

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 240 points (to be scaled down to 200 points) and is scheduled to take 120 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) (12 points) Answer EITHER Part A OR Part B.

A) Why do individuals set $MU_X/P_X = MU_Y/P_Y$?

B) Explain the difference between economic profits and accounting profits.

2) (12 points) Answer EITHER Part A OR Part B.

A) I was offered a free lunch last Thursday. I turned it down. Use logic and terminology from economics to explain why I turned down the free lunch.

B) On Tuesday of this week, the Democrats who met with President Trump said all of them agreed that the government will spend \$2 trillion on infrastructure. I predict this will not happen. Use language and terminology from economics to explain why this is unlikely to occur. (The current GDP is about \$21 trillion.)

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

A) What value would you expect for the own price elasticity of opioids? Explain why you chose that number.

B) What value would you expect for the cross-price elasticity of coffee and tea? Explain why you chose that number.

4) (16 points) Use the table to the right to calculate EITHER the elasticity in Part A OR the elasticity in Part B. Only one pair of rows will work for Part A and only one pair of rows will work for Part B. Tell me how you determined which rows you used. Show all work. What does that number tell you and how do you know that?

A) Own-price elasticity using arc formula

B) Income elasticity using point formula

| Pcats | Pdesks | Income | Qcats |
|----------|------------|--------|-------|
| \$20/cat | \$200/desk | \$1000 | 10 |
| \$10/cat | \$100/desk | \$2000 | 15 |
| \$10/cat | \$100/desk | \$1000 | 30 |
| \$20/cat | \$100/desk | \$1000 | 20 |

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

A) Draw the supply and demand for lawn mowers. Illustrate the effects of an increase in the price of motorcycles. Explain why the curve(s) moved as drawn. What happens to the price of a lawn mower and the quantity sold?

B) Draw the supply and demand for suit jackets. Illustrate the effects of the price of vests going up. Explain why the curve(s) moved as drawn. What happens to the price and quantity of suit jackets sold?

6) (18 points) Answer EITHER Part A OR Part B.

A) Draw the supply and demand for loanable funds for a bond. Suppose that the company who issues the bond looks like it is a riskier company than originally thought. Illustrate the effects of that on the

diagram. Explain why the curve(s) moved as drawn. What happens to the price of the bond and the implicit rate of return on it? Briefly explain your logic.

B) Draw the supply and demand for loanable funds for US government bonds. Illustrate the effects of the US government borrowing more. Explain why the curve(s) moved as drawn. Explain why the curve(s) moved as drawn. What happens to the price of the bond and the implicit rate of return on it? Briefly explain your logic. (If you had *Principles of Macroeconomics*, you might recognize this as one step in crowding out.)

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

A) Copy the table into your answer booklet. Fill it in. Show all work. If there is no work, then state how you got the answer. Assume this firm is in a perfectly competitive industry. How many people should this firm hire if the wage rate was \$450 per unit of labor? Explain your logic. If you are stuck and need one number to calculate another number, take a guess and write that you guessed as your explanation.

| L | TP_L | MP_L | Price | TR | MRP_L |
|---|--------|--------|-------|------|---------|
| 4 | 100 | 20 | 30 | 3000 | 600 |
| | | | | 3900 | 450 |
| | 160 | 10 | | | |

B) Find the Cournot-Nash equilibrium or equilibria (if they exist) for the following payoff matrix. Explain how you reached that conclusion.

| | | Yankees | |
|------|------------|------------|-----------|
| | | High Price | Low Price |
| Mets | High Price | 5, 8 | 6, 4 |
| | Low Price | 9, 7 | 2, 3 |

8) (20 points) Answer EITHER Part A OR Part B.

A) Draw the supply and demand for capital. Illustrate the effects of a increase in the amount of labor. Explain why the curve(s) moved as drawn including any assumptions you made about labor and capital. What happens to the price of capital and the amount of capital used?

B) Explain why the rental rate of capital is the MRP_K . Also, explain why $MP_H/P_H = MP_L/P_L$.

9) (20 points) Answer EITHER Part A OR Part B.

A) Suppose a bond has a coupon rate of 8%, a face value of \$2000, a maturity in 5 years, and the interest is paid annually. Set up the equation which would determine what the implicit rate of return would be if you paid \$1900 for the bond. Briefly explain how you knew what went where in the equation. Without doing the calculation, would your return be more than 8%, 8%, or less than 8%. Explain your logic.

B) Suppose you were thinking about building a factory. The factory would cost you \$50,000 to build this year. Starting next year, the factory would make profits of \$10,000 per year for 10 years. At the end of

the 10 years, you will be able to sell the factory for \$20,000. Set up the present value calculation which could be used to calculate the implicit rate of return for the factory. State how you knew where each number went and how you could use it to find the return if I had asked for the return. Do NOT actually calculate the return.

10) (24 points) Answer EITHER Part A OR Part B.

A) Draw the supply/demand diagram for coats. Illustrate the effects of a tax on coat production. Explain why the graph changes as drawn. Find the new price, quantity, consumer surplus, producer surplus, tax revenue, and deadweight loss. Briefly explain how you found them.

B) Draw the supply/demand diagram for prescription drugs. Illustrate the effects of a price ceiling on prescription drugs. Explain why the graph changes as drawn. Find the new price, quantity, consumer surplus, producer surplus, deadweight loss, and the black market profits. Briefly explain how you found them.

11) (34 points) Answer EITHER Part A OR Part B.

A) Draw a perfectly competitive firm's ATC/AVC/AFC/MC/D diagram and the industry S_{SR}/D assuming the firm is in the long-run equilibrium. Find the quantity produced, and price charged. State how you found them and how you know they are in the long-run equilibrium. Illustrate the short-run effects a decrease in the rent on the buildings. Explain why the curve(s) moved as drawn, including how you determined which type of cost it was. Find the new price and quantity sold.

B) Draw a perfectly competitive firm's ATC/AVC/AFC/MC/D diagram and the industry S_{SR}/D assuming the firm is in the long-run equilibrium. Find the quantity produced, and price charged. State how you found them and how you know they are in the long-run equilibrium. Illustrate the short-run effects an increase in the wage of hourly workers. Explain why the curve(s) moved as drawn, including how you determined which type of cost it was. Find the new price and quantity sold.

12) (34 points) Answer EITHER Part A OR Part B.

A) Draw a monopolistically competitive firm's ATC/AVC/AFC/MC/D diagram assuming it is making positive profits. Find the quantity produced, price charged and profits. State how you found them. What will happen over time? Why will that happen? Illustrate the effects of that on the graph. Explain why the curve(s) moved as drawn. Find the new price and quantity sold.

B) Copy the table into your "bluebook". Fill it in. Show all work. If there is no work, then state how you got the answer. If you are stuck and need a number to get another number, guess and tell me that you got the number by guessing.

| Q | TC | TVC | ATC | AVC | AFC | MC |
|-----|------|-----|-----|-----|-----|----|
| 100 | 1000 | 700 | | | | 6 |
| 150 | | | | | | 7 |
| | 2700 | | 9 | | | |