



**ECO 1104B INTRODUCTION TO MICROECONOMICS
First Midterm Examination**

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INSTRUCTIONS

- a) The allotted time is 70 minutes. This examination counts for 20 % of your course grade. It consists of short answer questions and problems, and you should answer all of them. There are a total of 50 points.
- b) You may not consult with any written materials whatsoever, including other students' papers, and no conversation is permitted while the examination is in progress. Furthermore, no smartphones or programmable calculators are permitted. Simple calculators are permitted, and students whose native tongue is not English may use an electronic dictionary. Any contravention of these rules will be treated as an infraction to the honour code of the university.
- c) I do not anticipate that you will be pressed for time, so please do not panic.
- d) All of the questions which follow are straightforward, and most can be answered in two sentences. The responses that I hope to elicit have been repeated by me several times in class. Please take a minute to concentrate on the question being asked, as opposed to writing down everything which immediately comes to your mind about a certain topic. I have tried to pose the questions in such a way that you focus correctly.
- e) Write only in the space provided. For most of the questions that follow, you should write in sentences.
- f) Turn off all smartphones and the like, and put them out of reach.

PART A: INTRODUCTORY MATERIAL (12 points)

- 1)
- a) Define the term opportunity cost and explain the relationship between scarcity, choices, and opportunity costs. Since this question was on last year's examination, I expect a pretty good answer.

It is the cost of the highest foregone alternative. Due to the presence of scarcity, economic decision makers (households, consumers, firms, governments, NGOs, workers, investors, and other input factor suppliers) are forced to make choices, and every choice incurs an opportunity cost. You did not have to write this, but it is true that if there is no opportunity cost, then we are talking about a "free good", but "there ain't no such thing as a free good" in economics.

- b) Describe the basic features of economic models and explain their function in the discipline of economics.

Their function is to show and explain the workings of the economy. They are based on assumptions that are not necessarily realistic, but these assumption simplify the model and make it tractable (usable). The models contain economic variables, and typically consist of relationships between them. The hypotheses are typically based on premises; if variable X increases, then variable Y will either increase, decrease, or remain the same in value.

- c) Any economy, from the most primitive to the most developed, has to face three central coordination tasks, which are:
- What goods and services should be produced?

Whichever good and services can be produced profitably. This profit motive is a critical element of the capitalist-free market economy.

- How should they be produced?

By the least costly technique of production.

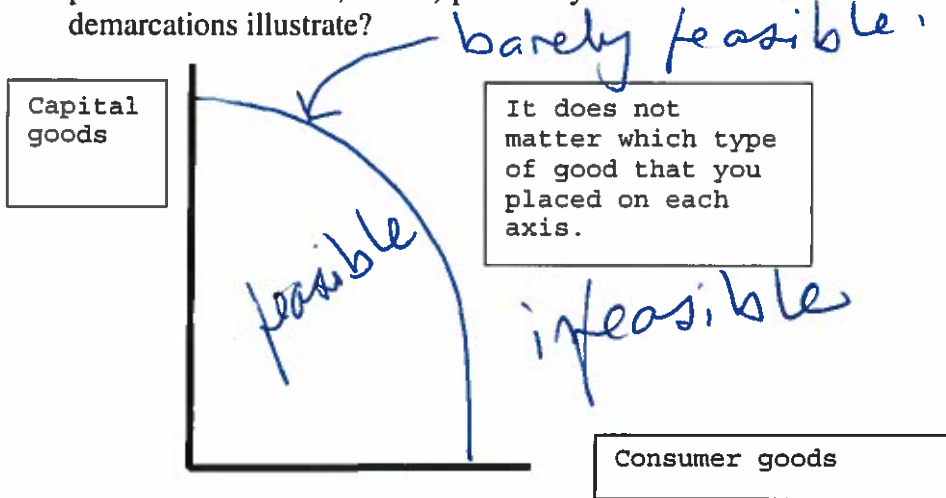
- For whom should the goods and services be produced?

According to the ability to pay, which implies that the higher one's income or wealth, the more one can consume of the economy's output.

Explain how these issues are resolved in a market-based economy.

PART B: PRODUCTION AND EXCHANGE (15 points)

2. (4 points). This question concerns the production possibilities frontier, also known as the transformation curve. On the axes provided below, depict the production possibilities frontier for a country that produces only two types of goods, capital goods and consumer goods. Explain the significance of the following three sets of points: i) points below the frontier, ii) points on the frontier, and iii) points beyond the frontier. Which economic concept do these demarcations illustrate?



Points below the frontier are production possibilities that are feasible but involve wasted resources. Points on the frontier itself are barely feasible but do not involve any wasted resources. Points above the frontier are not feasible; they are production impossibilities. Scarcity is the economic concept that differentiates these sets of points.

3. This problem is quite similar to one that is in the study guide (only the numbers have been changed). The following table shows the units of output that two countries, Nicaragua and the Dominican Republic, can produce in a year. (11 points)

	Rum (thousands of barrels)	coffee (thousands of tons)
Dominican Republic	30	30
Nicaragua	40	60

a) The Dominican Republic has the comparative advantage in the production of rum. Demonstrate why that is the case, and explain your work. It necessarily follows that Nicaragua has the comparative advantage in the production of coffee.

There are three ways to proceed, but you only had to work through one of them. For the Dominican Republic, the opportunity cost of producing one more unit of rum is one unit of coffee foregone. For Nicaragua, the opportunity cost of producing one more unit of rum is 1.5 (60 / 40) units of coffee foregone. A comparison shows that the opportunity cost is lower for the DR, and therefore it

has the comparative advantage in the production of rum. For the Dominican Republic, the opportunity cost of producing one more unit of coffee is one unit of rum foregone. For Nicaragua, the opportunity cost of producing one more unit of coffee is 0.67 (40 / 60) units of coffee rum foregone. A comparison shows that the opportunity cost is lower for the Nicaragua and therefore it has the comparative advantage in the production of coffee.

- b) Whether or not you have demonstrated that result above, explain what the countries should do next.

The Dominican Republic should specialize in the production of rum, export much of this product, and exchange it for imports of coffee from Nicaragua. Nicaragua should specialize in the production of coffee, export much of this product, and exchange it for imports of rum from the Dominican Republic.

- c) According to the theory of trade, why are countries better off trading than they would be in the state of autarky? You should mention the transformation curve in your analysis, but don't draw one. Two sentences will suffice.

Specializing and trading does not allow for an expansion of the production possibilities frontier, but it does allow for each country to consume a bundle that lies beyond its own production possibilities frontier. It expands consumption possibilities. What I am looking for here is the nature of the gains from trade.

The response that appeared on last year's exam pertains to the source of the gains from trade, which is not what I am looking for here. Nonetheless, if you wrote that answer, you should receive credit.

- d) Which country has the absolute advantage in the production of rum and why? Which country has the absolute advantage in the production of coffee and why? What is the economic significance of holding these absolute advantages?

According to these numbers, Nicaragua has the absolute advantage in the production of both goods. This implies that it is the more productive country, and therefore it is the richer country. Note that even under these circumstances, both countries can benefit from specializing and trading according to the pattern of comparative advantage.

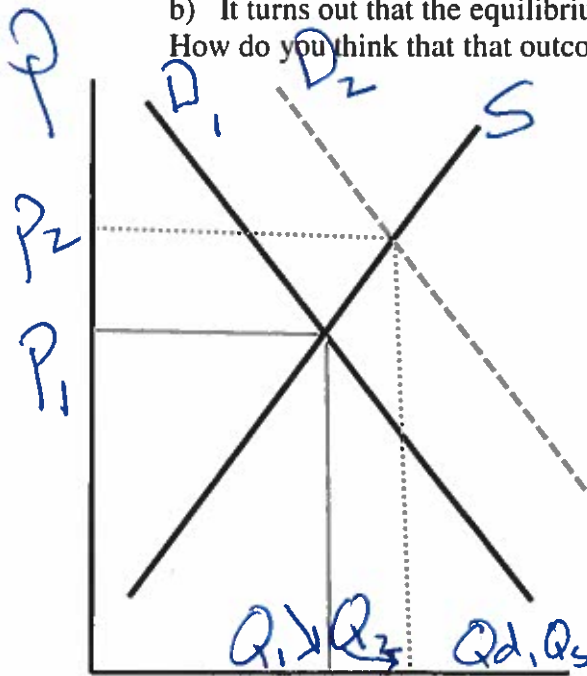
PART C Supply and Demand Analysis (13 points)

4. (6 points)

a) There has been explosive growth in the demand for the leafy vegetable kale in recent years, as consumers learned of its health benefits. Model this change using the supply and demand framework. I have provided axes for you. Pay attention to the following details:

- Label all curves and axes
- Indicate which curve(s) shift(s), if any, and explain verbally why.
- Determine what occurs to equilibrium price and quantity.

b) It turns out that the equilibrium price of kale has remained fairly stable over this period. How do you think that that outcome could occur within the supply and demand framework?



Tastes regarding kale have become more favourable. As a result, at each possible price, quantity demanded has risen. Alternatively, at each possible value of quantity demanded, consumers' willingness to pay has increased. The demand curve shifts to the right from D1 to D2. Both equilibrium price and equilibrium quantity increase.

for part b), in order for that scenario to arise, the supply of kale must have expanded as well over the period.

5. (4 points) Classify each of the following events as either i) an increase in the demand for fish, ii) a decrease in the demand for fish, iii) an increase in the supply of fish, iv) a decrease in the supply of fish, v) an increase in the quantity demanded for fish, or vi) a decrease in the quantity demanded for fish. Do not draw any graphs, and you do not have to explain your answers.

- a) The government of Canada closes the Atlantic cod fishery (which did occur in the early 1990s)

iv) a decrease in the supply of fish. As a result, we will move down and along the same D curve, which means: (vi) a decrease in the quantity demanded for fish (You did not have to raise that point)

- b) Consumers buy less fish because of a rise in fish prices

vi) a decrease in the quantity demanded for fish.

- c) The price of beef, which is a substitute for fish, falls

ii) a decrease in the demand for fish. As a result, we will move down and along the same S curve, which means a decrease in the quantity supplied of fish (You did not have to raise that point)

- d) Fears of mercury poisoning cause local residents to shun fish caught in local lakes

ii) a decrease in the demand for fish. As a result, we will move down and along the same S curve, which means a decrease in the quantity supplied of fish (You did not have to raise that point)

6. Explain what the fundamental purpose of the supply and demand model is. In other words, how does it fit into the outline of microeconomics that I went over during the overview part of the course. This can be answered in one sentence. I went over this in class. Since this question appeared on last year's exam, I expect good answers. (3 points)

The first central coordination task that any economy must face is to determine what goods and services will be produced and in what quantities. That corresponds to the equilibrium quantity generated by the model and read off of the horizontal axis. That is the mechanism that allocates resources (land, labour, and capital inputs) among competing uses.

PART D price elasticities (10 points)

7. (6 points) Consider two points on the demand curve for coffee machines: point A (9,750, \$ 81) and point B (10,250, \$ 79).

- a) Calculate the price elasticity of demand between these points using the mid-point method. Show your work.

$PED = \% \text{ change in } Q_d / \% \text{ change in } P = [\text{change in } Q_d / \text{average } Q_d] / [\text{change in price} / \text{average price}] = (500 / 2) / (80/10000) = - 2.0 \text{ (or } 2.0 \text{ in absolute value terms)}$

b) Is this value elastic or inelastic? Why?

It is elastic because its value in absolute terms exceeds 1.0.

c) Verify your answer in part b) by calculating the change in total revenue between these two points and applying the rule regarding the relationship between the variables of total revenue and the price elasticity of demand.

Total revenue at point A = $9750 * \$ 81 = \$ 789,750$

Total revenue at point B = $10250 * \$ 79 = \$ 809,750$

As the price fell, total revenue increased, and so the demand must be price elastic.

8. (4 points)

a) Do we expect for the price elasticity of demand for most goods and services to become more or less elastic in the long run as opposed to the short run? Explain your response.

It should become more elastic as consumer have more time to adjust their purchasing habits to price changes. One way in which they can do this is find substitutes in the case of price increases.

c) Consider the price elasticity of supply and the price elasticity of demand. Explain what the significance of each quantity is. In other words, what role do they play within the supply and demand framework?

The price elasticity of demand is a measure of consumers' degree of responsiveness to price changes as far as the quantity of their purchases is concerned. The price elasticity of supply is a measure of producers' responsiveness to price changes as far as the quantity of output produced is concerned.

