Concordia University
Department of Economics

ECON 201 - INTRODUCTION TO MICROECONOMICS
Winter 2015

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. Table 1 indicates the production possibilities of two countries (PPFs) represented by **straight lines**. Canada should:

Table 1:

	Canada	Japan
Guns	30	40
Roses	90	80

   (a) **Specialize in roses production, export roses, and import guns.**
   (b) Specialize in the production of guns, export guns, and import roses.
   (c) Produce both goods because neither country has a comparative advantage.
   (d) Produce neither good because it has an absolute disadvantage in the production of both goods.

2. Refer to Table 1. Japan's opportunity cost of producing Roses is

   (a) 1/3 of a Rose per Gun.
   (b) **1/2 of a Gun per Rose.**
   (c) 1/2 of a Rose per Gun.
   (d) 1/3 of a Gun per Rose.

3. Refer to Table 1. Which country has a comparative advantage in the production of guns?

   (a) Neither.
   (b) Both.
   (c) Canada.
   (d) **Japan.**

4. If the demand curve is $P = 40 - 4Q$, then the absolute value of the price elasticity of demand at the point $P = 4$ and $Q = 9$ is:

   (a) 9
   (b) 9/16.
   (c) 16/9.
   (d) **1/9.**

5. If the income elasticity of demand is $\frac{1}{4}$ and the percentage change in income is 8%, then the percentage change in the quantity demanded is _____

   (a) **2%.**

(b) 4%.

(c) 16%.

(d) 32%.

6. The cross-price elasticity between good A and good B is negative. If the price of good A increases then the quantity demanded of good A _____ and the demand for good B _____.

   (a) increases; increases.

   (b) increases; decreases.

   (c) decreases; increases.

   (d) **decreases; decreases.**

7. Which of the following would be considered as longitudinal data?

   (a) Inflation rates between 1990 and 2010.

   (b) **The mortgage payments of Maria-Christina, George and Maria-Elena between 2005 and 2010.**

   (c) The income and gasoline consumption of 1,000 residents in Montreal in 2012.

   (d) The rise in the cost of living over the past five years.

8. The representative basket of goods, used to calculate the CPI, in 2005 costs $625, while the value of the same basket in 2010 costs $800. If the base year is 2005, what is the inflation rate between 2005 and 2010?

   (a) 21.875%.

   (b) **28%.**

   (c) 31.675%.

   (d) 38%.

9. Consider a free market where there exists a positive externality but the market fails to recognize/internalize it. In this case this good will be_____:

   (a) **under-produced at the market equilibrium.**

   (b) over-produced at the market equilibrium.

   (c) produced efficiently at the market equilibrium.

   (d) produced to the point at which the marginal social benefit equals the marginal social cost of the last unit produced.

10. The market for guitars has excess supply (surplus). You should predict that price will

    (a) increase, quantity demanded will fall, and the quantity supplied will rise.

    (b) increase, quantity demanded will rise, and the quantity supplied will fall.

(c) **decrease, quantity demanded will rise, and the quantity supplied will fall.**

(d) decrease, quantity demanded will fall, and the quantity supplied will rise.

11. Suppose that supply for electricity market is given by $P = 5 + 2Q$, and demand is given by $P = 85 - 2Q$. However, production of electricity pollutes the environment. As a result the marginal social cost of the production increased and is given by $P = 5 + 3Q$. The socially optimal output in this market is

    (a) 20 units.

    (b) 10.7 units.

    (c) **16 units.**

    (d) 15 units.

12. Continue with previous question (electricity market), in order to maintain the socially optimal outcome, government needs to use

    (a) **$16 per unit tax.**

    (b) $20 per unit tax.

    (c) $16 per unit subsidy.

    (d) $20 per unit subsidy.

13. A market, free of government intervention, is said to be inefficient if negative externalities exist. To correct such inefficiency, a corrective _____ may be desirable in order to ____ output.

    (a) Subsidy; cut.

    (b) **Tax; cut.**

    (c) Tax; raise.

    (d) Subsidy; raise.

14. Suppose that supply for milk is given by $P = 2Q$, and demand is given by $P = 30 - Q$. To support producers, the government imposes a price floor equal to $25. How much is the producer's surplus under this policy?

    (a) **100.**

    (b) 12.5.

    (c) 37.5.

    (d) 156.25.

15. Continue with previous question, how much is the deadweight loss resulted from the price floor policy?

    (a) 100.

(b) 12.5.

(c) **37.5.**

(d) 156.25.

16. Suppose market demand for ABC product is $P = 320–3Q$ and its supply is given by $P = 20 + 2Q$. At equilibrium total surplus is

(a) 5400.

(b) **9000.**

(c) 3600.

(d) 6800.

17. Which of the following is (are) CORRECT about an indifference curve?

(a) **Higher indifference curves correspond to higher levels of total utility.**

(b) The midpoint of an indifference curve yields a higher utility level than those points closer to the horizontal or vertical axis.

(c) As the consumer consumes more of one good and less of the other good along an indifference curve, the overall level of total utility falls.

(d) All of the answers are correct.

18. Suppose the price of A is \$8 and the price of B is \$4 and Harry is maximizing his utility. If $MU_A = 1$ at this point, what can we conclude about Harry's behaviour?

(a) His MU_B must be equal to 1.

(b) His MU_B must be equal to 2.

(c) His MU_B must be equal to 0.

(d) **His MU_B must be equal to 0.5.**

19. An effective price ceiling will cause:

(a) total economic surplus to rise.

(b) quantity supplied to exceed quantity demanded.

(c) **producer surplus to fall.**

(d) quantity supplied to increase.

20. Using a supply and demand diagram of your own, if a per unit tax is imposed, the more inelastic demand is, the:

(a) less likely the deadweight loss will be affected.

(b) **smaller the deadweight loss.**

(c) smaller the loss in consumer surplus.

(d) larger the deadweight loss.

21. The risk associated with an investment can be measured by the _____ in the possible outcomes.

(a) **Dispersion.**
(b) Losses.
(c) Initial investment.
(d) Payoffs.

22. Suppose that a firm has a long run average total cost that is given by LATC = 12 + (12/Q). This firm experiences:

(a) CRS.
(b) **IRS.**
(c) DRS.
(d) IRS followed by DRS.

23. Which of the following statements refer(s) to economies of scope?

(a) "If I want to produce more homemade soaps, I need to find a new way of mixing the ingredients to come up with more of a unique product."
(b) **"If I am going to produce lemon scented homemade soaps, I might as well also produce soaps of other scents."**
(c) "If I want to cut down the cost of producing homemade soaps, I need to buy more equipment."
(d) All of the answers are correct.

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

25. Mark is considering the following gamble: A 75% chance of winning $1,000 and a 25% chance of losing $3,000. How can we classify this gamble?

(a) **Fair gamble.**
(b) Almost-fair gamble.
(c) Better-than-fair gamble.

(d) Worse-than-fair gamble.

26. What differentiates short run from long run?

(a) In the long run, some inputs are fixed, but in the short run, all inputs are fixed.

(b) In the short run, the firms have more flexibility to respond to market changes.

(c) **In the long run, supply curves are more elastic.**

(d) If a firm does not produce any output, it still incurs a cost in the long run.

27. Game A offers 50% chance of winning $100 and a 50% chance of losing $100. In contrast, Game B offers a 30% chance of winning $100 and a 75% chance of losing $50. Which game yields a larger expected value?

(a) **Game A.**

(b) They both yield the same positive expected value.

(c) They both yield the same negative expected value.

(d) Game B.

28. Edward is considering moving from Montreal to Calgary. There is a 90% chance that he will find a job that pays $1,000 more than what he currently earns and a 10% chance he will find one that pays $2,000 less. Should Edward move if he is risk-neutral?

(a) Yes, because the expected value of moving is $900.

(b) **Yes, because the expected value of moving is $700.**

(c) No, because the expected value of moving is -$200.

(d) No, because the expected value of moving is -$700.

29. Which of the following is NOT a short run decision that a firm faces?

(a) **"Should I rent a bigger office if sales increase?"**

(b) "How many more workers should I hire if sales increase?"

(c) "Should I lay off some workers if sales drop?"

(d) "If sales are not good, should I temporarily shut down and ride it out?"

30. What can we conclude if we observe a Canadian importer who agrees to buy US$500,000 at today's exchange rate although he only needs the US$ six months from now?

(a) **A risk-averse person.**

(b) A risk-neutral person.

(c) A risk-loving person.

(d) A financial speculator.

31. If a profit-maximizing firm in a competitive market discovers that, at its current level of production, price is less than marginal cost, what should it do?

    (a) It should definitely shut down.
    (b) **It should reduce its output.**
    (c) It should keep output the same.
    (d) It should increase its output.

32. What costs do firms that shut down in the short run still have to pay?

    (a) Variable costs.
    (b) **Fixed costs.**
    (c) Total costs.
    (d) Marginal costs.

33. Where is the competitive firm's short run supply curve located?

    (a) The part of the average-variable-cost curve that lies above marginal cost.
    (b) The part of the average-total-cost curve that lies above marginal cost.
    (c) **The part of the marginal-cost curve that lies above average variable cost.**
    (d) The part of the marginal-cost curve that lies above average total cost.

34. Which assumption ensures profits are zero in the long run for a perfectly competitive firm?

    (a) **No barriers to entry and exit.**
    (b) Firms are price takers.
    (c) High fixed costs.
    (d) Homogenous goods.

35. Which of the following is the profit maximizing condition for a firm in a perfectly competitive market?

    (a) **P = MC.**
    (b) P = min AVC.
    (c) P = min AC.
    (d) Profit = TR - TC.

36. Suppose that the equilibrium price in a perfectly competitive market is $10 per unit and each firm produces 5 units. If one firm in this market decides to charge $12 per unit for its product, what happens to its revenue?

    (a) It stays the same at $50.
    (b) It increases to $60.

(c) **It decreases to zero.**

(d) It depends on how much is sold at the new price.

37. Which of the following explains why the marginal cost pricing rule results in an economic loss for a natural monopoly?

(a) **The ATC curve is downward sloping throughout the relevant range, therefore MC is lower than ATC.**

(b) The MC is constant and equal to price.

(c) Because the output is determined by setting MC equal to the price, consumer surplus is maximized.

(d) The demand curve is downward sloping, therefore price falls as quantity increases.

38. If a large number of firms are competing, the market could be

(a) monopolistic competition or monopoly.

(b) perfect competition or monopoly.

(c) oligopoly or monopoly.

(d) **perfect competition or monopolistic competition.**

39. What best describes the difference between monopolistic competition and perfect competition?

(a) Perfect competition has a large number of small firms, while monopolistic competition does not.

(b) **In perfect competition, firms produce identical goods, while in monopolistic competition, firms produce slightly different goods.**

(c) Perfect competition has no barriers to entry, while monopolistic competition does.

(d) Unlike perfect competition, in monopolistic competition there are exactly two firms.

40. Which of the following is *not* correct about price discrimination?

(a) The monopolist might be able to segregate the market.

(b) Resale must be impossible.

(c) It may increase the total production and profit.

(d) **It always increases the DWL.**

41. Firms in an oligopoly: (i) have independent actions, (ii) can each influence the market price, (iii) charge a price equal to marginal revenue.

(a) (i) only.

(b) (i) and (iii).

(c) **(ii) only.**

(d) (iii) only.

42. When firms in an oligopoly seek to operate as in a single-price monopoly, the firms produce at the point where

    (a) **MR=MC.**
    (b) $p = MR$.
    (c) $p < ATC$.
    (d) $p = MC$.

43. If one firm in a colluding duopoly increases its production by one unit beyond the monopoly output, that firm's profit _____, the other firm's profit _____, and the total profit of the oligopoly _____.

    (a) increases;increases;increases.
    (b) **increases; decreases; decreases.**
    (c) does not change, does not change, does not change.
    (d) increases; does not change; increases.

44. A Nash equilibrium is a situation where

    (a) firms earn zero economic profit.
    (b) **each firm chooses the best strategy, given the strategies chosen by the other firms, and there is no incentive for any player to move.**
    (c) the firms collude and maximize joint profit.
    (d) the firms minimize total cost.

45. Comparing a perfectly competitive market with a single-price monopoly with the same costs, we see that

    (a) the monopoly market is always more efficient in the use of resources.
    (b) the monopoly market achieves efficiency in resource use while perfectly competitive market does not.
    (c) both markets are equally efficient in their use of resources.
    (d) **the perfectly competitive market achieves efficiency in resource use while the monopoly market does not.**

46. A cartel is most likely occur in

    (a) perfect competition as firms compete by reducing cost.
    (b) oligopoly as firms compete to lower price and increase their own profit.
    (c) monopolistic competition where firms collude to increase profits.
    (d) **oligopoly as firms act together to raise prices and increase profits.**

47. The following table shows the number of hours it takes to make 1 cookie or 1 bag of chips in each of Hapolonia and Flin Flon.For what value of x will Hapolonia have a comparative advantage in cookies?

	Cookies	Chips
Hapolonia	1	2
Flin Flon	3	x

(a) $x \geqslant 6$.

(b) $x > 6$.

(c) **x<6.**

(d) $x \leqslant 6$.

48. The following table shows the amount of soup and salad that Hap and Michelle can produce per hour.

	Soup	Sandwich
Hap	20	5
Michelle	30	10

(a) Michelle has an absolute advantage only in sandwiches.

(b) Michelle has a comparative advantage in soup.

(c) Hap has an absolute advantage in sandwiches.

(d) **Hap has a comparative advantage in soup.**

49. Which of the following is not a source of comparative advantage?

(a) Natural resources.

(b) Investment on education.

(c) Economies of scale.

(d) **Taxes and tariffs.**

50. Which of the following is not a benefit of trade?

(a) An increased variety of goods.

(b) Lower costs through economies of scale.

(c) Increased competition.

(d) **An ability to control domestic and world prices.**

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. Consider the Demand Curve$P = 30 - \frac{Q}{3}$ and the Supply Curve $P = \frac{2}{3}Q$.

   (a) Compute the equilibrium price and the equilibrium quantity at the free market equilibrium (i.e. when there is no market regulation) (5 marks)

   We have that, $30 - \frac{1}{3}Q = \frac{2}{3}Q$ **so,** $Q = 30$ **units and P = $20.**

   (b) Compute the price elasticity of demand in equilibrium. The equilibrium point belongs to the elastic or the inelastic part of the demand curve? (5 marks)

   Point elasticity= 1/slope*P/Q= -3*20/30 = -2. Demand is elastic.

   (c) Assume that the Government regulates the market by imposing a price floor $P^f = \$25$. What will be the quantity demanded (Q^D), the quantity supplied (Q^S) and the quantity exchanged on the market (Q^E)? Is there any surplus or shortage and if there is, what is its magnitude? (5 marks)

   For Pf = $25 we have that QD = 15 units, QS = 37.5 units, QE = 15 units and we have a Surplus of QS – QD = 37.5 – 15 = 22.5 units.

   (d) Assume that the Government regulates the market by imposing a price ceiling $P^c = \$10$. What will be the quantity demanded (Q^D), the quantity supplied (Q^S) and the quantity exchanged on the market (Q^E)? Is there any surplus or shortage and if there is, what is its magnitude? (5 marks)

   For Pc = $10 we have that QD = 60 units, QS = 15 units, QE = 15 units and we have a Shortage of QD – QS = 60 – 15 = 45 units.

   (e) Assume that the Government regulates the market by imposing an excise tax = \$12. What will be the price that the buyers pay after the tax (P^B) and the price that the sellers receive after the tax (P^S)? What will be the quantity exchanged on the market after the tax? How much of the tax will be paid by the consumers (buyers) and how much will be paid by the producers (sellers)? (5 marks)

   New Supply Curve will be P = 12 + 2/3Q.

   We have that 30 - 1/3Q = 12 + 2/3Q, so, Q^E=18 units and PB=$24 PS = PB – t = 24 – 12 = $12, so, PS = $12.

   To find the tax incidence compare the prices after tax with the market price before tax:

   Consumers will pay: PB – P = 24 – 20 = $4 of the tax.

   Producers will pay: P – PS = 20 – 12 = $8 of the tax.

2. Suppose that Tom wants to spend his weekly allowance on Movies (M) and Snowboarding (S). You know that Tom has \$200, Movie ticket price or P_M is \$10 and the maximum number of snowboarding visits that he can afford with his money is 5 visits.

   (a) In a graph draw the budget constraint (put movies on the vertical axis and snowboarding on the horizontal axis). To get the full mark, clearly label each axis and both amounts on each axis. Explain the steps you followed to find the answer. What is the snowboarding price (P_S)? (5 marks)

200/Ps=5, so Ps=40.

The graph is a straight line with vertical intercept of 20 and horizontal intercept of 5.

(b) Calculate the slope of the budget line. If at the optimal consumption bundle (the equilibrium choices) Tom buys 8 movie tickets and his marginal utility of Movies (MU_M) is equal to 60, find the marginal utility of snowboarding (MU_S) for this optimal choice. What is the magnitude of MRS at this point? (8 marks)

Slope = -Ps/Pm=-40/10=-4 .

At equilibrium MUm/Pm=MUs/Ps, so 60/10=MUs/40, so MUs=240. MRS=-4.

(c) Now suppose that there is a promotion for students and he can buy movie tickets for only \$8. To maximize his utility, he buys 15 movie tickets instead of 8 and spends rest of his money on snowboarding. Are snowboarding and movie complementary or substitute goods? (Hint: calculate the number of snowboarding and compare your results before and after the price change.) (7 marks)

After this change, he is buying 15 movies that costs him 15*8 =120. So he has only \$80 to spend on snowboarding => he will have 2 snowboarding tickets. Pm falls and as a result quantity demanded for snowboarding falls as well => these two goods are substitutes.

(d) Now suppose that Tom's grandmother gives him \$40 as a gift. But at the same time Tom finds out that the student promotion is over and movie tickets are now available only at \$12. Draw the budget line in part (a) and the new budget line in the same graph together. Draw standard indifference curves too. Show how the total utility changes (increases, decreases, or doesn't change) after receiving the gift and the increase in price? Briefly explain your graph. (5 marks)

The graph of the new budget line starts at the same vertical intercept and has flatter slope. Since the new budget constraint is above the old budget constraint he can make a better choice and his utility will increase.

3. Fill in the blanks. (Hint: If the average fixed cost of producing 10 units is \$12, what is the total fixed cost?) (1 mark per box)

Q	TVC	TFC	TC	AVC	AFC	AC	MC
0				-	-	-	-
10			200		12		
20							6
30	180						
40		120				8	

Q	TVC	TFC	TC	AVC	AFC	AC	MC
0	**0**	**120**	**120**	**-**	**-**	**-**	**-**
10	**80**	**120**	200	**8**	12	**20**	**8**
20	**140**	**120**	**260**	**7**	**6**	**13**	6
30	180	**120**	**300**	**6**	**4**	**10**	**4**
40	**200**	120	**320**	**5**	**3**	8	**2**

4. The domestic supply is given by $P = 20 + 4Q$; the market demand is given by $P = 100 - Q$.

   (a) Solve for the equilibrium quantity and price for a closed economy. (2 marks)
   Q = 16, P = 84.

   (b) Now assume the country is open to trade and the world price is \$40. First graph this market. How much of the quantity demanded will be produced domestically and how much will be imported? (7 marks)
   Qs = 5; Qimport = 55.

   (c) If a tariff of \$8 per unit is imposed on the imported good, illustrate the impact in the diagram in part (b). Compute the quantity demanded and supplied domestically in the market. (5marks)
   Qs = 7; Qd = 52.

   (d) Show the deadweight loss (DWL) and government revenue areas resulted from the tariff on your graph and then calculated the amounts. (8 marks)
   Govt revenue = (52-7)*8 = 360; DWL = 8 + 32 = 40.

   (e) What size quota could replace the \$8 tariff, yet domestic producers produce the same amount as with the tariff? (Hint: What is the gap between the total domestic demand and the domestic quantity supply under the tariff?) (3 marks)
   Import quota = 52 – 7 = 45.

5. Consider an industry where there are only two firms (duopoly). The industry demand is given by

$$P = 100 - 3Q.$$

   where,

$$Q = q_1 + q_2$$

   and Q is the output of the industry, q_1, q_2 are the outputs of each firm.

   Marginal revenue for each firm is given by

$$MR_1 = 100 - 6q_1 - 3q_2$$

$$MR_2 = 100 - 3q_1 - 6q_2$$

   Both firms have the following total cost function

$$TC(q_i) = 150 + 2q_i$$

   where $i = 1, 2$ and marginal costs are

$$MC_1 = MC_2 = 2$$

   Assume that the firms are Cournot competitors.

(a) Write down the profit maximizing conditions for firm 1 and firm 2. (4 marks)
For both firms the condition is the same: $MR = MC$, so we get, respectively:

$$100 - 6q_1 - 3q_2 = 2$$
$$100 - 3q_1 - 6q_2 = 2$$

(b) Calculate the reaction function for firm 1. What output should firm 1 produce if it expects its rival to produce 20 units? (5 marks)
The reaction function of firm 1 is given by solving its profit maximizing condition for q_1 as a function of q_2:

$$100 - 6q_1 - 3q_2 = 2$$
$$q_1 = \frac{98 - 3q_2}{6}$$

Plugging $q_2 = 20$ above, we get: $q_1 = \frac{19}{3}$.

(c) Calculate the reaction function for firm 2. Then, calculate the Cournot equilibrium price and quantities. (Hint: assume that $q_1 = q_2$) (7 marks)
The reaction function of firm 2 is given by solving its profit maximizing condition for $q_2$as a function of q_1:

$$100 - 3q_1 - 6q_2 = 2$$
$$q_2 = \frac{98 - 3q_1}{6}$$

The Cournot equilibrium is given by substituting $q_1 = q_2$ in the reaction functions, following the hint:

$$q_1 = \frac{98 - 3q_1}{6}$$

Solving this gives us $q_1 = q_2 = \frac{98}{9}$. Thus total quantity on the market is $Q = q_1 + q_2 = \frac{196}{9}$. Then prices are given by $P = 100 - 3Q = 100 - 3\frac{196}{9} = 34.67$.

(d) Draw the reaction functions on a graph. Label the reaction functions and equilibrium quantities. (q_2 on vertical axis, and q_1 on horizontal axis) (5 marks)
Both are negatively sloped, straight lines with equations for firm 1 and firm 2 respectively given by:

$$q_2 = \frac{98 - 6q_1}{3}$$
$$q_2 = \frac{98 - 3q_1}{6}$$

(e) Calculate the profit for firm 1 and 2. (4 marks)
The profit is the same for both and is given by TR-TC, i.e.:

$$\Pi(q_1, q_2) = P(q_1 + q_2)q_i - TC(q_i) = (100 - 3q_1 - 3q_2)q_i - (150 + 2q_i) = 205.7$$