

Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. The Excel file will be handed in via Canvas. Your name will only appear on a page of the file that has nothing else on it. Failure to follow these directions will cost you 1 point. The test has 100 points (to be scaled up to 170 points) and is scheduled to take 50 minutes (but you can take the full 2 hours.) Therefore, expect to spend 1 minute for every 2 points. For example, a 10-point question should take 5 minutes.

1) Answer **ALL** parts of this question. **Type all explanations in a box on the spread sheet.**

- A) (4 points) Run a regression using the data in the tab Q1 in the [Excel file](#) to predict the sales of apples, Q_{apples} as a function of price of apples, price of pears, price of oranges, and income.
- B) (2 points) Use the results to predict the sales of pies if the person's income is \$40,000.00, the price of an apple is \$10/apple, the price of a pear is \$5/pear, and the price of an orange is \$2/orange.
- C) (6 points) Do you think the overall results are good? Explain your answer.
- D) (6 points) Do the test for multi-colinearity. Is there a problem with it? Explain how you reached the conclusion. **If there is multi-colinearity**, then explain how you solve the problem without actually doing it. Explain why you chose to do that. **If there is not a problem with multi-colinearity**, then for each variable, tell me whether or not it is significant and how you reached that conclusion.

2) Answer **ALL** parts of this question. **Type all explanations in a box on the spread sheet.**

- A) (4 points) Run a regression using the data in the tab Q2 in the [Excel file](#) to predict the quantity as a function of income and price.
- B) (6 points) Do the quick tests for both auto-correlation and heteroscedasticity. For both of them, tell me if you think there is a problem with it and the logic you used to reach that conclusion.
- C) (10 points) **If you find both auto-correlation and heteroscedasticity**, then do the formal test for heteroscedasticity. Explain what you did, why you did that, and how you reached your conclusion as to whether or not it exists. **If you find auto-correlation but not heteroscedasticity**, then tell me by looking at the graph whether or not the method I proposed for solving the problem would work. Explain your logic. **If you find heteroscedasticity but not auto-correlation**, then do the formal test for heteroscedasticity. Explain what you did, why you did that, and how you reached your conclusion as to whether or not it exists. **If you find neither, check again because one does exist.**

3) (18 points) Answer EITHER Part A OR Part B.

- A) Draw the NS/ND diagram for an economy where the firms are paying the efficiency wage. State how the efficiency wage is seen. Suppose Trump succeeds at reducing the population by deporting a large number of immigrants. Illustrate that on the diagram. Without drawing other diagrams, what would happen to the FE and LRAS curves? Explain your logic.
- B) Draw the NS/ND diagram for an economy where the firms are paying the efficiency wage. State how the efficiency wage is seen. Why doesn't the wage go to where the NS & ND curves cross? Explain two reasons why firms will pay where they are paying.

4) (12 points) Answer EITHER Part A OR Part B.

- A) Without drawing the diagram, explain how the "kinked demand curve" might result in sticky prices.
- B) Explain why sticky prices implicitly assumes that the firms are not price takers, i.e., assumes that there is imperfect competition.

5) (18 points) Answer EITHER Part A OR Part B.

A) Draw the Augmented SRPC/LRPC diagram for the USA if the expected inflation is 4% and the unemployment rate is 7%. State how your diagram shows those two numbers. Show the economy getting back to equilibrium if it is left alone. Explain why the curve(s) moved as drawn and how you found the new equilibrium.

B) Draw an Augmented SRPC/LRPC diagram for the USA if the expected inflation rate is 7% and the unemployment rate is 4.5%, i.e. at NAIRU. State how your diagram shows those numbers. Suppose the Fed announces that they will decrease the growth rate of the money supply to 2% and people believe them. However, they actually decrease the growth rate of the money supply 4%. Draw the effects of this on the graph. Explain why the curve(s) moved as drawn and how you found the new point.

6) (14 points) Answer EITHER Part A OR Part B.

A) Explain the hysteresis theory of what determines the value of NAIRU. Do you think that NAIRU would go up quickly or slowly during a recession? Explain your answer.

B) Below is a graph of the inflation rate of Belarus gotten from the link below. If you were in charge of their monetary policy in July of 2022, would you take a gradual or cold turkey approach to fighting inflation. Explain your logic giving two reasons. <https://tradingeconomics.com/belarus/inflation-cpi> In case it matters to you, the unemployment rate that year was 3.6% down from 3.9% the year before. <https://tradingeconomics.com/belarus/unemployment-rate>

