B	Group C
5	18	41	60
4.50	26	48	65
4	34	55	70
3.50	42	62	75
3	50	69	80
2.50	58	76	85

Referring to the above table W: If the beer producers could price discriminate on the basis of consumer type, in order to maximize total revenue, what price should be charged to each group?

- a. \$3, \$3 and \$4.
- b. \$3, \$4 and \$4.
- c. \$3, \$4 and \$5.**
- d. \$3.50, \$4 and \$4.50.
- e. \$4, \$4, \$5.

Part II: Answer FIVE of the following seven questions in the allotted space. If more than five questions are answered, only the first five will be marked. State whether each statement is true or false and explain. Use graphs to support your answers when applicable. No marks will be awarded to simply stating “true” or “false” without explanation (Total=25 marks).

1. In the absence of externalities, a production subsidy can increase an economy's total surplus because the last unit produced equates marginal benefits and marginal costs.

Ans: False → $MB < MC$, overproduction.

2. A private market equilibrium (private demand = private supply) is socially sub-optimal when there are negative externalities, but the equilibrium is socially optimal when there are positive externalities.

Ans: False → negative externalities and overproduction, positive externalities and underproduction.

3. A profit-maximizing monopolist will produce at the inelastic portion of his/her demand curve.

Ans: False → $MR = MC$, $MR < 0$ and hence would imply we require $MC < 0$ to intersect MR in the inelastic portion.

4. In a monopolistically competitive industry, free entry and exit of firms in the long run will drive economic profits to zero and the firms will produce at the output level at which $P=ATC_{min}$.
Ans: False → π could be zero but product differentiation means the individual firm's demand is negatively sloped, $P=ATC$ but not at ATC_{min} .
5. The average product (AP) and marginal product (MP) curves intersect at the maximum of the MP curve.
Ans: False → AP intersects MP at the maximum of the AP curve.
6. Hanna consumes only food and clothing, and the price of food is \$4 per unit and clothing is \$12 per unit. If Hanna wants to maximize her total utility, she should consume food and clothing until the marginal utilities from the last unit of food and clothing consumed are equal to 12 and 4, respectively.
Ans: False → MU from food should be 1/3 of the MU from clothing, but not necessarily 4 and 12.
7. The concept of comparative advantage states that the gains from trade arise from the fact that the countries' production possibilities frontier shifts outward as a result of free trade.
Ans: False → PPF does not shift, but rather we choose to produce on a point of the PPF that exploits our CA and produce more of/only the products in which we have lower opportunity costs. The gains come from increase in consumption.

Part III: Answer FOUR of the following five questions. If more than four questions are answered, only the first four will be marked (Total=80 marks).

Question 1 (20 marks)

The market for chess sets in Dumbledorf is given by the following demand and supply equations:

Demand $\rightarrow P = 110 - 3Q$

Supply $\rightarrow P = 10 + 2Q$

- (i) Calculate the equilibrium market price and quantity (2 marks).

Ans: $P=\$50$, $Q=\$20$.

- (ii) Suppose now that the government decides to subsidize chess sets by giving suppliers a \$10 subsidy for every set they produce. Calculate the new market equilibrium and illustrate graphically (6 marks).

Ans: $P=\$44$, $Q=22$.

- (iii) Compute the consumer and producer surpluses in the new market equilibrium (4 marks).

Ans: $PS=\$484$, $CS=\$726$.

- (iv) With no subsidy, but instead a price ceiling of $P = \$46$, compute the producer and consumer surpluses and illustrate graphically (8 marks).

Ans: $PS=\$324$, $CS=\$666$.

Question #2 (20 marks)

Suppose the prices of two goods are $P_x = \$12$ and $P_y = \$5$, and we observe the consumer to purchase exactly five units of each good.

- (i) Graph the resulting budget constraint on a diagram (with good Y on the vertical axis and good X on the horizontal axis), with intercepts clearly marked, explaining how you arrive at the answers. What is the consumer's total income? (4 marks)

Ans: Income = $\$5 \cdot 12 + \$5 \cdot 5 = \$85$. Intercepts are $y = 85/5 = 17$; $x = 85/12$ or 7.0833.

- (ii) What is the numerical value of the MRS at this equilibrium? (4 marks)

Ans: $P_x/P_y = 12/5 = 2.4$.

- (iii) Now suppose the government puts a tax on good X of \$2 per unit. What is the numerical value of the MRS at the new equilibrium? Explain (6 marks).

Ans: $14/5 = 2.8$.

- (iv) Instead of the tax on X, suppose that the government reduces the consumer's income by \$10. If good X is inferior, carefully illustrate on a diagram a possible new equilibrium where the first equilibrium is also illustrated (6 marks).

Ans: An equilibrium below and to the right on a lower indifference curve.

Question #3 (20 marks)

Suppose that both Tom and Sara like to grow tomatoes and green peppers in their backyards. In a 30-day month, Tom can grow in his backyard either 80 tomatoes and 0 peppers or 0 tomatoes and 40 peppers or any other combination lying on the line between these two points. In the same amount of time, Sara can grow in her backyard either 40 tomatoes and 0 peppers or 0 tomatoes and 8 peppers or any other combination lying on the line between these two points.

- (i) No trade: Assume that Tom and Sara both spend half of their time to produce tomatoes and the other half of their time to produce peppers. How many tomatoes and peppers can each consume? Draw two separate graphs for their PPFs, with tomatoes (T) on the vertical axis and peppers (P) on the horizontal axis (4 marks).

Ans: Tom consumes (40T, 20P), while Sara consumes (20T, 4P).

Graphs in previous versions were incorrect.

- (ii) If they start trading with each other, what should Tom sell and what should Sara sell? Explain by calculating the opportunity costs of producing peppers and tomatoes for Tom and Sara, respectively (4 marks).

Ans: Tom should sell peppers, while Sara should sell tomatoes. This is because Tom has a lower OC than Sara in producing peppers (Tom $\rightarrow 1P=2T$; Sara $\rightarrow 1P=5T$), while Sara has a lower OC in producing tomatoes (Tom $\rightarrow 1T=0.5P$; Sara $\rightarrow 1T=0.2P$).

- (iii) Following from (ii): Suppose Tom and Sara each specializes in producing only the good in which she/he has a lower opportunity cost. Also suppose Tom and Sara exchange 5 peppers for 15 tomatoes with each other (you have to determine who sells peppers and who sells tomatoes). Calculate the new consumption bundles of Tom and Sara and plot them on your graphs in (i) (6 marks).

Ans: Tom consumes (15T, 35P), while Sara consumes (25T, 5P).

- (iv) Following from (iii): Show that given Tom's and Sara's consumption quantities of tomatoes, they could not have produced/consumed the corresponding quantities of peppers you have found in (iii) in the absence of trade (6 marks).

Ans: Tom gains because if he were to produce 15T himself (5.625 days out of 30), his remaining time (24.375 days) can only be used to produce 32.5P. Now he enjoys 35P.

As for Sara, if she were to produce 25T (takes her 18.75 days), her remaining time (11.25 days) can only be used to produce 3 P. Now she has 5P, therefore she also gains.

Question #4 (20 marks)

Suppose the market for internet “dot-com” companies is characterized by perfect competition. The total cost function TC for every single firm is given by $TC = Q_s^2 + 10Q_s + 100$, where Q_s is an individual firm’s quantity supplied. Think of this as the short run cost corresponding to the minimum of the long run average cost curve.

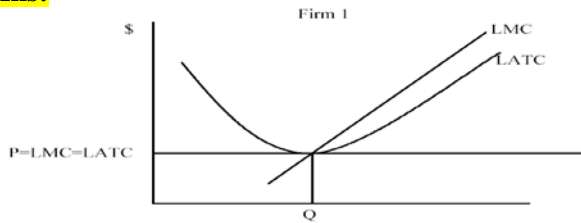
The marginal cost MC corresponding to this TC is given by $MC = 2Q_s + 10$.

Total demand from all consumers is the market demand $P = 1000 - QD$.

Note that each firm takes P as given, but all firms collectively determine P. In the industry equilibrium $QD = QS$, where QS is the sum of all individual firms’ Q_s .

- (i) Individual firm: Let P be unknown for now. Illustrate the long run equilibrium for a representative firm by drawing the MC, the ATC and the equilibrium price (2 marks).

Ans:



- (ii) Individual firm: Let P be unknown for now. Solve for the individual firm’s Q_s (2 marks).

Ans: Set $MC=ATC$, where $ATC=TC/Q$, this will yield $Q=10$.

- (iii) Individual firm: Let P be unknown for now. Find the individual firm’s MC at the equilibrium output (2 marks).

Ans: Plug $Q=10$, $MC=\$30$.

- (iv) Individual firm: Find the individual firm’s ATC at this output (2 marks).

Ans: $ATC=MC=\$30$.

- (v) Individual firm: Find the identical P that each firm will charge (2 marks).

Ans: $P=MC=ATC=\$30$.

- (vi) Industry: Given your P in (v), find the industry equilibrium $QS=QD$ (2 marks).

Ans: $P=1000-QD$, so $\$30=1000-QD$, so $QD=QS=970$.

- (vii) Given all of your answers above, how many firms are there in the industry? (2 marks)

Ans: Since we know each firm supplies $Q=10$, and total $QS=970$, so there are 97 firms.

- (viii) What is the value of industry profits? (2 marks)

Ans: Since $P=ATC$, profits= $\$0$.

- (ix) Now, suppose that the popularity of “dot-com” company products falls. In the short run, will the firms in the market earn profits, earn losses, or break even? Describe what will happen, no need for calculations. For simplicity, assume that the cost curves will not change (2 marks).

Ans: Demand shifts inward, and in the short run, fixed costs cannot be avoided. Therefore, the existing firms will earn negative profits.

- (x) In the long run, will the number of firms in the market increase or decrease? Explain (2 marks).

Ans: Some firms in (x) will exit, hence there will be fewer than 97 firms in the market.

Question 5 (20 marks)

A large share of the world supply of diamonds comes from Russia and South Africa. Suppose that the marginal cost of mining diamonds is constant at $MC = \$2000$ per diamond. For simplicity, marginal cost = average total cost. The demand for diamonds is described by the following schedule:

Price	Quantity	TR	MR (per diamond)
\$9 000	4 000	36,000,000	-----
8 000	5 000	40,000,000	4,000
7 000	6 000	42,000,000	2,000
6 000	7 000	42,000,000	0
5 000	8 000	40,000,000	-2,000
4 000	9 000	36,000,000	-4,000
3 000	10 000	30,000,000	-6,000
2 000	11 000	22,000,000	-8,000
1 000	12 000	12,000,000	-10,000

- (i) If there were many, many suppliers of diamonds, what would be the price, quantity and profits (3 marks)?

Ans: $P = MC$, so quantity supplied=11,000, $P=\$2,000$ and $\pi=0$.

- (ii) Fill in the table above for TR and MR (per diamond) (4 marks).

Ans: See above.

- (iii) If there were only one supplier of diamonds, what would be the price, quantity and profits (3 marks)?

Ans: $MR=MC$, and $MR=\$2,000$ at $Q=6,000$, $P=\$7,000$ and $\pi=(\$7,000-\$2,000)*6,000=\$30,000,000$.

- (iv) If Russia and South Africa formed a cartel, what would be the price and quantity? If the countries split the market evenly, what would be South Africa's production and profit? What would happen to South Africa's profit if it increased its production by 1,000 while Russia stuck to the cartel agreement? (8 marks)

Ans: They would jointly behave as a monopolist and charge $P=\$7,000$, $Q=6,000$ and $\pi=\$30,000,000$. If they split the profits evenly, then each produces $Q=3,000$ and earns $\$15,000,000$. However, if South Africa produces $Q_s=4,000$ and Russia sticks to $Q_r=3,000$, then the total quantity supplied is 7,000. At this Q , the price is $\$6,000$. South Africa will earn $\pi=(\$6,000-\$2,000)*4,000=\$16,000,000$, while Russia will earn $\pi=(\$6,000-\$2,000)*3,000=\$12,000,000$.

- (v) Use your answer to part (iv) to explain one reason why cartel agreements are often not successful? (2 marks)

Ans: Because any previous tacit agreement to cut back production to keep prices high will not be honoured. Each firm has the incentive to cheat on the other, i.e., "agree" to cut back production and then subsequently raise output. The cheater earns more profits, and the cheated loses. The "cheated" knows this, it will cheat simultaneously.

Part IV: Choose TWO out of the following three questions. If more than two questions are answered, only the first two will be marked (Total = 20 marks).

Question #1 (10 marks)

Sharp fined for fixing display panel prices

The Associated Press, Updated Thu. Dec. 18 2008 7:51 AM ET

TOKYO -- Japan's fair trade watchdog on Thursday slapped Sharp Corp. with a 261 million yen (US\$3 million) fine for fixing prices of liquid crystal display panels used for Nintendo's popular DS portable game machines.

The Fair Trade Commission said Sharp and Hitachi Display Ltd., a unit of Hitachi Ltd., had violated the Anti-monopoly law by controlling prices. The two companies "exchanged information about display prices and agreed on the need to prevent a decrease in prices," said the commission in a statement.

Previously, Sharp was ordered by the U.S. Justice Department in November to pay US\$120 million in fines for fixing prices of liquid crystal display panels used for Apple and Dell computer products. Sharp said the company had agreed to pay the penalty in the U.S.

- (i) Set up the matrix of profits depending on the pricing policy of Sharp and Hitachi. The possible profit levels under different pricing policies are \$500, \$700, \$900 and \$1,000 (values are in millions). Hint: This is a prisoners' dilemma game (4 marks).

		Hitachi	
		High Price	Low Price
Sharp	High Price	900 / 900	500 / 1,000
	Low Price	1,000 / 500	700 / 700

- (ii) Find the Nash equilibrium. Explain why this equilibrium is a "prisoners' dilemma" (2 marks).

Ans: If the two companies competed for clients, they would both follow a low price strategy, which would entail \$700 million profits to each one. The (HP, HP) yields higher payoffs, so (LP, LP) is an inferior outcome.

- (iii) The article says that Sharp and Hitachi were previously fixing prices. Discuss two conditions that could have allowed them to achieve the price-fixing outcome (4 marks).

Ans: Repeated games, ability to monitor cheating and impose punishment, discount rates, etc.

Question #2 (10 marks)

Which businesses are recession-proof?

CTV.ca News Staff, Updated Mon. Dec. 1 2008 2:22 PM ET

Most businesses are bracing for a downward slide as recession sets in and people begin to slow their spending or halt it altogether. But it's not all doom and gloom in the economy.

According to one expert, there are a number of businesses out there that thrive while everyone else is struggling just to survive. As a result, those industries offer some rare bright lights in a steadily dimming job market.

"There's always opportunity in every economy and it just so happens that recessions breed all sorts of counter-cyclical opportunities that people can exploit," Ian Portsmouth, of *Profit Magazine* told CTV's Canada AM.

McDonald's restaurants across the country aren't pulling any Big Macs or McChickens off the grill either. "McDonalds' sales went up 8 per cent in October over the year prior because people are downgrading their dining out options," Portsmouth said.

Companies that provide wireless services are also largely protected, because cellphones have transformed in recent years from a luxury, to a necessity. "The interesting thing about cellphones is they are no longer a discretionary item among Canadians -- you have to have it just like you have your TV."

- (i) State the equation for income elasticity. According to the article, is the income elasticity for McDonald's positive or negative? Explain (3 marks).

Ans: $\% \Delta Q_d / \% \Delta \text{income} < 0$, since recession means $\% \Delta \text{income} < 0$, and yet sales have increased at McDonald's.

- (ii) According to the article, is the income elasticity for cellphones positive or negative? Is it larger or smaller than 1 (in absolute value)? Explain (3 marks).

Ans: Income elasticity is positive but less than 1.

- (iii) Portfolio Diversification: If you want to keep the monetary value of your stock portfolio relatively stable during an economic recession, how would you diversify your stock choices? Explain with reference to the above article. Is this related to the concept of risk pooling or risk spreading? Explain (4 marks).

Ans: Hold some stocks of McDonald's and cellphone companies together with products that have positive income elasticities. This is related to risk pooling since we choose stocks that are independent, not perfectly positively correlated or perfectly negatively correlated with the economy.

Question #3 (10 marks)

Free trade a boon to Canada, study concludes
November 6th, 2006, Globe and Mail

Canada's economy has flourished under the North American free-trade agreement, and with the right policy moves, could repeat that experience as it deals with the trade shock from Asia, a new study suggests.

In a paper to be released this week, Royal Bank of Canada examines a wide range of data showing Canada's economic performance before and after free trade with the rest of North America.

"Canadians have prospered," conclude economists Craig Wright and Derek Holt.

"Few countries have provided as shining an example of how to adapt and prosper in a post-free trade world than Canada."

- (i) The North American Free Trade Agreement (NAFTA) involves Canada, the US and Mexico. Most people would agree that Canada has an absolute advantage in producing most products when compared to Mexico. Use the concept of comparative advantage to discuss why Canada can gain from trading with Mexico (4 marks).

Ans: Canada has AA in producing almost all products when compared to Mexico, but the gains from trade come from CA since Canada should focus more on products that we have the lowest opportunity costs.

- (ii) Define economies of scale and use it to explain how NAFTA can benefit Canada (3 marks).

Ans: As $Q \uparrow$, $ATC \downarrow \rightarrow$ NAFTA allows Canadian firms to produce a larger Q , such as cars, \uparrow our ability to exploit economies of scale.

- (iii) Suppose NAFTA forces a previous domestic Canadian monopolist to become a North American duopolist because of import competition from the US. Explain how this is another source of gains from free trade for Canada (3 marks).

Ans: $P \downarrow$ and $Q \uparrow$ when we compare monopolist with duopolist.