Concordia University
Department of Economics

ECON 201 – INTRODUCTION TO MICROECONOMICS
Winter 2012

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: 35 multiple-choice questions (35 marks);
   (ii) Part II: Choose 5 out of 6 long questions (65 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: _____

Total: _____

Part I: Multiple Choice Questions. Write your answers on the computer sheet in PENCIL (Total=35 marks).

1. It has been observed that university enrolment in Canada is higher during periods of high unemployment. A possible explanation for this is that
   a) during periods of high unemployment, professors teach better.
   b) when prospects for getting a job are poor, the opportunity cost of getting a job is lower.
   c) when prospects for getting a job are poor, the opportunity cost of doing nothing is higher.
   d) **when prospects for getting a job are poor, the opportunity cost of going to university is lower.**
2. An Olympic soccer player reveals that she had given up a job that paid $35,000 per year to train full-time. She received a grant of $9,000 per year from Sports Canada, but this could not cover all her training expenses. Her food and rent were $16,000 and training expenses were $10,000. What is her annual opportunity cost of participating in the Olympics?
   a) $17,000.
   b) $35,000.
   c) $36,000.
   d) $46,000.
3. Which of the following statements is (are) normative?
   a) If income increases, sales of luxury goods will fall.
   b) When minimum wages are raised, unemployment rises.
   c) All of the above.
   d) None of the above.
4. If the nominal price of tickets to see the band U2 has increased from $100 to $150 during a five year interval, and the consumer price index has risen from a value of 160 to 200, then the real price increase in ticket price is:
   a) 50%.
   b) 40%.
   c) 30%.
   d) 20%.
5. Which one of the following statements is false?
   a) If the economist wants to examine the distribution of income in 1987, time- series data should be used.
   b) If the economist wants to examine the relationship between advertising expenditures and sales during 1987, cross-section data is used.
   c) If the economist wants to examine the effect of intellectual ability upon earnings, cross-section data could be used.
   d) If the economist wants to forecast gross national product based upon observations from previous years, time-series data should be used.
6. Consider the goods electronic readers and electronic books. In response to a price decline in e-books, the market for e-readers should show
   a) an inward shift in demand.
   b) an outward shift in demand.
   c) an inward shift in supply.
   d) an outward shift in supply.
7. An effective price ceiling on a pharmaceutical drug will have no effect on the quantity traded if:
   a) the supply curve is vertical.
   b) the supply curve is horizontal.
   c) the demand curve is horizontal.
   d) the demand curve is vertical.
8. If goods J and K are substitutes, an increase in the price of J causes:
   a) quantity demanded of J to fall and the demand curve for K to shift toward the origin.
   b) a decrease in quantity demanded for J and an outward shift of K's demand curve.
   c) quantity demanded of J remains constant, but the demand for K decreases.
   d) the demand curve for both J and K shift.
9. Suppose the per-unit tax on cars is raised. If the demand for cars is everywhere unit elastic and the supply curve is upward sloping then this will cause tax revenue to ___. [Hint : Tax revenue = Spending by consumers minus firm revenue. Use elasticity to figure out what happens to consumer spending. Use diagram to figure out what happens to firm revenue].
   a) rise

b) fall
c) stay constant
d) rise if the supply elasticity is less than one and fall if the supply elasticity is greater than one

10. Data on the prices, quantities sold, and average incomes of buyers of Jolt Cola and Coke, over several years, are shown below.

Year	Price of Jolt	Price of Coke	Average Income of Buyers	Quantity of Jolt Sold
2000	$1.00 / can	$1.00 / can	$25,000	15,000 cases
2001	$1.00 / can	$1.40 / can	$25,000	25,000 cases
2002	$1.00 / can	$1.40 / can	$35,000	15,000 cases
2003	$1.40 / can	$1.40 / can	$35,000	5,000 cases

The arc income elasticity of Jolt is:
a) 1.5
b) -0.67
c) -1.5
d) not determinable, given that all the variables are changing.

11. Suppose the market supply curve for some good is upward sloping. If the imposition of an excise tax causes no change in the equilibrium quantity sold in the market, the good's demand curve must be _____, meaning that the burden of the tax has fallen completely on the _____.
a) Unit elastic; government.
b) Horizontal; firms.
c) Vertical; consumers.
d) Horizontal; consumers.

12. Currently Joe and Halyna are consuming the same amount of strawberries, but Joe's (straight line) demand curve is much more elastic than Halyna's at the current price. Which statement is true?
a) **Halyna's consumer surplus exceeds Joe's.**
b) Halyna's consumer surplus equals Joe's.
c) No statement can be made regarding consumer surpluses.
d) Joe's consumer surplus exceeds Halyna's.

13. Using a supply and demand diagram of your own, 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.

14. When economists describe a good as being 'under-priced', they mean that:
a) output should be increased because the marginal social benefit in consumption exceeds the marginal social cost of production.
b) too much of the good is being produced since there is a negative externality associated with the good.
c) resources are properly allocated since society wants more of the good at a lower price.
d) there is an under-allocation of resources in the production of the good.

15. 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) always equals unity.
d) none of the above

16. Suppose again that Yuri buys soy milk and oranges and has not yet exhausted his budget. His MU of an additional carton of soy milk is 20 and its price is $1.25, whereas his MU for an additional orange costing 50 cents is 7. From this situation, we can deduce that he should:
    a) buy more oranges.
    b) reduce his consumption of soy milk.
    c) buy more soy milk.
    d) divide his budget equally between soy milk and oranges.
17. A demand curve slopes downward because
    a) since the marginal utility increases with increased consumption, people will be eager to buy more at lower prices.
    b) since the marginal utility decreases with increased consumption, the price must fall in order to induce people to buy more.
    c) since total utility increases with increased consumption, a lower price is necessary to encourage increased production.
    d) lower prices mean a lower consumer surplus which will encourage increased consumption.
18. If you are a risk-neutral person and have the chance to play a game where the probability of winning $10.00 is 20% and the probability of losing $3.00 is 80%:
    a) you will be willing to play the game.
    b) you will be willing to play the game because this is a fair gamble.
    c) you may or may not play the game, depending on how you balance the love of risk with the probability of loss on average.
    d) you will not play the game as it is not a favorable one.
19. Mark has two choices: a 50% chance of winning $20 and a 50% chance of losing $20 versus a 20% chance of winning $100 and an 80% chance of losing $20. Which choice has the larger expected value?
    a) Both choices have the same expected value.
    b) The 50%-50% chance.
    c) Both have negative expected values and neither should be selected.
    d) The 20%-80% choice.
20. Jonathan has two choices: a 50% chance of winning $20 and a 50% chance of losing $20 versus a 20% chance of winning $100 and an 80% chance of losing $25. Assume that Jonathan is a risk-averse individual, then he will choose the following option:
    a) The 50%-50% choice as this option is less risky between the two.
    b) Jonathan is indifferent between the two options and can decide by flipping a coin and then decide on the basis of coin outcome.
    c) The 20%-80% choice as this option is less risky between the two.
    d) None of the above.
21. If total product is at a maximum, then
    a) average product must be falling and be equal to zero.
    b) average product must equal marginal product.
    c) marginal product must be greater than zero and must be falling.
    d) marginal product must be falling and be equal to zero.
22. If factor prices increase,
    a) a firm will move to a lower point on its long-run average cost curve only.
    b) there will be no change in the cost curves in the long run.
    c) there will be a downward shift in the long-run average cost curve but not in the short-run average cost curve.
    d) both the long-run and short-run average cost curves will shift upward.
23. Which of the following statements about the relationship between marginal product and average product is correct?
    a) When average product exceeds marginal product, marginal product must be rising.
    b) Average product equals marginal product when marginal product is at its maximum.
    c) When marginal product is falling and average product is below marginal product, then average product is rising.
    d) Average product equals marginal product at marginal product's lowest point.
24. If a firm doubles *all its inputs* and output as a result triples then the firm is experiencing
    a) increasing returns to scale.

b) decreasing returns to scale.
c) economies of scale.
d) the law of diminishing returns.

25. If an industry is composed of two firms (temporarily) and they have short-run marginal cost curves of the form MC = 5 + 0.1Q and MC = 8 + 0.2Q respectively, how much will each supply if the going price is $10?
a) 50 and 10.
b) 20 and 40.
c) 30 and 50.
d) 15 and 40.

26. The perfectly competitive firm's short run supply curve is the upward-sloping part of its
a) average variable cost curve, at all points above the point of AVCmin.
b) marginal cost curve, at all points above the point of AFCmin.
c) marginal revenue curve, at all points above the point of minimum average total cost.
d) marginal cost (MC) curve, at all points above the point where MC = AVC.

27. In the short run, a monopolist with a loss of $50, along with marginal revenue of $20, and marginal cost of $15, should
a) shut down.
b) expand output and raise price.
c) expand output and cut price.
d) cut output and raise price.

28. Inefficiency results from monopoly because
a) high monopoly prices are not equitable.
b) a monopoly under-produces relative to the ideal at which society's marginal cost=marginal benefit.
c) it makes quality products that cost a lot.
d) all of the above.

29. Cartels are inherently unstable as,
a) At the agreed upon production level price remains higher than the marginal cost of production.
b) Cartels are formed by cheaters.
c) Cartels are always formed by many firms and hence coordination is not possible.
d) Both a & c.

30. Under monopolistic competition, long-run economic profits tend toward zero because of
a) economic inefficiency.
b) product differentiation.
c) the downward-sloping demand curve facing each firm.
d) the lack of barriers to entry.

31. A key characteristic of monopolistically competitive market structure is:
a) One firm plays the dominant role in the industry.
b) Segmented market does not allow a monopolistically competitive firm to fully exploit economies of scale.
c) Every firm in the industry sells a homogenous product.
d) Firms earn economic profit in the long run.

32. Which of the following is not a requirement of a game?
a) Players.
b) Payoffs.
c) Dominant strategies.
d) Knowledge of the payoffs.

33. For the following question, assume that in Canada the opportunity cost of coal is 1/3 barrel of oil and the opportunity cost of oil is 3 tons of coal. Assume that in Bangladesh the opportunity cost of coal is 1/4 barrel of oil and the opportunity cost for oil is 4 tons of coal. Who has the comparative advantage in producing coal and who has the comparative advantage in producing oil?
a) Bangladesh has comparative advantage in producing coal and Canada has the comparative advantage in producing oil.
b) Bangladesh has comparative advantage in producing coal and also has the comparative advantage in producing oil.
c) Canada has comparative advantage in producing coal and Bangladesh has the comparative advantage in producing oil.

d) Canada has comparative advantage in producing both coal and oil.

34. Assume that the domestic demand for mp3 players is given by P = 80 - Q. The supply of domestic producers is given by P = 10 + Q, and the international supply by P = 15. If this is an open economy then the number of quantities of import of mp3 for this economy is:
    a) 50
    b) 60
    c) 40
    d) 20
35. Two Canadian workers, Alan and Jessica, can each produce stoves or coffee. Alan can produce either 150 kg of coffee or 1 stove per month. Jessica can produce either 60 kg of coffee or 1 stove per month. How much of each good is produced if each worker specializes according to comparative advantage?
    a) 2 stoves and 60 kg coffee
    b) 1 stove and 60 kg coffee
    c) 2 stove and 210 kg coffee
    d) None of the above

Part II: Answer FIVE of the following SIX questions. If more than five questions are answered, only the first five attempted will be marked (Total=65 marks).

Question # 1 (13 marks)

Suppose the prices of doughnuts (d) and coffee (c) are Pd = $4 and Pc = $2, and we observe the consumer to purchase exactly three doughnuts and two cups of coffee every day.

(i) Graph the resulting budget constraint on a diagram (doughnuts on the vertical axis and coffee on the horizontal axis), with intercepts clearly marked, explaining how you arrive at the answers. What is the consumer's total income? (3 marks)
Ans: Income = 3*$4 + 2*$2 = $16. Intercepts are: d = 16/4 = 4 (on the vertical axis) ; c = 16/2=8 (on the horizontal axis)

(ii) Calculate the slope of the budget line and explain what it stands for. If the MU from coffee consumption at the chosen bundle is equal to 100, find the utility obtained from consuming the third doughnut. (3 marks)
Ans: slope = - Pc/Pd = - 2/4 = - 1/2 = - 0.5 → It means that to purchase one more cup of coffee the consumer needs to give up half a doughnut.
At the optimal bundle: (MUd/Pd)=(MUc/Pc) → MU of the 3rd doughnut = (100*4)/2= 200

(iii) Now suppose the government subsidizes coffee producers such that the new market price of coffee is $1 per cup. Illustrate graphically and explain what happens to the MRS, quantity consumed of coffee and quantity consumed of doughnuts. (4 marks).
Ans: As a result of the subsidy, the budget line rotates outward around the vertical intercept. The budget line is now flatter & has a slope equal to – 0.25 → The new MRS is, 1/4 = 0.25. The quantity consumed of coffee will increase (since it is now relatively cheaper), and the quantity consumed of doughnuts will increase as well (since it's a complement for coffee in consumption). The new optimal bundle will comprise more of both goods after the subsidy.

(iv) Instead of the subsidy in (iii), assume now that the consumer loses his job and thus experiences a drop in income to $8 per day. Illustrate the new budget constraint and the new optimal bundle on a diagram. Assume that both goods are normal. (3 marks).
Ans: new equilibrium should be positioned below and to the left on a lower indifference curve. Income now is $8, but prices are unchanged. Thus the new budget line is parallel and to the left of the old one.

Question #2 (13 marks)

Consider the Market for milk in Saskatchewan. If P is the price of milk (cents per litre) and Q is the quantity of litres (in millions per month), suppose that the demand and supply curves for milk are given by:

Demand: $P = 225 - 15Q_D$
Supply: $P = 25 + 35Q_S$

(i) Assuming there is no government intervention in this market, what is the equilibrium price and quantity? (2 marks)

P = 165 cents per litre (= $1.65 per litre) and Q = 4 million litres / month

(ii) Find consumer surplus, producer surplus and the total social surplus. (2 marks)

CS =[(225-165)*4]/2=120

PS =[(165-25)*4]/2=280

TS =400

Now suppose the government guarantees milk producers a price of $2 per litre and promises to buy any milk that the producers cannot sell.

(iii) Find the new quantity traded on the market, the price paid by consumers, the price received by producers and the quantity of milk the government would be buying (per month) with this system of price support. Round all decimals to the nearest hundredth. (2 marks)

Q = (225-200)/15 = 1.6666 ≈ 1.67 million litres / month

Price paid by consumers = price received by sellers = $2 / litre of milk

Quantity bought by the government = (200-25)/35 – (200-225)/15 = 5 - 1.67 =3.33 million litres

(iv) Given this policy of price control, find the new consumer surplus, producer surplus, the cost to the government and the deadweight loss. (4 marks)

CS = [(225-200)*1.67]/2= 20.875 ≈ 20.88

PS = [(200-25)*5]/2=437.5

Costs to the government = (5 – 1.67) * 2 = $6.66 million

DWL = change in consumer surplus + change in produce surplus + change in government funds= (20.88 - 120) + (437.5-280) - 666 = -99.12 + 157.5 - 666 = -607.62. DWL=TS'-TS=(20.88+437.5-666)-400=-607.62.

(v) Now assume that instead of price control, the government imposes a specific tax to be paid by the suppliers. The tax should result in an equilibrium price equal to $2 per litre of milk. Find the magnitude of this tax. (3 marks)

t = specific tax (in cents / litre of milk)

At $2 per litre → consumer is willing to purchase = (225-200)/15 = 1.67 million litres

The tax inclusive Supply: P = 25 + 35Q + t

Since (Q=1.67, P= 200) lies on the tax-inclusive supply → 200 = 25 + 35*1.67 + t → t = 116.55 cents per litre = $1.17 per litre

Question #3 (13 marks)

Suppose that the residents of a traffic congested area demand that their municipality works on reducing noise and traffic pollution in their neighbourhood. The municipality cooperates with the residents and conveys their request to the government as their demand agrees with the government's environmental objective of pollution reduction through the facilitation of access to public transportation.

The private marginal benefit from consuming public transport is: $P=30-Q_D$ and the marginal cost of public transport provision is: $P=10+0.5Q_S$, where P is the price per trip and Q measures the number of trips made per month. The marginal external benefit (MEB) of public transportation is: $MEB=0.5Q_D$, so the social benefit demand curve is $P=30-0.5Q_D$.

(i) What should be the quantity of trips that achieves allocative efficiency? (3 marks)
To achieve allocative efficiency: (30-Q)+(0.5Q)=10+0.5Q → 30-0.5Q=10+0.5Q→ Q=20 trips.

(ii) What should be the amount of the specific subsidy to achieve the efficient quantity? (4 marks)
At the allocatively efficient quantity = 20 trips:
Price on social demand = 30-0.5*20=30-10= $20
Price on private demand = 30-20=$10
⇨ **Subsidy per trip = $20-$10= $10 / trip**

(iii) What is the cost of the subsidy to government? (3 marks)

Total cost of subsidy program = (subsidy per pass) * (allocatively efficient quantity) = $10 * 20 =$200

(iv) The lower price and increased quantity demanded of public transport resulting from the subsidy leaves both public transport passengers and the neighbourhood's residents happier than before. What could be said about the nature of public transportation? Was public transportation under-produced or over- produced before the subsidy was applied? (3 marks)

Ans: since more public transport consumption by passengers has both a private and external marginal benefit → public transport is a good that generates a positive externality falling upon the residents of the traffic congested area. Before the subsidy was applied and with no government intervention, the positive-externality producing good was under-produced leaving dead weight loss in the market for public transportation.

Question #4 (13 marks)
There is a single movie theatre in the town of Friendly Bay. There are two distinct groups of movie goers. Group one has a demand curve given by P = 12 – 1/2Q and group two is composed of 30 individuals each willing to pay $12. The owner incurs a fixed cost each time he shows the movie of $30 and a cost of $2 per individual who pays to enter.

(i) Illustrate graphically the two demand curves, labeling the intercepts carefully. (2 marks)
Downward sloping D intercepts 12, 24; horizontal line at P = $12 up to q = 30.
(ii) Illustrate graphically the market demand curve – that is the total of these two groups together. (2 marks)
Horizontal up to 30 at P=12, then slopes down following the downward sloping demand.
(iii) Compute the profit that the owner would make if he charged a price of $8 to everybody. (2 marks)
30 * $6 + 8 * $6 - $30 = $198.
(iv) Suppose now that he can separate the two groups and can therefore charge them each a separate price. So he is now a monopolist and will maximize his profit by choosing a quantity in each group that he should sell tickets to, corresponding to the rule MC = MR. So draw the MR and MC for each of the two submarkets and illustrate graphically the number of people from each group he should sell tickets to. (4 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 = 12 – 1Q hence where MC = MR then Q = 10, P = $7.
(v) Compute his total profit in this situation. (3 marks)

30 * $10 + 10*$5 - $30 = $320.

Question #5 (13 marks)

Peter produces toys according to the production function $Q = L + 4L^2 - \frac{1}{4} L^3$, where Q is output and L is labor. The marginal product curve is given by $MP_L = 1 + 8L - \frac{3}{4} L^2$.

(i) Derive an expression for the average product of labor. (2 marks)

$AP = 1 + 4L - 1/4L^2$.

(ii) These are regular shaped average and marginal product curves. Illustrate them on a graph, and compute the value of their intercepts on the vertical axis. (2 marks)

Intercepts are 1 for AP and MP.

(iii) What is the value of L where the AP_L is at its maximum? (3 marks)

Where AP = MP, L = 8.

(iv) Since we know that the average cost curve AC can be written as $AC = Wage/AP_L$, if the wage is W = $68, what is the value of the AC at its minimum? (2 marks)

AC = 68/17 = 4.

(v) If this firm is a perfect competitor, what price will it charge for its output in the long run? (2 marks)

P = min AC: P = $4.

(vi) If this firm is a monopolist in the market, can we say how much higher its price will be relative to the perfect competitor? (2 marks)

No: we do not know the D curve, hence we don't know the MR curve.

Question #6 (13 marks)

The domestic market for cheese is given by $P = 108 - 2Q$ and $P = 16 + 1/4Q$. These are the demand and supply conditions. The good can be supplied internationally at a constant price P = 24.

(i) Illustrate the domestic market in the absence of trade and solve for the equilibrium price and quantity (don't be concerned if you get a fraction in your answer). (2 marks)

P=26.22, Q = 40.89.

(ii) With free trade illustrate the market graphically and compute the total amount purchased, and compute the amount supplied by domestic and international suppliers each. (2 marks)

Total amount purchased=42, amount supplied domestically=32, amount supplied internationally, i.e. imports=42-32=10.

(iii) Suppose now that the government implements a price floor in the domestic market equal to $48. Illustrate the market outcome graphically. (3 marks)

Price floor line is horizontal at P=48.

(iv) For the outcome with a price floor, compute the quantity supplied by domestic and international suppliers respectively. (3 marks)

Amount purchased and supplied domestically=30, imports=0.

(v) Illustrate graphically the total supplier/producer surplus at the price floor outcome. (3 marks)

It is the area between price of 48 and the original supply curve P=16+Q/4, up to Q=30.

The End