

Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. Failure to follow these directions will cost you 1 point. The test has 100 points (to be scaled up to 160 points) and is scheduled to take 50 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 12-point question should take 6 minutes. I cannot give extra time because some students have a class after your class.

1) (10 points) Answer EITHER Part A OR Part B.

A) What is the equation which yields the optimal solution in economics? Either prove it holds or explain the logic as to why it makes sense.

B) Voting and spending both have advantages and disadvantages compared to the other. What is one disadvantage of spending? In other words, what is one advantage of voting? Explain your logic.

2) (12 points) For EITHER the reason given in Part A OR the reason in Part B, explain what it means and why it is an economic reason for a government. No graph is needed.

A) promoting competition

B) positive externalities

3) (14 points) Answer EITHER Part A OR Part B.

A) Suppose the price level at the start of the year was 500 and people expected 6% inflation. At the end of the year, the price level was 520. What was the inflation rate? Show all work. Who is helped and who is hurt by this inflation?

Explain your logic mentioning at least two groups of people in each category and explaining how they are helped or hurt.

B) Every statistic has a problem which makes it less useful than we would like it to be. What are two of the problems such with measuring the CPI and/or inflation? Explain your logic.

4) (14 points) Answer EITHER Part A OR Part B.

A) What are the four types of unemployment? Which may go up when the overall unemployment rate goes down? Explain your logic.

B) For the USA, what unemployment rate do we consider the economy to be at full employment? Which two types of unemployment does the economy have then? (Note that one of the types of unemployment is “adjusted” away. Do not mention that one.)

5) (16 points) Answer EITHER Part A OR Part B.

A) Suppose there is a project which produces an item for a cost of \$42 per unit. The producer will be able to sell 1 item to each of 500 people for \$38 each. The total production causes a positive externality which helps 300 people \$10 each. Should this project be done? Would the market provide it? Would the government provide it? Show all calculations and explain how you reached each conclusion.

B) Suppose there is a project which produces an item for a cost of \$28 per unit. The producer will be able to sell 1 item to each of 400 people for \$33 each. The total production causes a negative externality which hurts 600 people \$3 each. Should this project be done? Would the market provide it? Would the government provide it? Show all calculations and explain how you reached each conclusion.

6) (16 points) Answer EITHER Part A OR Part B.

A) Suppose a person is earning \$100,000 a year and facing the tax brackets in the table to the right. Find their marginal tax rate, total taxes paid, and average tax rate. Show all work. If there is no work, then explain how you got your answer.

B) Explain the difference between an ad valorem tax and a specific tax. Which is the gasoline tax? Explain your logic. Which is the sales tax? Explain your logic.

| Bracket             | Rate |
|---------------------|------|
| \$0 - \$20,000      | 10%  |
| \$20,00 - \$30,000  | 20%  |
| \$30,000 - \$90,000 | 30%  |
| >\$90,000           | 40%  |

7) (18 points) Answer EITHER Part A OR Part B.

A) Explain the general logic which applies to any tax, how increasing that tax could yield less tax revenue. Give a numerical example of a specific case where that occurs. For example, state something like “If the tax rate is \$10/unit then the market sells X units and the government gets \$Y of revenue. If the tax rate is \$12/unit then the market will sell Z units and government gets less than \$Y of revenue.” Give me numbers for X, Y, and Z and make sure the actual revenue goes down.

B) In general, what is the problem caused by any tax except for taxes on negative externalities? Explain why that occurs. Why isn’t that a problem with negative externalities? Explain your logic.