ECONOMICS 100
TERM TEST #1
Monday November 9, 2009

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1. Duration of Test: 90 minutes

2. There are 6 questions of unequal value:

1.	Yes or No / Explaining Concepts	22
2.	Supply and Demand	26
3.	Robots and Ships	16
4.	Work-Leisure Choices	20
5.	Theory of the Firm	8
6.	Multiple Choice	8
	TOTAL	100

3. Show your work for full marks (excluding Yes/No and MC questions).

1. Yes or No and Explaining ECO 100 Concepts (22 marks)

1.1 Yes or No

(12) Here is an easy way to start this test … just circle either **Yes** or **No** for the following statements to indicate whether you agree ("Yes") or disagree ("No") with each of them. Thank your kindly prof for not including a penalty for a wrong answer!

(Assume positively-sloped Supply and negatively-sloped Demand as appropriate. Keep in mind the concepts discussed in lectures.)

a) If, during an economic crisis, an economy suffers unemployment, it is not producing at its maximum potential -- it is at a point inside its Production Possibility Curve (PPC). If the period of unemployment is prolonged and the skills of unemployed workers decline significantly, the PPC shifts inwards. **Yes** **No**

b) The Demand schedule for a good is given by this equation: $P = 40 - 2Q_D$. For this Demand schedule, the Price Elasticity of Demand has a value of 1.5 at $Q_D = 8$. **Yes** **No**

c) The less elastic the demand schedule, the greater the burden of an excise tax that will be borne by producers. **Yes** **No**

d) The following equilibrium condition can be utilized in the "indifference model" of Consumer Theory: $MU_X / P_X = MU_Y / P_Y$ **Yes** **No**

e) If the Marginal Rate of Substitution between hot dogs (X axis) and colas (Y axis) is less than the P_C/P_{HD} price ratio, the consumer should buy more hot dogs and fewer colas to maximize satisfaction. **Yes** **No**
Assume both MRS > 1 and $P_C/P_{HD} > 1$

f) If, between two levels of Labour input, the Average Product of Labour is rising, then the Marginal Product of Labour exceeds the Average Product of Labour over that range of Labour input. **Yes** **No**

1.2 Explaining ECO 100 Concepts

(10) In your own words, without diagrams or equations, briefly explain the ECO 100 concepts shown below. (Keep in mind the limited marks allocated!)

The answer needs to demonstrate that you understand the meaning of each term. Your response cannot just be a recitation of an equation or a geometric term "spelled out" in words. [For instance, in answer to part b) Marginal Rate of Substitution, stating that "it is the absolute value of the slope of an indifference curve" may be true, but it won't get you any marks!]

a) Production Possibility Curve (for an economy that produces Beef and Fish)

b) Marginal Rate of Substitution in the Labour-Leisure Model ($MRS_{L/I}$)

c) Income Effect (IE) of a Price Change

d) Marginal Product of Labour (MP_L) for a Production Function that has K and L as inputs

2. Supply and Demand (26 marks)

Consider the following supply and demand curves for sunglasses:

Supply: $P = 8 + Q_S$ Demand: $P = 80 - 2Q_D$

Where Q_S is the quantity supplied of a good and Q_D is the quantity demanded.

2.1 (16) Using the S and D equations:

a) What are values for price, quantity, consumer surplus (CS) and price elasticity of supply (E_S) at the equilibrium point? (Answers in Table below. Remember to show your work.)

Price		Quantity		CS		E_S	

b) If an effective price floor is set at $40, show the results in the table below.

Q_S		Q_D	
(Excess Demand / Excess Supply / Neither)		Excess =	

c) In the diagram below, fully labeled including values, show your answers to parts 2.1 a) and b) above (excluding E_S).

2.2 (10) Suppose now that there is no price floor, but a tax of $6 per unit is introduced on the producers.

a) What is the new equilibrium price that consumers will pay? What is the (net of tax) price received by producers? What is the new equilibrium quantity? How is the per unit tax burden shared between the consumers and producers? What is the total tax amount received by government?

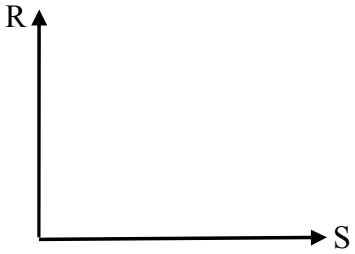
Cons Price		Prod Price		Quantity	
Cons Share		Prod Share		Total Tax $	

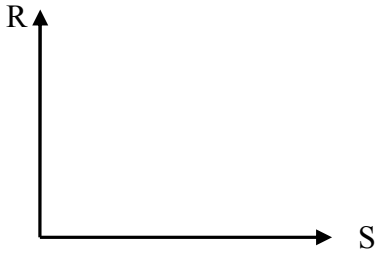
b) In the diagram below, fully labeled including values, show your answers to part 2.2 a) above.

3. Robots and Ships (16 marks)

3.1 (4) The country of Atlantis can only produce two goods, sailing ships (S) or robots (R).

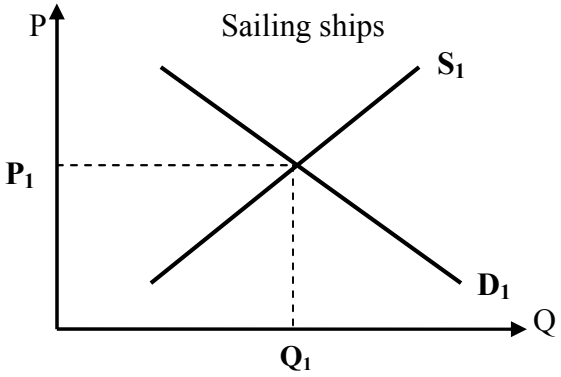
a) If the opportunity costs are constant at 1 robot for every 4 ships, draw a representative Production Possibilities Curve (PPC) in the left diagram below. What is its slope? _____





b) Suppose that opportunity costs are not constant, but are increasing along the PPC. Now draw a PPC that illustrates this case in the right diagram above.

3.2 (8) Now we analyze the market for sailing ships. The original D_1, S_1 and equilibrium P_1 and Q_1 are shown in the diagram below.



a) Suppose that the price of fuel required to operate (not build!) sailing ships rises dramatically. Show the new equilibrium in the diagram by shifting the appropriate curve(s). Use the "2" subscript i.e., D_2, S_2, P_2, etc.

b) There is an economics term that describes the relationship between sailing ships and the fuel it takes to operate them. What is this term?

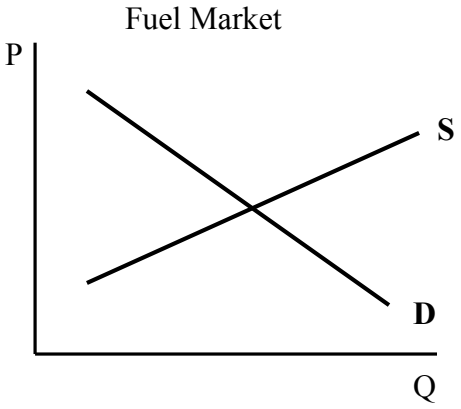
Economics term: _____

c) There is an elasticity concept that applies in this case to sailing ships and fuel. What is its name and what can you say about its value?

Elasticity: _____ Comment about Value: _____

3.3 (4) The reason that the price of fuel rose was that firms in the fuel industry were able to get together to form an association that established an effective quota system on every firm.

a) Show this situation in a diagram of the fuel market which initially is in equilibrium as shown below.



b) The leaders of the association promised its members that total fuel revenues would rise if they all joined in and abided by the quota. What assumption is being made about the price elasticity of demand?

The price elasticity of demand is _____.

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4 . Work - Leisure Choices (20 marks)

4.1 (13) In class, we did a poll of what you would do if your wage rate was increased. Some of you said work more, some said work less and some said work the same amount.

In the diagram below, fully labeled, show the case for Emily, a student who said she would work less when her wage rate increases. (Assume she does work some hours in all circumstances). As in class, assume a 24-hour day and that Emily is freely able to vary the hours worked. Also assume that Leisure is a normal good. Emily's preference map has convex indifference curves that do not change. Be sure to clearly indicate SE and IE as needed.

In this situation:

a) The opportunity cost of leisure has **(risen / fallen / stayed the same).**

b) The Substitution Effect (SE) causes Emily to work **(more / less / same)** number of hours.

c) The Income Effect (IE) causes Emily to choose **(more / less / same)** hours of leisure.

d) Emily's supply curve of labour has a slope that is **(positive / negative / zero / infinite).**

4.2 (7) Now consider another ECO 100 student, Ringo, who can work as many hours as he wishes at a wage rate of $20 per hour. He is currently working 20 hours a 7-day week.

a) Show his initial equilibrium in the diagram below, fully labeled.

b) Ringo's parents read the section in Wolfson's Survival Guide about the conflict between work and academics. They want him to work fewer hours (so he can spend more of his leisure time on academics). They decide to give him the $400 he has been receiving through work every week. Assume once again that leisure is a normal good. Analyze this situation in the diagram above, assuming that Ringo continues to work some hours.

c) In this situation:

- The opportunity cost of leisure has **(risen / fallen / stayed the same).**
- There is a **(Substitution Effect / Income Effect / Both SE and IE / No SE or IE)**

5. Theory of the Firm (8 marks)

A keen student of ECO 100 has collected data about the production function of a certain firm. He has managed to lose some data elements. Help the student out!

Fill in the values that are missing in the Table below.

Labour Input	Total Product	Average Product	Marginal Product
1			100
2		80	
3	210		
4			10

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6. Multiple Choice (8 marks)

Provide the best answer to the following multiple choice questions by circling your response directly on the question paper. A correct answer is worth 2 marks; no penalty for a wrong answer. Read questions fully before answering!

6.1. *(From Early Web Quiz)* It has been observed that university enrolment in Canada is higher during periods of high unemployment. A possible explanation for this is that

a) when prospects for getting a job are poor, the opportunity cost of getting a job is lower
b) during periods of high unemployment, tuition fees are reduced
c) during periods of high unemployment, teachers work harder
d) when prospects for getting a job are poor, the opportunity cost of going to university is lower
e) none of the above.

6.2 *(From Turkey Quiz)* The supply of oats is completely inelastic at 100 million units per year. The government estimates that it would have to buy 10 million units to maintain the price at $5 per unit. It also estimates that the market would be cleared, without government intervention, if the price were allowed to fall to $4. If the government's estimates are correct, the price elasticity of demand for oats must be:

a) Zero
b) Greater than zero but less than one
c) One
d) Greater than one but less than five
e) Five or more.

6.3 A consumer buys both pizza and colas. Their prices are $3 and $1 respectively. At the current consumption point (which exhausts income), her marginal utility of pizza is 21 "jollies" and her marginal utility of colas is 10 "jollies". We can conclude the following:

a) She likes pizzas more than colas no matter how many of each she consumes
b) She is maximizing her total utility at the current consumption point
c) She should buy more pizzas and fewer colas to maximize satisfaction
d) She should buy fewer pizzas and more colas to maximize satisfaction
e) Nothing can be determined until we know whether pizzas and colas are normal goods.

6.4 If per capita income increases by 10 percent and household expenditures on fur coats increase by 15 percent, one can conclude that the price elasticity of demand for fur coats is:

a) positive
b) not determinable from the information given
c) elastic
d) unity
e) inelastic.