

**Final Exam – White**  
**120 minutes**  
**Introduction to Microeconomics 1101 – Lecture 1**  
**Michael Rolleigh**

**Name:** \_\_\_\_\_

**Section Number:** \_\_\_\_\_

**TA Name:** \_\_\_\_\_

**The above is worth 5 points (not bonus).**

**On the following pages, please show all of your work.**

**If you need more space, use the back of the page.**

**Be sure to indicate when you want us to look at work on the back of pages!!**

**Calculators are allowed.**

**Fully label all graphs.**

**Question 1 (20 points)**

Mugatu and Hansel are trapped on a desert island. Only two production possibilities exist on the island, modeling and clothing design. The table below shows the time required to produce one unit of each good for each person:

	Modeling	Clothing Design
Hansel	4 hours	6 hours
Mugatu	3 hours	4 hours

Assuming that Hansel and Mugatu are endowed with 30 hours each, sketch a Production Possibility Frontier for Hansel and sketch a Production Possibility Frontier for Mugatu, putting Modeling on the X-axis.

Calculate their opportunity costs and fill in the table below with your answers:

	Modeling	Clothing Design
Hansel		
Mugatu		

Who has a comparative advantage in modeling (according to the above data, not the actual movie)? Why (what numbers did you compare)?

**Question 2 (15 points)**

Consider the perfectly competitive market for mechanical pencils.

Sketch a demand/supply diagram for the market for mechanical pencils. Label the equilibrium price and quantity on your diagram.

You study survey data and observe that if mechanical pencils cost \$5, then 5 wooden pencils are demanded, while if mechanical pencils cost \$10, 20 wooden pencils are demanded.

Calculate the Cross Price Elasticity of Demand for mechanical pencils and wooden pencils. How are these two goods related?

Suppose the price of wooden pencils decreases. Draw and label the effects of this shift on your diagram from above. Label the new equilibrium price and quantity. In a sentence or two, explain why you changed your diagram in this manner. Explicitly state what happened to equilibrium price and quantity.

**Question 3 (10 points)**

Sketch indifference curves for Gold Medal Flour and Pillsbury Flour. How are these two goods related?

Sketch indifference curves for left shoes and right shoes. How are these two goods related?

**Question 4 (5 points) – Guest lecture questions – Choose the BEST response**

Which of the following would result from a law limiting the price of drugs in the United States?

- a) Fewer of the existing drugs would be used
- b) More of the existing drugs would be used
- c) Fewer Drugs would be developed
- d) More drugs would be developed
- e) A and D
- f) B and C

Which of the following benefits do follow from switching to a unified currency (Europe and the Euro)

- a) elimination of currency risk
- b) pretty money
- c) more independent countries
- d) more stable dollar
- e) there are no advantages

**Question 5 (15 points)**

Consider the perfectly competitive market for rice. Suppose the market equilibrium price of rice is \$1.50/pound and the equilibrium quantity is 150 pounds per month. Now suppose the government levies a tax of \$.75/pound. Assume that supply is more elastic than demand. Graphically illustrate both the initial equilibrium and the new equilibrium after the tax.

Label equilibrium quantity and price before the tax.

Label the price paid by consumers as  $P^C$  and the price producers receive as  $P^P$ .

Label the after tax quantity as  $Q^T$ .

Label the deadweight loss due to the tax.

Who bears more of the tax burden? Why (be brief)?

**Question 6 (15 points)**

Suppose you are an economic advisor for Congress. Your boss tells you that many farming states are lobbying for farm subsidies (price floors) on farming products. Your boss asks you to use your economic knowledge to evaluate the situation. Graphically represent the market for farming products when there is no government regulation (assume perfect competition and no externalities).

Label equilibrium quantity  $Q^*$  and equilibrium price  $P^*$

Add a binding price floor to your diagram above.(binding means it has an effect)

Label quantity of farming products supplied as  $Q_S$ .

Label quantity of farming products demanded as  $Q_D$ .

Label the shortage/surplus of farming products.

Assuming that the government buys none of the farming products, label the Dead Weight Loss.

**Question 7 (25 points)**

Consider the perfectly competitive market for minivans. Assume that the U.S. is a price taker in the world market for minivans (changes in US production do not change the world price). Furthermore, assume that the foreign price is lower than the U.S. price. Assume that transport costs are zero.

Graphically illustrate the U.S. market for minivans when there is free trade.

Label quantity of minivans consumed in U.S. as  $Q_C$ .

Label foreign price as  $P_F$ .

Label quantity of exports/imports as  $Q_E$  or  $Q_I$ . (you determine whether the good is exported or imported)

Label the quantity of minivans produced in the U.S. as  $Q_P$ .

Who in the U.S. benefits from the trade (as compared to NO trade)?

Who in the U.S. is hurt by the trade (as compared to NO trade)?

Suppose a tariff is imposed on imported/exported minivans that is smaller than the difference between the U.S. price without trade and the foreign price. Label the effects of this tariff on your diagram ABOVE (you may draw another if you really want to).

Label quantity of exports/imports after the tariff as  $Q_E^T$  or  $Q_I^T$ .

Label quantity of minivans consumed in U.S. after the tariff as  $Q_C^T$ .

Label the quantity of minivans produced in the U.S. after the tariff as  $Q_P^T$ .

Label the price of minivans after the tariff as  $P^T$ .

Who in the U.S. benefits from the tariff (as compared to FREE trade)?

Who in the U.S. is hurt by the tariff (as compared to FREE trade)?

**Question 8 (10 points)**

Suppose instead, that the government imposes a tariff greater than the difference between the U.S. price without trade and the foreign price. Illustrate the effects of this tariff in a supply and demand diagram.

Label quantity of exports/imports after the tariff as  $Q_E^T$  or  $Q_I^T$ .

Label the quantity of minivans produced in the U.S. after the tariff as  $Q_P^T$ .

Label quantity of minivans consumed in U.S. after the tariff as  $Q_C^T$ .

Label the price of minivans after the tariff as  $P^T$ .

**Question 9 (10 points)**

Consider the market for paper. The market for paper is perfectly competitive, but it exhibits externalities. Specifically, paper makers produce a strong smell of rotting wood (this is the ONLY external effect of making paper). Citizens (consumers) dislike the smell of rotting wood and value the effects of this smell at \$-40 (be sure to note the negative sign) per unit of paper. Graphically illustrate the market for paper.

Label the market price as  $P^*$ .

Label the market quantity as  $Q_M$ .

Label the efficient quantity as  $Q_{Eff}$ .

Be sure to label social/private costs.

Using taxes or subsidies, how could the government generate the efficient outcome? Be brief but specific in your answer.

**Question 10 (10 points)**

What does a firm do to maximize profits (the firm chooses \_\_\_\_\_ to set \_\_\_\_\_ equal to \_\_\_\_\_)

Prove the above claim.

**Question 11 (15 points)**

Fill in the following cost table:  
You do not need to calculate numbers, simply write them as fractions.

Output	Fixed Cost	Variable Cost	Total Cost	Average Fixed Cost	Average Variable Cost	Average Total Cost	Marginal Cost
0	500	0					X
1	500	200					
2	500	800					
3	500	1800					
4	500	3200					
5	500	5000					

**Question 12 (20 points):**

Graphically represent a firm in a perfectly competitive market. Be sure to include MC, ATC, and AVC in your diagram.

Suppose the market price is lower than the minimum ATC but higher than the minimum AVC.

Label the MR curve.

Label the firm's short run profits/losses (all in your diagram above).

What will the firm do in the short run?

What will happen to the industry in the long run?

**Question 13 (15 points):**

Graphically represent a single-price monopolistic firm that is earning a profit. Be sure to include MC, ATC, and MR in your diagram.

Label the quantity the monopolist will produce as  $Q_M$ .

Label the price the monopolist will charge as  $P_M$ .

Label the efficient quantity (the one that maximizes total surplus) as  $Q_{\text{eff}}$ .

Label the monopolist's profits.

Label the Dead Weight Loss that occurs if the monopolist makes the profit maximizing quantity.

**Question 14 (10 points):**

Find all Pure Strategy Nash Equilibria in the following game (what we did in class):

**Bonus (5 points)**

Suppose you work for a museum as an economic consultant. The museum wants to increase total revenues. They ask you whether they should lower or raise prices to increase total revenues. You study historical data and determine that the Price Elasticity of Demand for museum tickets is 1.5. What is your response to your boss and why? (Be Brief)