ECON 0155C
Problem Set 2 (based on two previous midterms)
Due on Friday, October 9 at 5:00 PM in Isham’s office

Answer 4 of the following 5 sections (no extra credit for answering all five)

I. Production and opportunity cost

a) Use the Production Possibilities Frontier model to illustrate the following five concepts: scarcity, efficiency, tradeoffs, opportunity cost, and economic growth.

b) You can bike 20 miles per hour and type 10 pages per hour; your roommate can bike 15 miles per hour and type 5 pages per hour.
   a. Who has the absolute advantage in biking?
   b. Who has the absolute advantage in typing?
   c. Who has the comparative advantage in biking?
   d. Who has the comparative advantage in typing?
   e. Over what range – using the opportunity cost concept – could you and your roommate trade miles for pages? Justify your answer.

II. Gains from trade

Two cities can produce two goods as follows:

- In New York, it takes 40 minutes to produce 3 pants and 60 minutes to produce 2 shirts.
- In Barcelona, it takes 20 minutes to produce 3 pants and 30 minutes to produce 2 shirts.

a. Which city has the absolute advantage in pants? In shirts? Under these circumstances, can these cities both gain from the trade of these two goods? Why or why not?

b. Imagine that a new technology is imported into Spain so that workers in Barcelona can double their shirt production per unit of time. Under these new conditions, who now has the comparative advantage in pants? In shirts? Justify your answers.

c. Using the PPF model, show the gains from trade between these cities under these new conditions (that is, after the new shirt-producing technology has been imported into Spain). Illustrate carefully on your graph(s) which city exports and imports each of the two goods.
d. After trade, can we say exactly how much each city will consume of each good? Why or why not?

III. Using and describing supply and demand

a) Why is the supply curve upward sloping?
b) Imagine that two goods, A and B, are complements. Is their cross-price elasticity positive or negative? If the price of good B goes up, show the shift in demand for good A, if any.
c) Use the following table to graph market demand and supply. In your graph, label the equilibrium price and quantity.
d) Using the same table, what is the price elasticity of market demand between $1 and $2?

<table>
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<tr>
<th>PRICE</th>
<th>Person A's demand</th>
<th>Person B's demand</th>
<th>Person C's demand</th>
<th>Person X's supply</th>
<th>Person Y's supply</th>
<th>Person Z's supply</th>
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IV. Price controls and tax policy

a) If a state raise its minimum wage, what is the likely outcome? Is raising the minimum wage a good idea or a bad idea? Justify your answer.
b) If the state of Vermont taxes sugared drinks, what will happen to the consumer price for these drinks and the equilibrium quantity consumed? Who do you think will ‘bear the burden’ of this tax? Is such a tax a good idea? Justify your answers.

V. Short answers

a. On a Saturday night, Juan says that he will spend $20 on pizza, no matter what the price per slice. Cheryl says she will buy three slices, no matter what the price per slice. What is Juan’s elasticity of demand for pizza slices? What is Cheryl’s
elasticity of demand for pizza slices? Justify and illustrate your answers.

b. When the price of a good is raised from $90 to $110, the quantity demanded of the good declines by 5%. If the producer of this good wants to increase revenues, should she raise prices, lower prices, or do nothing - or is it not certain?

c. Imagine that demand and supply for a good are neither perfectly elastic nor perfectly inelastic. Before the imposition of a tax, the equilibrium price for the good is $10.00. After the imposition of a $2.00 per unit tax, will the new equilibrium price for consumers be greater than, equal to, or less than $12.00 - or is it not certain?

d. Under what conditions will a tax on gasoline dramatically reduce the consumption of gasoline? Explain and illustrate graphically.