Final 3 December 2016, questions and answers

Introduction to Microeconomics (Concordia University)

Concordia University
Department of Economics

ECON 201 - INTRODUCTION TO MICROECONOMICS
Winter 2016

COMMON FINAL EXAMINATION - VERSION 1

FIRST NAME: _____ **LAST NAME:**_____

STUDENT NUMBER: _____

Please, read all instructions carefully:

1. The exam consists of two parts:
   (i) Part I: 50 multiple-choice questions (100 marks);
   (ii) Part II: Choose 4 out of 5 long questions (100 marks).
2. Write your name, student ID and answers for the multiple-choice questions on the computer scan-sheet with a **pencil**. Please, also write the **version** of the exam on the computer scan-sheet. For Part II, write all your answers on this exam. Do not use additional booklets.
3. You are allowed to use a non-programmable calculator and a paper dictionary, provided that they are approved by the invigilator(s). You may use either pen or pencil to provide your answers for Part II.
4. You are not allowed to tear any pages out of this exam.

Grades:

Part I: _____

Part II:

Problem #1: _____

Problem #2: _____

Problem #3: _____

Problem #4: _____

Problem #5: _____

Total: _____

Part I: Multiple Choice Questions. Write your answers on the computer sheet in PENCIL.(Total=100 marks)

1. A production possibilities frontier can shift outward if

   (a) government increases the amount of money in the economy.
   (b) **there is a technological improvement.**
   (c) resources are shifted from the production of one good to the production of the other good.
   (d) the economy abandons inefficient production methods in favor of efficient production methods.

2. When each person specializes in producing the good in which he or she has a comparative advantage, total production in the economy

   (a) falls.
   (b) stays the same.
   (c) **rises.**
   (d) may fall, rise, or stay the same.

3. In year 2015, 1334 million lbs milk was produced and sold in Canada. This is

   (a) the decision of the Canada department of agriculture.
   (b) **quantity determined by the interactions in the market.**
   (c) the maximum amount the producers could produce.
   (d) what consumers needed.

4. An increase in price of a good will increase consumers' demand. This is a(n)

   (a) **positive statement.**
   (b) true statement.
   (c) inverse statement.
   (d) normative statement.

5. A trade-off exists between a clean environment and a higher level of income in that

   (a) studies show that individuals with higher levels of income pollute less than low-income individuals.
   (b) efforts to reduce pollution typically are not completely successful.
   (c) **laws that reduce pollution raise costs of production and reduce incomes.**
   (d) employing individuals to clean up pollution causes increases in employment and income.

6. The opportunity cost of an item is

(a) the number of hours needed to earn money to buy the item.

(b) **what you give up to get that item.**

(c) usually less than the dollar value of the item.

(d) the dollar value of the item.

7. The producer that requires a smaller quantity of inputs to produce a certain amount of a good, relative to the quantities of inputs required by other producers to produce the same amount of that good,

(a) has a low opportunity cost of producing that good, relative to the opportunity costs of other producers.

(b) has a comparative advantage in the production of that good.

(c) **has an absolute advantage in the production of that good.**

(d) should be the only producer of that good.

8. If the CPI is 180 for 2015 and the base year is 1982, this means that:

(a) **Prices went up by 80 percent from 1982 to 2015.**

(b) Prices went up by 180 percent from 1982 to 2015.

(c) Prices went up by 280 percent from 1982 to 2015.

(d) Prices went down by 80 percent from 1982 to 2015.

9. Refer to Figure 5-8. After the imposition of a milk quota at quantity Q1, economic surplus is represented by

(a) areas 1, 2 and 5.

(b) areas 3 and 4.

(c) areas 2, 3, 5 and 6.

(d) **areas 1, 2 and 3.**

The diagram below shows the market for litres of milk.

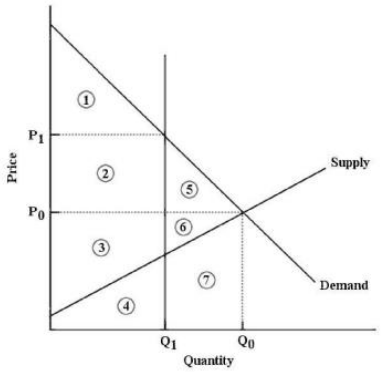

FIGURE 5-8

10. A rightward shift in the supply curve can be caused by

    (a) An increased in demand by the consumers of this product.
    (b) An increase in business taxes the government charges the firms.
    (c) **A decrease in the prices of inputs used by the firms.**
    (d) A decrease in the consumers' income.

11. Consider the market for potatoes with inverse demand given by $P = 60 - 2 * Q_D$ and inverse supply given by $P = 10 + 3 * Q_S$. Find the consumer surplus and producer's surplus.

    (a) CS =110, PS=150.
    (b) **CS =100, PS=150.**
    (c) CS =90, PS=150.
    (d) CS =100, PS=120.

12. Consider the market for potatoes with inverse demand given by P=60-2*Q and inverse supply given by P=10+3*Q. Suppose the Price Ceiling is \$25. Find the Deadweight Loss.

    (a) **DWL=62.5.**
    (b) DWL=50.
    (c) DWL=72.5.
    (d) DWL=52.5.

13. Suppose the demand is given by P=10-2Q, and the equilibrium price is \$4. What is the value of the consumer surplus?

(a) $5.

(b) **$9.**

(c) $7.

(d) Cannot be determined without more information.

14. A vertical demand curve for a particular good implies that consumers are

(a) sensitive to changes in the price of that good.

(b) **not sensitive to changes in the price of that good.**

(c) irrational.

(d) not interested in that good.

15. Refer to Figure 6-1. Total utility is at its maximum when marginal utility is

(a) equal to total utility.

(b) **equal to zero.**

(c) negative.

(d) at the maximum.

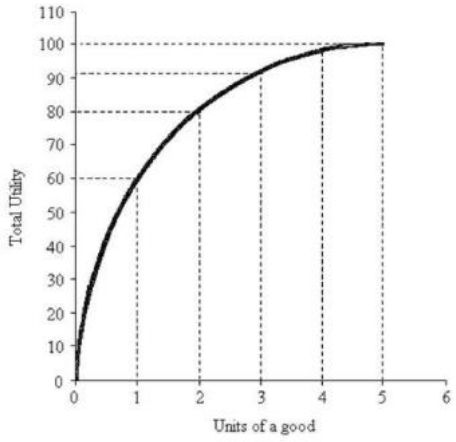

FIGURE 6-1

16. Refer to Table 6-1. If the prices of toffee bars and bags of cashews are both $1 and this consumer has $7 per week to spend on these two snacks, how many of each will he/she purchase to maximize utility?

(a) **3 toffee bars and 4 bags of cashews.**

(b) 5 toffee bars and 2 bags of cashews.

(c) 6 toffee bars and 1 bag of cashews.

(d) 4 toffee bars and 3 bags of cashews.

The table below shows the quantities of toffee bars and bags of cashews that a consumer could consume over a 1-week period.

	Toffee (bars)		Cashews (bags)	
Units	Marginal Utility	Total Utility	Marginal Utility	Total Utility
1	10	10	12	12
2	8	18	10	22
3	5	23	7	29
4	3	26	5	34
5	1	27	2	36
6	0	27	1	37
7	0	27	0	27

TABLE 6-1

17. Refer to Figure 6-3. What is the market demand (in cubic meters per month) for cement at a price of $80 per cubic meter?

(a) 2000.

(b) 0.

(c) 3000.

(d) **1000.**

Diagrams A, B, and C show 3 individual consumers' demand curves for cement. Consumers A, B, and C constitute the entire monthly cement market in this region.

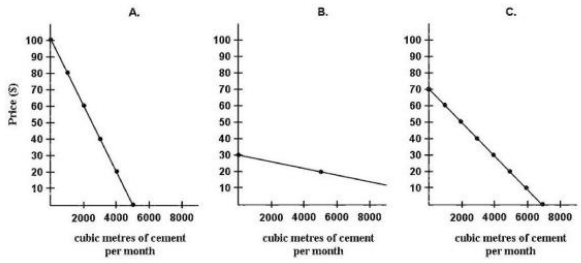

FIGURE 6-3

18. Assume you are consuming two goods, X and Y. Suppose that the money prices for X and Y remain unchanged, but your income increases by 20%. What happens to your consumption of good X?

    (a) it stays the same.

    (b) **it increases or decreases, depending on whether it is normal or inferior.**

    (c) it decreases.

    (d) it increases.

19. Refer to Figure 6-7. Suppose that price is P0. Total consumer surplus is then given by the area

    (a) below P0 and to the left of Q0.

    (b) under the demand curve to the left of Q0.

    (c) **under the demand curve to the left of Q0, but above P0.**

    (d) under the entire demand curve.

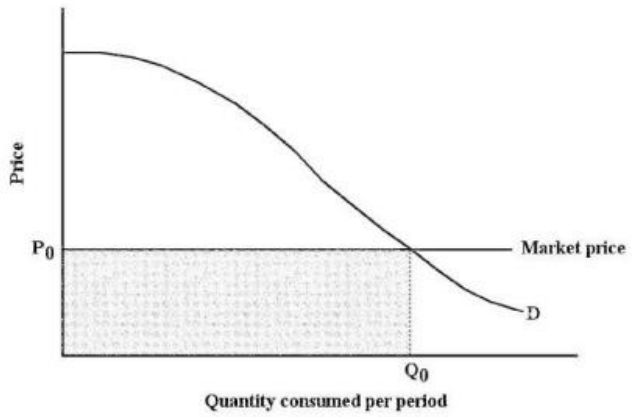

FIGURE 6-7

20. The rate at which a consumer must give up y to get one more x is equal to

    (a) **-Px/Py.**
    (b) -Py/Px.
    (c) -MUx/MUy.
    (d) MUy/MUx.

21. If money income is reduced by half, and the prices of all goods consumed by the household are reduced by half, the household's budget line will

    (a) shift outward.
    (b) become flatter.
    (c) shift inward.
    (d) **not change.**

22. If total utility is increasing, then marginal utility must be

    (a) decreasing at an increasing rate.
    (b) negative.
    (c) **positive.**
    (d) increasing at an increasing rate.

23. 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 consume more.

24. 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:

(a) both Regis and Bryan are risk averse.

(b) Regis is risk averse and Bryan is risk neutral.

(c) **Bryan is risk averse and Regis is risk neutral.**

(d) both are risk neutral.

25. The principal-agent problem refers to a situation where:

(a) the owner has the wrong objectives for her company.

(b) the owner and the manager disagree over policy.

(c) **the manager may not maximize profits of the company, but may foster his own interests.**

(d) the manager maximizes market share.

26. Terri decides to play the lottery. She has a 1% probability of winning $10,000 and a 99% probability of winning zero. The average or 'expected' value of this game is:

(a) $1,000.

(b) **$100.**

(c) $11.

(d) $10.

27. Which of the following is not an example of risk pooling?

(a) A car insurance company that insures Canadian drivers.

(b) Credit bureau that gives credit cards to different people.

(c) An investor that has a diversified portfolio.

(d) **Insuring Microsoft against bankruptcy.**

28. If the average-product curve is rising, then the marginal-product curve

(a) **must lie above the average-product curve over this range.**

(b) can be either above or below the average-product curve, although it must be rising over the entire range.

(c) must lie below the average-product curve over this range.

(d) must be falling.

29. If total product is at a maximum, then

    (a) average product must equal marginal product.
    (b) marginal product must be greater than zero and must be falling.
    (c) average product must be rising and must lie above marginal product.
    (d) **marginal product must be falling and be equal to zero.**

30. If factor prices decrease,

    (a) a firm will move to a lower point on its long-run average cost curve only.
    (b) **both the long-run and short-run average cost curves will shift downward.**
    (c) there will be no change in the cost curves in the long run.
    (d) there will be a downward shift in the long-run average cost curve but not in the short-run average cost curve.

31. Why is average total cost very high when a small amount of output is produced?

    (a) Average variable cost is low.
    (b) **Average fixed cost is high.**
    (c) Marginal cost is low.
    (d) None of the above.

32. Which of the following statements is INCORRECT?

    (a) **If a production method is technologically efficient, it must also be economically efficient.**
    (b) The production function shows the technologically efficient methods to produce different levels of output.
    (c) If a production method is economically efficient, it must also be technologically efficient.
    (d) The production function can change if technological improvement takes place.

33. A perfectly competitive firm will produce output in the short run even if $P < ATC$ because

    (a) as long as $P \geq MC$, it can minimize it losses.
    (b) **as long as $P \geq AVCmin$, it can minimize it losses.**
    (c) profits are positive.
    (d) fixed costs are avoidable in the short run.

34. Suppose that the equilibrium price in a perfectly competitive market is \$20 per unit sold. If a firm in the market decides to charge \$25 per unit for its product then

    (a) This firm will increase its profits.
    (b) This firm will sell units of its product.

(c) **This firm will not sell any units of its product.**

(d) This firm will increase the demand for its product.

35. If firms enter a competitive industry, the

(a) new firms make negative profit.

(b) **industry supply curve shifts outward.**

(c) price of the product rises.

(d) output of the industry decreases.

36. 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.

37. Would a firm in a monopolistic market ever produce where Marginal Revenue is negative?

(a) **No.**

(b) Yes.

(c) Only in some cases.

(d) There is not enough information to answer this.

38. For a natural monopoly to exist

(a) A firm must continually buy up its rivals.

(b) A firm's long-run average cost curve must exhibit continuously diseconomies of scale.

(c) **A firm's long-run average cost curve must have continuously economies of scale.**

(d) A firm must have a government-imposed barrier.

39. A monopolist is presently selling 9 units. When it increases the quantity supplied from 9 to 10 units, the price decreases by \$1 to \$12 per unit. What is the Marginal Revenue received by the monopolist from the 10th unit?

(a) 6.

(b) 5.

(c) 4.

(d) **3.**

40. If marginal revenue exceeds marginal cost, a monopolist should:

    (a) **Increase output.**
    (b) Decrease output.
    (c) Keep output the same.
    (d) Raise the price.

41. Compared to a perfectly competitive market, a monopoly market will usually generate:

    (a) Higher prices and higher output.
    (b) **Higher prices and lower output.**
    (c) Lower prices and lower output.
    (d) Lower prices and higher output.

42. In a duopoly game, what characterizes a dominant-strategy equilibrium?

    (a) Both firms choose the same strategy.
    (b) **Each firm has a unique profit maximizing strategy.**
    (c) Each firm chooses the strategy of trying to dominate their rival.
    (d) The firms' joint profits are maximized.

43. A non-price trade barrier includes which of the following?

    (a) Tariffs.
    (b) **Safety standards.**
    (c) Minimum pricing laws.
    (d) Subsidies.

44. Which of the following defines oligopoly behavior?

    (a) They produce more and sell at a higher price than a monopolist.
    (b) They set price equal to marginal cost.
    (c) **They produce the monopoly output when they are able to collude.**
    (d) All of the answers are correct.

45. In the table below, which defines the unit cost of producing wine and autos in France and Germany:

	France (euros)	Germany (euros)
Wine	10	15
Autos	10,000	20,000

(a) France has a comparative advantage in wine and Germany in autos.

(b) **Germany has a comparative advantage in wine and France in autos.**

(c) Germany has a comparative advantage in both goods.

(d) None of the above.

46. In the table below, which shows several points on the production possibilities frontiers for Canada and the US:

	Canada					United States			
	A	B	C	D		A	B	C	D
Peaches	0	5	10	15	Peaches	0	10	20	30
Apples	45	30	15	0	Apples	45	30	15	0

(a) Canada has an absolute advantage in peaches.

(b) **Canada has a comparative advantage in apples.**

(c) The US has an absolute advantage in apples.

(d) The US has a comparative advantage in apples.

47. Once a cartel determines the profit-maximizing price:

(a) Changes in the output of any member firms will have no impact on the market price.

(b) The temptation to cheat on the agreement may induce some firms to reduce output.

(c) Entry into the industry by rival firms will have no impact on the profit of the cartel.

(d) **All of the above are false.**

48. What is true at a Nash equilibrium in a two-firm game?

(a) Output levels are where $MC = ATC$.

(b) Both players chose the strategy that maximizes their joint payoffs.

(c) The players collude on their strategy.

(d) **Neither player has an incentive to change strategy.**

49. 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 industry demand curve to shift to the left.

(c) **The firm's demand curve to shift to the left.**

(d) None of the above.

		Firm B strategy	
		Low budget	High budget
Firm A strategy	Low budget	500, 500	300, 800
	High budget	800, 300	400, 400

50. The table 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?

    (a) One will have a low budget and the other a high budget and total profits will be $1100.

    (b) **Each will have a low budget and joint profits will be $1000.**

    (c) Each will have a high advertising budget and joint profits will be $800.

    (d) None of the above.

Part II: Answer FOUR of the following FIVE questions. If more than four questions are answered, only the first four attempted will be marked.(Total=100 marks)

1. The demand for an android cellphone is given by $P = 500 - Q/2$ and the supply by $P = 400 + Q/2$.

   (a) Find out the equilibrium price and quantity in this market. (4 marks)
   Answer: P*=450, Q*=100

   (b) Find consumer surplus, producer surplus and the total social welfare. (4 marks)
   Answer: CS= ½ x 100 x (500-450) =2500; PS = ½ x 100 x (450-400) =2500; TS=5000

   (c) Assume that government wants to help the producers by setting a price floor for this commodity. Can it set a price at $480 per unit? Why or why not? (4 marks)
   Answer: Yes. Positive demand exists at this price.

   (d) Assume that the government decides to impose a unit tax of $50 to the suppliers of androids. Find out the price paid by the consumer, the price received by the producer and the new equilibrium quantity. (4 marks)
   Answer: Pc*=475, Ps*=425, Qt*=50

   (e) Find consumer surplus, producer surplus, tax revenue and dead weight loss after the tax effect. (5 marks)
   CS= ½ x 50 x (500-475) =625
   PS = ½ x 50 x (425-400) =625
   Tax Revenue= 50 x 50 = 2500
   DWL = Change in CS + Change in PS + Govt Revenue= -1875-1875+2500=1250

   (f) Find out the Arc elasticity of demand for a price change from $400 to $450. (4 marks)
   Answer: -5.67

2. Suppose in a good month you earn $2500 and in a bad month you earn $900. Good and bad months have respective probabilities of 75% and 25%.

   (a) What is your average or expected monthly income? (5 marks)
   E(I) = .75x2500 + .25x900 = 2100
   Suppose your utility function is $U = (I)^{0.5}$, where I is your income in a given month.

   (b) Calculate your expected utility in a given month. (5 marks)
   $E(U) = (.75)(2500)^{.5} + (.25)(900)^{.5} = 45$

   (c) Calculate the utility of your expected monthly income? (5 marks)
   $U = E(I)^{0.5}$ = **2100^0.5 = 45.826.**

   (d) Based on your answers in (b) and (c) what is your attitude toward risk? (5 marks)
   Since the utility of expected income is bigger than the expected utility, you are risk-averse.
   Suppose an insurance company offers to pay you $396 if you have a bad month, but charges you $X if you have a good month.

(e) How much at most are you willing to pay in a good month? (Hint: You pay $X in a good month so that you are equally happy buying or not buying the insurance.) (5 marks)
$E(U) = .75(2500 - X)^{.5} + .25(900 + 396)^{.5} = 45$. **So, X = 196.**

3. A perfectly competitive firm is in a short-run situation in which it is stuck with 5 units of capital. The rental rate is r=$4 per capital unit. The firm's marginal cost (MC), fixed cost (FC), variable (VC) and average variables costs (AVC) are displayed in the table below.

Output (units)	**MC ($/unit)**	**FC ($)**	**VC ($)**	**AVC ($/unit)**
0	-	20	0	-
1	15	20	15	15
2	12	20	27	13.5
3	9	20	36	12
4	7	20	43	10.75
5	6	20	49	9.8
6	5	20	54	9
7	6	20	60	8.57
8	7	20	67	8.37
9	9	20	76	8.4
10	11	20	87	8.7
11	14	20	101	9.18
12	18	20	119	9.91
13	23	20	142	10.92
14	30	20	172	12.28

(a) What is the shutdown point?(6 marks)
P = 8.37$/unit, Q=8 units.

(b) If the price in the market is P=14$/unit what is the profit maximizing quantity?(6 marks)
Q = 11 units because P=14=MC.

(c) At the price P=14$/unit what is the profit of the firm?(7 marks)
Profit(Q)=[P - ATC(Q)]Q.
ATC(11) = (FC(11)+VC(11))/11 =(20$ + 101$)/11units = 121$/11units= 11$/unit.
Profit(11) = [14 - ATC(11)]11=[14$ - 11$/unit]11units= 33$.

(d) Using the info in part (c),draw the demand curve that the firm faces, its MC and ATC curves, and show the area that represents the profit of the firm. Make sure you label everything clearly.(6 marks)
Demand curve is perfectly horizontal at P=14, MC and ATC are as usual U-shaped, MC min=5, ATC=MC at ATCmin, profit maxing quantity is where P=MC, profit is area between P and ATC, up to profit maxing quantity.

4. Suppose you are a monopolist organizing an event. There are two distinct groups of customers. Group 1 consists of 20 individuals each willing to pay $10. Group 2 has a demand curve given by P = 10 – 1/2Q. Your total fixed cost is $100 and there are no variable costs.

(a) Illustrate graphically the two demand curves, labeling the intercepts carefully. (5 marks)
Downward sloping D intercepts $10, 20; horizontal line at P = $10 up to q = 20.

(b) Roughly sketch the market demand curve (i.e., the total of these two groups together). (5 marks)
Horizontal up to 20 at P=$10, then slopes down following the downward sloping demand.

(c) Suppose you know the two separate demand curves and, therefore, can charge each group a separate price. Draw the MR and MC for each of the two submarkets and illustrate graphically the number of tickets sold to each group. Compute your total profit in this situation. (5 marks)
MR is same as D in the case of the horizontal demand; so he should supply everybody here. In the downward sloping case MR = 10 – 1Q. Where MC = MR=0, Q = 10, P = $5. $10*20 + $5*10 - $100 = $150.

(d) In the following table, Qd1 column shows the quantity demanded by group 1 at every price. Fill out the column Qd2 showing the quantity demanded by group 2 at every price. (5 marks)
P = 10 – 1/2Q. =>1/2Q = 10-P => Q = 20 – 2P

Price	Qd1	Qd2	TR=P(Qd1+Qd2)
10	20	**0**	**200**
9	20	**2**	**198**
8	20	**4**	**192**
7	20	**6**	**182**
6	20	**8**	**168**
5	20	**10**	**150**
4	20	**12**	**128**
3	20	**14**	**102**
2	20	**16**	**72**
1	20	**18**	**38**

(e) Now suppose it is illegal to price-discriminate, and therefore you have to charge a single price for both groups. What price should you charge to maximize your profit? What will be your profit in that case?(5 marks)
P = 10; Profit = $200-100 = $100

5. The domestic demand in the market for appliances is given by $P = 128 - \frac{1}{2}Q$; the market supply of domestic suppliers is given by $P = 12 + \frac{1}{4}Q$, and the world price is $32.

(a) First graph this market and then solve for the equilibrium quantity purchased for a country open to trade.(6 marks)
q=192.

(b) How much of the quantity traded will be produced domestically and how much will be imported? (6 marks)
80 and 112.

(c) If a tariff of \$6 per unit is imposed on the imported good, illustrate the impact in a diagram and compute the total quantity demanded in the market.(6 marks)
World supply price shifts up to \$38 per unit; quantity demanded falls to 180.

(d) Instead of the tariff, if the domestic government wished to attain the same total quantity demanded as in part (c), but chose to subsidize supply instead, what would the unit supply subsidy have to be? (7 marks)
Subsidy should be \$19.