

Concordia University Department of Economics
ECON 201 – MICROECONOMICS FINAL EXAMINATION
Version A
August 2010
Professor Ian Irvine

Print FAMILY NAME _____ FIRST NAME _____
STUDENT NUMBER: _____

Please read instructions carefully.

1. This is a three-hour exam, and it consists of two parts.
 - (i) Part I: 33 multiple-choice questions (33 marks);
 - (ii) Part II: Choose 5 (and only 5) out of 6 problems to solve (100 marks)
2. Enter your answers for the multiple-choice questions on the computer scan-sheet with a pencil.

For part II write all your answers on this exam booklet. Illustrate your work. No marks will be allocated for answers that are not explained.

3. You are allowed to use a non-programmable calculator. You may use either pen or pencil to provide your answers for Part II.
4. At the end of the exam place your computer answer sheet inside this booklet and submit.

1 Part 1. Answer all questions on the IBM sheet

1. Which of the following statements best differentiates price ceilings and price floors?
 - (a) Price ceilings represent minimum prices, while price floors represent maximum prices.
 - (b) Price ceilings are always set below the equilibrium price and price floors are always set above the equilibrium price.
 - (c) Price ceilings are maximum allowable prices, whereas price floors are minimum allowable prices.
 - (d) Price floors cause shortages to appear, whereas price ceilings have the opposite effect.
 - (e) None of the above.

2. A consumer maximizes his total utility when goods A and B are consumed in quantities 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 quantities demanded.
 - (d) always equals unity.
 - (e) none of the above

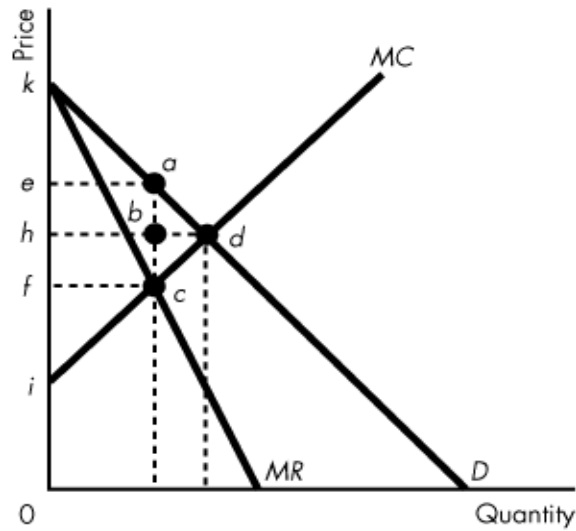
3. At any single output, the height of the demand curve measures
 - (a) the consumer surplus enjoyed from consuming that unit.
 - (b) the difference between the buyers' willingness to pay for that unit and the market price.
 - (c) the profit earned by the seller from the sale of that unit.
 - (d) the value buyers place on that unit of the good.
 - (e) the income elasticity of demand.

4. Joe is a tax accountant. He receives \$80 per hour doing tax returns. He can type 20 pages per hour. He can hire an assistant who types 15 pages per hour. Which of the following statements is true?
 - (a) Joe should not hire an assistant because the assistant cannot type as fast as he.
 - (b) Joe should hire the assistant as long as he pays the assistant less than \$80 per hour.
 - (c) Joe should hire the assistant as long as he pays the assistant less than \$60 per hour.

- (d) Joe should hire the assistant as long as he pays the assistant less than \$40 per hour.
 - (e) None of the above.
5. 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 \$30,000 per year to train full-time. She received a grant of \$8,000 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 \$10,000 per year. What is the annual opportunity cost, expressed in dollars, to this rower of “Going for Gold”?
- (a) \$12,000.
 - (b) \$30,000.
 - (c) \$32,000.
 - (d) \$45,000.
 - (e) None of the above.
6. The demand equation for widgets is $P = 200 - 4Q$. The absolute value of the price elasticity of demand at the quantity 10 is:
- (a) 0.0
 - (b) 0.5
 - (c) 2.0
 - (d) 4.0
 - (e) 8.0
7. If a per unit tax is imposed, the more elastic the supply curve, the:
- (a) more likely the deadweight loss is to be affected.
 - (b) larger the deadweight loss.
 - (c) larger the deadweight loss to producers.
 - (d) smaller the deadweight loss to consumers.
 - (e) none of the above.
8. Which one of the following would not shift the supply curve for good X to the right?
- (a) A decrease in the price of Y, a substitute for the production of X.
 - (b) A reduction in the price of resources used in producing X.
 - (c) An improvement in technology affecting the production of X.
 - (d) An increase in the price of X.

- (e) An increase in the price of Y, a complement in the production of X.
9. The process of buying a variety of assets is called:
- (a) risk aversion.
 - (b) risk seeking.
 - (c) profit maximization.
 - (d) diversification.
 - (e) all of the above
10. A quota results in:
- (a) a reduction in demand.
 - (b) a redefinition of the supply curve.
 - (c) a shift in the demand curve.
 - (d) an outward shift in the supply curve.
 - (e) none of the above.
11. If the price elasticity of demand is -1.5, then a 20% 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.
12. A good that has an inelastic demand has that characteristic because as
- (a) the quantity consumed of it rises, the marginal utility falls slowly.
 - (b) the quantity consumed of it rises, total utility falls quickly.
 - (c) income rises, the marginal utility falls quickly.
 - (d) the quantity consumed of it rises, the marginal utility falls quickly.
 - (e) none of the above.
13. Currently Joe and Helen are consuming the same amount of strawberries at the same price, 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.
14. 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.
15. With a 20% probability of winning \$100 and an 80% probability of losing \$25, Regis takes the gamble and Bryan rejects it. One can infer that:
- (a) both Regis and Bryan are risk averse.
 - (b) neither Regis nor Bryan are risk averse.
 - (c) Regis is risk averse and Bryan is risk neutral.
 - (d) Bryan is risk averse and Regis is risk neutral.
 - (e) both are risk neutral.
16. 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
- (a) shutting down production.
 - (b) decreasing output.
 - (c) increasing output.
 - (d) increasing the market price.
 - (e) not changing output because this firm is at its profit-maximizing position.
17. 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:
- (a) shut down.
 - (b) expand output and raise price.
 - (c) expand output and cut price.
 - (d) cut output and raise price.
 - (e) cut output and price.

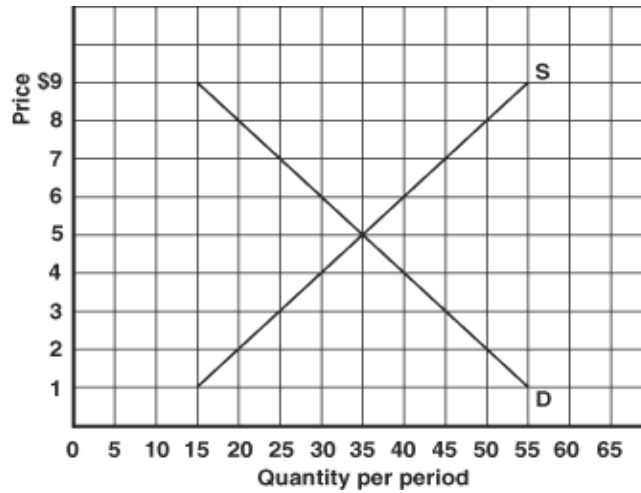


18. The problem with monitoring performance in large companies is often referred to as
- (a) Moral hazard.
 - (b) Adverse selection.
 - (c) Principal-agent.
 - (d) Risk-neutrality.
 - (e) None of the above
19. In the figure below, if the industry is operated by a monopolist, what area is producer surplus?
- (a) kea.
 - (b) ieac.
 - (c) khd.
 - (d) ihd.
 - (e) None of the above.
- (a)
20. 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.
21. Referring to the table below, which defines the cost of producing wine and cheese per unit in France and Germany, we can conclude:
- (a) France has a comparative advantage in both goods.
 - (b) France has a comparative advantage in wine and Germany has a comparative advantage in cheese.
 - (c) Germany has a comparative advantage in wine and France has a comparative advantage in cheese.
 - (d) Germany has a comparative advantage in both goods.
 - (e) None of the above statements are true

| | France (euros) | Germany (euros) |
|--------|----------------|-----------------|
| Wine | 5 | 10 |
| Cheese | 6 | 18 |

22. 21. Suppose that the typical firm in a monopolistically competitive industry earns an economic/supernormal profit and new firms enter. This causes:
- (a) the firm's demand curve to shift to the right.
 - (b) the firm's average total cost curve to shift upward.
 - (c) the industry demand curve to shift to the left.
 - (d) the firm's demand curve to shift to the left.
 - (e) none of the above
23. In the figure below, what is the effect of a supply quota of 40 units?
- (a) A price of \$6.
 - (b) A price of \$4.
 - (c) A shortage of 10 units.
 - (d) A surplus of 10 units.
 - (e) None of the above.



24. You wait in line to buy a ticket for a show and are fortunate to buy the last ticket for \$85. The lady behind you offers to buy the ticket for \$95 but you refuse. We can conclude that the value you place on the show is:
- less than \$85.
 - \$85.
 - between \$85 and \$95.
 - exactly \$95.
 - more than \$95.
25. What does MES (minimum efficient scale) refer to?
- The marginal efficient size of a firm.
 - The biggest-size plant that is capable of achieving economies of scale.
 - The biggest-size plant that is capable of achieving diseconomies of scale.
 - The smallest-size plant capable of achieving the lowest long-run average cost of production.
 - None of the above.
26. If firms are allowed to fully cooperate, then they establish a market price and quantity by equating:
- the industry demand and industry average total cost.
 - industry marginal revenue and industry average total cost.
 - industry marginal cost and industry average variable cost.

- (d) industry marginal revenue and industry marginal cost.
 - (e) none of the above
27. In monopolistic competition the long-run tangency equilibrium is between:
- (a) demand and average cost.
 - (b) marginal cost and marginal revenue.
 - (c) price and average cost.
 - (d) marginal cost and average cost.
 - (e) demand and marginal cost
28. The table below describes the profits accruing to each firm in a game. The first figure in any box is firm A's profit, and the second is firm B's profit. High and low refer to the strategy of having a high or low advertising budget. Which of the following statements is correct if B and A reach a secret agreement between themselves concerning advertising budgets and this agreement holds because neither cheats?

| | Firm B strategy | | |
|-----------------|-----------------|----------|----------|
| | | Low | High |
| Firm A Strategy | Low | 600, 600 | 300, 800 |
| | High | 800, 300 | 400, 400 |

- (a) Both will have a low advertising budget and both will earn profits of \$600.
 - (b) Both will have a low advertising budget and both will earn profits of \$400.
 - (c) Both will have a high advertising budget and both will earn profits of \$800.
 - (d) Both will have a high advertising budget and B will earn a profit of \$300 and A will earn a profit of \$800.
 - (e) None of the above.
29. At its current level of output, a perfectly competitive firm's, average variable cost is \$8, average total cost is \$10, and marginal cost is \$9. If the market price is \$8.50, this firm should:
- (a) shut down production.
 - (b) decrease output.
 - (c) increase output.
 - (d) increase the market price.
 - (e) not change output because this firm is at its profit-maximizing position.

30. In the case of individuals who have expertise to share, which one of the following statements is true?
- (a) They should specialize according to comparative advantage.
 - (b) They should specialize according to absolute advantage.
 - (c) They should trade with parties that have the same opportunity costs for the goods and services produced.
 - (d) They should never trade with someone who is less efficient in supplying one of the goods.
 - (e) None of the above.
31. Excess capacity in monopolistically competitive firms is because:
- (a) There are too many firms already in the industry.
 - (b) Each firm attempts to maximize market share rather than profit.
 - (c) Cost curves are higher than they are under perfect competition.
 - (d) Waste is associated with many slightly differentiated products serving the same purpose.
 - (e) Each firm faces a demand that is not perfectly elastic
32. When a firm's average total cost is falling, marginal cost must be
- (a) above average cost.
 - (b) below average cost.
 - (c) constant.
 - (d) above variable cost.
 - (e) below variable cost.
33. A risk-averse person would regard the expected utility of a fair gamble to be
- (a) Equal to the utility of the expected value of the gamble.
 - (b) Less than the utility of the expected value of the gamble.
 - (c) More than the utility of the expected value of the gamble.
 - (d) Not related to the utility of the expected value of the gamble.
 - (e) Zero.

2 Part 2. Answer 5 of the following 6 questions.

1. Suppose the prices of two goods are $P_x = \$12$ and $P_y = \$4$, and we observe the consumer to purchase three units of each good.

(i) Graph the resulting budget constraint on a diagram (with Y on the vertical axis and X on the horizontal axis), with intercepts clearly marked, explaining how you arrive at the answers. What is the consumer's total income? (5)

(ii) What is the numerical value of the MRS at this equilibrium? Illustrate graphically and explain. (5)

(iii) Now suppose the government puts a tax on good X of \$4 per unit. What is the numerical value of the MRS at the new equilibrium? Illustrate graphically and explain (5).

(iv) Instead of the tax on X, suppose that the government increases the consumer's income by \$24. Carefully illustrate on a diagram a possible new equilibrium where the first equilibrium is also illustrated (5).

2. This is a question on duopoly, where there are two identical firms, each producing an output Q_1 and Q_2 . Their production costs are: $MC = ATC = 6$. The market demand is given by $P = 24 - Q$, where $Q = Q_1 + Q_2$. The reaction functions that result are given by $Q_1 = (18 - Q_2)/2$ and $Q_2 = (18 - Q_1)/2$.

(i) Find the equilibrium output level for each firm by solving the reaction functions. (5)

(ii) What is the equilibrium price in the marketplace? (5)

(iii) Calculate the profit made by each firm in equilibrium. (5)

(iv) If instead of having two firms in this market we had a single firm, what would be the output produced, the price charged and the resulting profit? (5)

3. This is a question about market structure - we will compare perfect competition with monopoly. Consider the demand schedule as described in the table below. The marginal cost for the good is given by $MC = 4$ and that there are no fixed costs, with the result that $AC = MC$.

| Price | Quantity | Total Revenue | Marginal Revenue |
|-------|----------|---------------|------------------|
| 18 | 4,000 | | |
| 16 | 5,000 | | |
| 14 | 6,000 | | |
| 12 | 7,000 | | |
| 10 | 8,000 | | |
| 8 | 9,000 | | |
| 6 | 10,000 | | |
| 4 | 11,000 | | |
| 2 | 12,000 | | |

(i) First fill in the total revenue and marginal revenue columns of the table.
(4)

(ii) If there were very many suppliers (perfect competition), what would be the market price, total quantity sold and profit? Explain (4)

(iii) In contrast, if there were just a single supplier (monopoly) what would be the market price, quantity sold and profit? (5)

(iv) Now consider what would happen if there were three firms who operated as a cartel and distributed profit equally. How much profit would each firm make? (5)

(v) Explain, using the result in part (iv) why there would be an incentive for the cartel to fall apart. (2)

4. This question is on comparative advantage involving trade between Canada and the US. The table below describe hypothetical production possibilities for each of Canada and the US.

| | Canada | | | | | US | | | |
|--------------|--------|----|----|----|--|----|----|----|----|
| | A | B | C | D | | A | B | C | D |
| Plywood | 60 | 40 | 20 | 0 | | 60 | 40 | 20 | 0 |
| Solar panels | 0 | 5 | 10 | 15 | | 0 | 10 | 20 | 30 |

(i) On a single diagram graph the production possibility frontier (PPF) for both Canada and the US, with plywood on the vertical axis and solar panels on the horizontal axis. Label the intercepts. (6)

(ii) What is the numerical value of the slope of each economy's PPF? (4)

(iii) Which economy should specialize in which product? Explain. (4)

(iv) On a new graph, plot Canada's trading possibilities if the terms of trade were such that 3 units of plywood trade for 1 solar panel. On the same graph draw the US trading possibilities. Again illustrate the values of all intercepts of these new curves. (6)

5. The demand and supply conditions for physiotherapy are given by $P = 80 - 3Q$ and $P = 10 + 2Q$ respectively.

(i) Calculate the equilibrium $\{P, Q\}$ and illustrate it on a diagram. (5)

(ii) Suppose that the government decides to subsidize this service by offering a \$5 subsidy per unit sold. Illustrate the impact of this in a new supply and demand diagram and compute the new price and quantity traded in the market. (5)

(iii) Compute the consumer and supplier surplus in the free market case. Calculate how much this scheme will cost the government in subsidies. (5)

(iv) Instead of a subsidy, suppose the government decided to impose a price ceiling of \$30 on this service. How many units would be traded? Compute the producer surplus (only) in this case. (5)

6. This next question is on elasticities and externalities. Let the demand and supply curves in a given market be the following: $P = 30 - Q$ and $P = 9 + 2Q$.

(i) Compute the equilibrium price and quantity in this market. (4)

(ii) Compute the point elasticity of supply and demand at the equilibrium. (6)

(iii) Suppose there is an 'externality' associated with the production of this good which equals \$3 per unit. Consequently the supply curve that reflects private and social costs shifts upwards by three units. Illustrate and compute the appropriate price and quantity in this market now? (6)

(iv) what policy instrument might the government impose here in order to ensure that the market produces the socially correct output? (4)