

ECO 103, Winter 2020, Exam #1

Name:

Instructions: Answer all parts of all questions. You have 80 minutes to complete the exam. This exam is open note, but not open book. You are welcome to use any written materials that you might find helpful excluding textbooks. Calculators, but no other electronic devices, are allowed. Here are some things to keep in mind.

- i. Explain all of your answers. Unsupported answers will receive little or no credit.
- ii. On true/false questions, I only care about the quality of your explanation. Simply writing “true” or “false” will yield no credit.
- iii. Avoid extensive irrelevance, this will also cost you points. Your goal should be to provide clear and concise explanations.
- iv. It is more important to demonstrate that you understand the correct method. Minor math errors will result in only minor deductions.
- v. All parts of all questions are worth the same amount.
- vi. Many questions ask you about a deviation from something that we did in class. If you simply copy down what we did in class, I will award no credit.

1. Assorted Questions

a. A firm must choose how much of its workforce to direct towards production (which increases current profits) and how much to direct to research & development (which may affect future profits). How is this an example of allocating resources under scarcity? What is the constraint that the firm faces?

b. True or False? Economic models always assume that fully informed households maximize utility and that fully informed firms maximize profits.

c. True or False? Inflation is costly because when prices for goods and services increase, people can afford fewer of them.

d. On January 1, 1994, the North American Free Trade Agreement (NAFTA) went into effect. In the five years that followed, the U.S. unemployment rate fell from 6.6% to 4.3%. How would you evaluate whether NAFTA was good for the U.S. labor market?

e. You are asked to analyze how a financial crisis in Europe will impact the U.S. economy over the next three years. What subfield(s) of macroeconomics addresses this question?

2. Microeconomics

The following table shows *total cost* and *total utility* for wine.

Table 1: The Market for Wine

Quantity	Total Cost	Total Utility
1	10	50
2	20	90
3	35	120
4	55	140
5	85	150
6	125	152
7	190	140
8	290	120

- a. Suppose that Table 1 applies to each household and that there are 10 bottles of wine to be consumed among 2 households. Is it Pareto efficient to give each household 5 bottles? Is it Pareto efficient to give one household 8 bottles, and the other 2 bottles?

b. Now suppose that Table 1 applies to the entire market. Derive the supply and demand curves for wine.

c. What is the market price and quantity for wine?

3. Consider the following economy:

Table 2: Goods and Services Used at Bates

Good or Service	Quantity (19)	Price (19) (\$)	Quantity (20)	Price (20) (\$)
Sweatpants	7	6	7	8
Columbian coffee	10	2	12	3
Laptops	2	20	1	22
Processors (laptop part)	2	1	1	2
Illegal Drugs	1	10	2	13

a. Which goods are excluded from Bates's GDP and why?

b. Using 2020 as the base year, calculate real GDP growth for Bates from 2019 to 2020.

c. Define a basket of goods for a price index. Use it to calculate inflation from 2019 to 2020 for Bates.

4. For a and b , refer to the provided Tables from the Bureau of Labor Statistic's January employment summary. Note that these data are in thousands of workers.

a. If 1 million unemployed workers found work (so that the unemployed fell from 5892 to 4892), what would happen to the U-3 and U-6 unemployment? rates.

b. If these one million workers instead became discouraged workers, what would happen to the U-3 and U-6 unemployment rates?

c. How would you judge whether an increase in labor force participation is a sign of a stronger economy?

Bonus: Provide a plausible explanation for why the U.S. natural rate of unemployment has declined over the past decade.