Concordia University
Department of Economics

ECON 201 – INTRODUCTION TO MICROECONOMICS
Fall 2013

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: _____

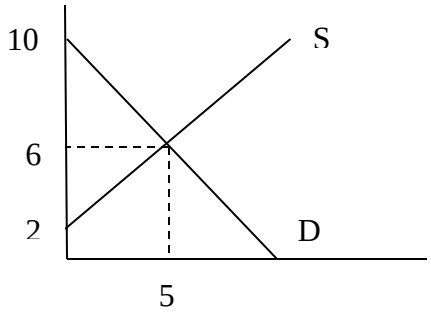
Part I: Multiple Choice Questions. Write your answers on the computer sheet in PENCIL (Total=35 marks).

1. Mary is thinking about going to the hockey game tonight. A ticket costs $100 and she will have to cancel her job that pays $40. She is going to have dinner that costs her $20. The cost of seeing the hockey game is therefore:
    a) $100.
    b) $40.
    c) $140.
    d) $160.
2. Which of the following statement(s) is (are) positive?
    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.
3. Cross-sectional data:
    a) Are used very infrequently in economic analysis.
    b) Measure a given variable for different economic units at different points in time.
    c) Measure a given variable for different economic units at a point in time.
    d) Measure a variable or variables at different points in time.
4. Economists compute the real value of an economic variable denominated in dollars by:
    a) Dividing the nominal value by 100.
    b) Multiplying the nominal value by the price level.
    c) Dividing the nominal value by the price level.
    d) Subtracting the price level from the nominal value and multiplying by 100.
5. If the nominal price of hockey tickets has increased from $100 to $150 and the consumer price index has risen from 160 to 200, then the real ticket prices have increased:
    a) 50%.
    b) 40%.
    c) 30%.
    d) 20%.
6. All the following will cause the demand curve to shift to the left except:
    a) A reduction in income if the good is normal.
    b) An increase in the price of a complementary good.
    c) An increase in the price of a substitute good.
    d) An increase in income if the good is inferior.
7. Refer to the table below. The arc price elasticity of demand for Coke is:
    a) -1.
    b) -1.7.
    c) 1.7.
    d) -0.6.

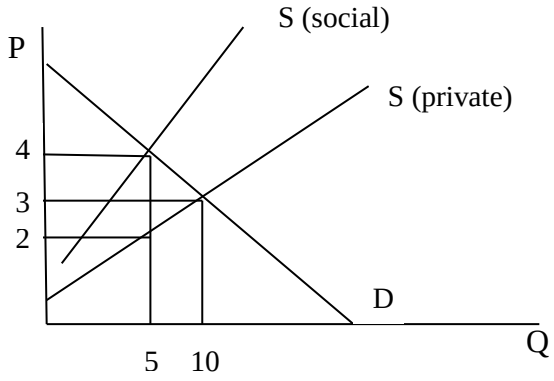
	Price of Jolt	Price of Coke	Income level	Coke Sales
2008	$1 / can	$2 / can	$30,000	10,000 cases
2009	$2 / can	$2 / can	$30,000	15,000 cases
2010	$2 / can	$3 / can	$30,000	10,000 cases
2011	$2 / can	$3 / can	$40,000	12,000 cases

8. Assume that George is allocating his budget optimally between two products. If the marginal utility (MU) of product X is 10 and its price is $2, what must be the MU of product Y if its price is $1?
    a) 8.
    b) 12.
    c) 16.
    d) 5.
9. Suppose that George buys soymilk and oranges and has not yet exhausted his budget. His MU of an additional crate of oranges is 20 and its price is $1.25, whereas his MU for an additional bottle of soymilk costing $0.50 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 soymilk and oranges.
10. Which of the following explains why a demand curve slopes downward?
    a) Since marginal utility increases with increased consumption, people will buy more at lower prices.
    b) Since marginal utility decreases with increased consumption, price must fall for people to buy more.
    c) Since total utility increases with increased consumption, a lower price is necessary for increased production.
    d) Lower prices mean lower consumer surplus, which will encourage increased consumption.
11. If quantity demanded increases from 1,000 to 1,050 units when income rises by 10 percent, then using the initial quantity as the base, this good could be classified as:
    a) Normal and luxury.
    b) Inferior.
    c) Normal and necessity.
    d) Cannot be determined from the information provided.
12. If quantity demanded of good X decreases from 1,100 to 1000 units when the price of good Y rises by 5 percent, then using the final quantity as the base, the cross elasticity of demand is _____and the two goods are considered _____ .
    a) -2, complements.
    b) 2, substitutes.
    c) -0.5, complements.
    d) 0.5, substitutes.
13. A simultaneous decrease in both demand and supply will lead to:
    a) A certain decrease in Q.
    b) An indeterminate change in Q.
    c) An indeterminate change in P.
    d) Both a) and c).
14. Setting a price floor below the equilibrium price will cause:
    a) Producer surplus to fall.
    b) No effect on price and quantity.
    c) Quantity supplied to exceed quantity demanded.
    d) Quantity demanded to increase.
15. If a per unit tax is imposed, then the less elastic the demand curve is, the:
    a) Smaller the deadweight loss and the larger the loss in consumer surplus.
    b) Larger the deadweight loss and the larger the loss in consumer surplus.
    c) Larger the deadweight loss and the smaller the loss in consumer surplus.
    d) Smaller the deadweight loss and the smaller the loss in consumer surplus.
16. Using the figure below, the dollar value of the total economic surplus is:
    a) $20.

b) $10.
c) $30.
d) $5.



Refer to the following graph to answer the next two questions.



17. Which of the following statements are correct?
    a) The free market equilibrium price and quantity are 3 and 10, respectively.
    b) The after tax equilibrium consumer price and quantity are 4 and 5, respectively.
    c) There is a negative externality.
    d) All of the above.

18. To achieve allocative efficiency, the government should use a _____of $2 per unit, which creates a _____.
    a) Subsidy, welfare gain.
    b) Tax, welfare gain.
    c) Subsidy, deadweight loss.
    d) Tax, deadweight loss.

Refer to the following table to answer the next two questions.

Output	1	6	12	20	30	42	49	55	60	64
Labour	1	2	3	4	5	6	7	8	9	10

19. The average product of labour intersects the marginal product of labour at how many units of labour?
    a) 3.
    b) 5.
    c) 7.
    d) 9.

20. The marginal product of labour reaches a maximum at how many units of labour?
    a) 2.
    b) 4.
    c) 6.
    d) 8.

21. 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.
22. If the LATC is given by 12 + (12/Q), what is the total cost of producing 12 units of output?
    a) $12.
    b) $24.
    c) $144.
    d) $156.
23. A vacuum manufacturer incurs a constant variable cost of production equal to $80 and sells the output for $130. If her annual fixed costs are $20,000, how many vacuums must she sell in order to cover her total costs?
    a) 200.
    b) 400.
    c) 600.
    d) 800.
24. Demand and supply in a competitive industry are defined by Q = 30,000 − 600P and Q = 200P – 2,000. Calculate the equilibrium price in the market. If an additional firm is considering entering the industry and its marginal cost is given by MC = 10 + 0.5q, how much should it supply?
    a) 60.
    b) 50.
    c) 40.
    d) 30.
25. At its current output, a monopolist determines that its marginal cost is $25 and its marginal revenue is $30. It will maximize profits or minimize losses by:
    a) Keeping output constant and increasing price.
    b) Increasing output and decreasing price.
    c) Decreasing both output and price.
    d) Increasing both output and price.
26. What is true at a Nash equilibrium?
    a) Output levels are where ATC is at its minimum.
    b) Both players are choosing the strategy that maximizes their joint payoffs.
    c) The players are colluding on their strategy.
    d) Neither player has an incentive to change strategy.
27. In a duopoly game, what characterizes a dominant strategy equilibrium?
    a) Both firms choose randomly.
    b) Each firm has a strategy that is best for itself, no matter what their rival strategy is.
    c) Each firm chooses the strategy of trying to dominate their rival.
    d) The firms' joint profits are maximized.
28. Which of the following is (are) true about oligopolists?
    a) They produce more in total and sell at a lower price than a monopolist when they do not collude.
    b) They set marginal revenue equal to marginal cost, even though marginal revenue depends on the other firms.
    c) They produce the monopoly output and charge the monopoly price when they collude.
    d) All of the above.
29. A monopolist with a demand curve given by P = 100 – 2Q, and a marginal cost of MC = 10 + 1Q, will maximize profit by charging a price of:
    a) $28.

b) $36.
c) $64.
d) $72.

30. Which of the following is not an example of price discrimination?
    a) An electrician charging a higher hourly rate for customers who live in bigger houses.
    b) A taxicab charging more for longer trips.
    c) A movie theatre charges a lower price to students and seniors.
    d) An airline charging more for tickets on certain days of the week.
31. Once a cartel determines the profit-maximizing price:
    a) Each member will face the temptation to cheat on the cartel price 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 have no impact on the profit of the cartel.
    d) All members of the cartel have a strong incentive to abide by the agreed-upon price.
32. In the table below, which defines the unit cost of producing wine and generators in France and Germany,:
    a) France has a comparative advantage in wine and Germany in generators.
    b) Germany has a comparative advantage in wine and France in generators.
    c) Germany has a comparative advantage in both goods.
    d) None of the above.

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

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

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

34. If you are a risk-averse person and have the chance to play a game where the odds of winning $2.00 are 50% and the odds of losing $3.00 are 50%:
    a) You will be willing to play the game because of the odds.
    b) You will be willing to play the game because this is a fair gamble.
    c) You will not play the game because you are risk averse.
    d) You will play the game, because you are risk neutral.
35. It is frequently difficult to buy natural disaster insurance because:
    a) Insurance companies are unfair to people living in areas which are natural disaster prone.
    b) Individual risks are not independent in the event of a natural disaster.
    c) Insurance companies do not like to do business with risk-averse people.
    d) The individual risks are independent.

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 that our local power station burns coal to generate electricity. The demand and supply functions for electricity are given by $P = 12 – 0.5Q$ and $P = 2 + 0.5Q$, respectively. However, for each unit of electricity generated, there is an externality. When we factor this into the supply side of the market, the real social cost is increased, and the supply curve is $P = 3 + 0.5Q$.

(i) Calculate the free market equilibrium price and quantity and illustrate it geometrically. (2 marks)

Set 12-.5Q=2+.5Q, solve and get Q=10, P=7.

(ii) Calculate the efficient (i.e., socially optimal) level of production. (2 marks)

Set 12-.5Q=3+.5Q, solve and get Q=9, Pc=7.5, Pp=6.5

(iii) What is the point elasticity of demand at the socially optimal level of production? (2 marks)

E= -2*(7.5/9)= -1.67

(iv) What is the per unit tax needed to align the free market equilibrium with the socially optimal one? (2 marks)

t=$1

(v) Compute the consumer surplus (CS), producer surplus (PS), government revenue (GR), pollution cost (PC) and total surplus (TS), i.e. CS, PS, GR and PC taken together, at the socially optimal equilibrium. Is this TS higher than before the tax? Why or why not? (5 marks)

CS=(9*4.5)/2=20.25
PS=(9*4.5)/2=20.25
GR=9*1=9
PC= (7.5+3)*9/2 – (6.5+2)*9/2=9
TS=2*20.25+9-9=40.50
Total Surplus is higher than before the tax because the corrective tax removed the inefficiency caused by the free market outcome in the presence of a negative externality.

Question #2 (13 marks)

Lionel likes to eat a nice piece of Brie cheese while having a glass of wine. He has a monthly budget of $120. In a diagram with wine on the vertical axis and cheese on the horizontal axis, suppose that the intercepts are 10 bottles on the wine axis and 4 kilos on the cheese axis. He is observed to purchase 5 bottles of wine and 2 kilos of cheese.

(i) What are the prices of wine and cheese? (4 marks)

If Lionel can buy 10 bottles of wine for $120, then each bottle must cost $12. Similarly cheese must cost $30 per kilo.

(ii) Suppose that the price of wine increases to $20 per bottle, but that Lionel's income simultaneously increases by $60. Draw the new budget constraint and mark the intercepts. (4 marks)

The wine intercept must be 180/20 = 9. Similarly the Cheese intercept must be 180/30 = 6.

(iii) Is Lionel better off in the new or old situation? (*Hint*: Ask if he can now afford the bundle he purchased with a lower income and lower wine price.) (5 marks)

Yes, he can afford the original combination with the new budget constraint and still have $20 remaining – which he can spend on the goods.

Question #3 (13 marks)
Fill in the blanks. (Hint: If the average fixed cost of producing 10 units is $12, what is the total fixed cost?) (0.5 marks each blank)

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

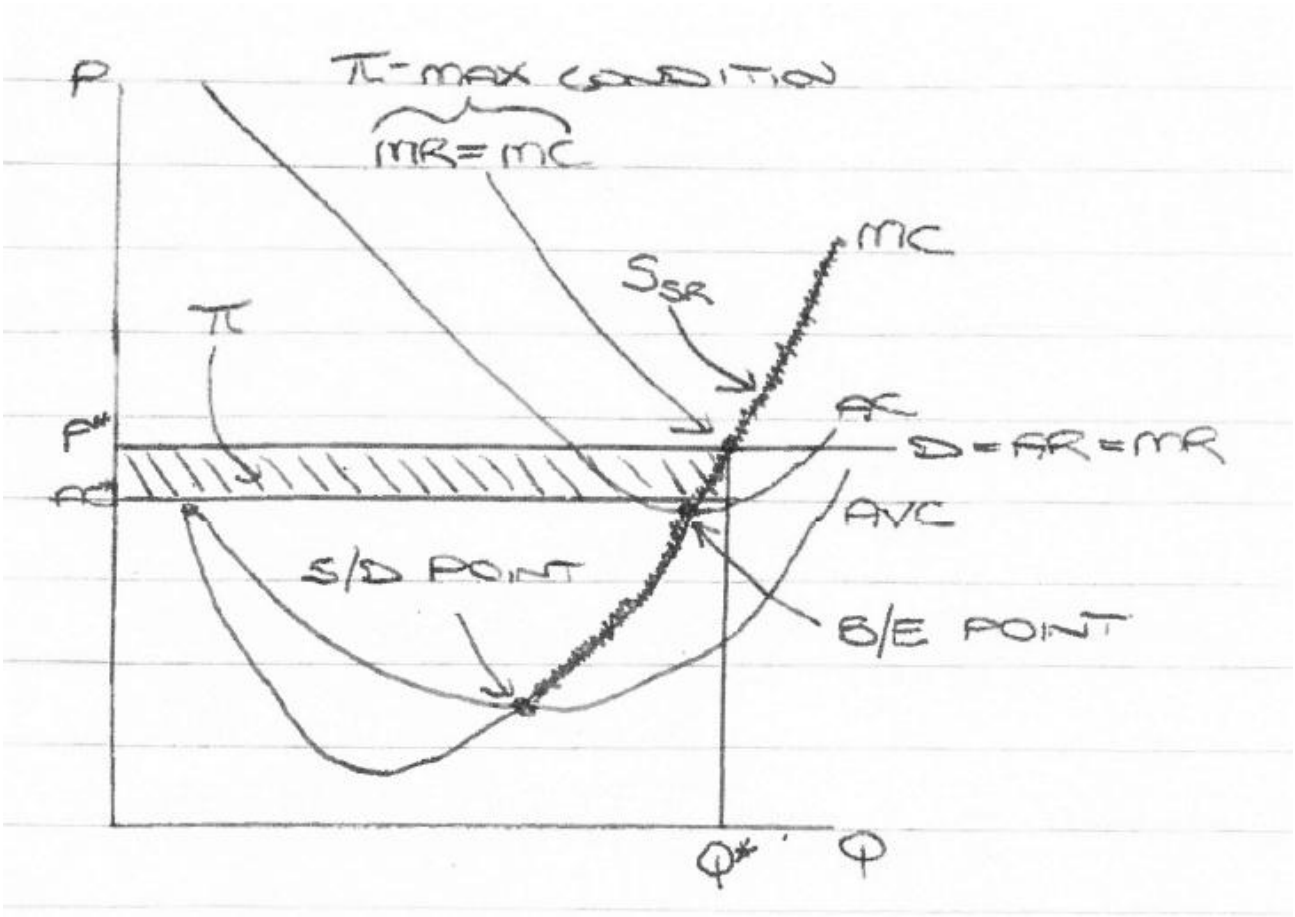
Solutions (each blank = 0.5 marks)

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**

Question #4 (13 marks)
Create a properly-labelled graph showing a perfectly-competitive firm that is making economic profits. "Properly-labelled" means correctly labeling the:

1. Axes; (1 mark)
2. AVC, AC and MC curves; (3 marks)
3. D, MR and AR curves; (3 marks)
4. Profit-maximising point; (1 mark)
5. Profit-maximising quantity and price; (1 mark)
6. Amount of profits; (1 mark)
7. Breakeven and shutdown points; (2 marks)
8. Short-run supply curve (1 mark)

Answer:



Question #5 (13 marks)

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.

(i) Illustrate graphically the two demand curves, labeling the intercepts carefully. (2 marks)
Downward sloping D intercepts $10, 20; horizontal line at P = $10 up to q = 20.

(ii) Roughly sketch the market demand curve (i.e., the total of these two groups together). (2 marks)
Horizontal up to 20 at P=$10, then slopes down following the downward sloping demand.

(iii) 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.

(iv) In the following table, Q_{d1} column shows the quantity demanded by group 1 at every price. Fill out the column Q_{d2} showing the quantity demanded by group 2 at every price. (2 marks)

P = 10 – 1/2Q. =>1/2Q = 10-P => Q = 20 – 2P

Price	Q_{d1}	Q_{d2}
10	20	
9	20	
8	20	
7	20	
6	20	
5	20	
4	20	
3	20	
2	20	
1	20	

Price	Q_{d1}	Q_{d2}	TR = P x (Q_{d1}+ Q_{d2})
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

(v) 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?(2 marks)

P = 10; Profit = $200-100 = $100

Question #6 (13 marks)

Suppose the 'eReader' industry has just two rivals, 'Kindle', and 'Nook' who make essentially a very similar line of product. If they each produce a small volume of output, a higher (average) price can be assured, which leads to a higher profit than when each produces a larger volume.

More precisely, if each produces a 'small' volume, profit to each is $200; and, if each produces a 'large' volume, profit decreases to $60 for each. However if one produces a large volume while the other produces a small volume, the 'large' volume firm earns a profit of $250 and the 'small' volume firm earns just $50.

(i) Set up the profit (or, pay-off) matrix in the chart below. (3 marks)

	Kindle	
	Small Quantity	Large Quantity

Nook	Small Quantity		
	Large Quantity		

(ii) Does each player have a dominant strategy? Explain. (3 marks)
(iii) Is there Nash equilibrium for this game? Explain fully. (3 marks)
(iv) Would a collusive agreement (as in a cartel) be beneficial to both parties? What level of output would they target in such a case? (3 marks)
(v) Why does a collusive agreement such as in part (iv) almost always break down? (1 mark)

Solution

(i)

		Kindle	
		Small Quantity	Large Quantity
Nook	Small Quantity	**200** / **200**	**250** / **50**
	Large Quantity	**50** / **250**	**60** / **60**

(ii) Yes, {large, large} is DSE. {For example, if Kindle were to choose small, its profit is either {200 or 50} vis-à-vis {250, 60} by playing large, and vice-versa for Nook.

(iii) Here (large, large) is also a Nash equilibrium. To see this, let Kindle produce small, Nook then faces {250, 200} by following the two actions respectively; it would choose large. When one of the players chooses large, the other follows suit. Hence there appears to be only one Nash equilibrium in pure strategies.

(iv) Evidently it is profitable to collude, and each to produce 'small' so that each earns 200 rather than just 60 as in parts (ii) & (iii). But there are incentives to cheat.

(v) Because there is always incentive to cheat as cheating brings more profit. Also, by not cheating (when your rival does) you lose even more.

The End