

Economics 001
Introductory Microeconomics
General Honors – Exam 1
Recitation Instructor: Sanjay Chugh
October 9, 2002

Instructions:

- This is a 60-minute examination.
- Write all answers in the blue books or bubble sheet provided. Show all work. Use diagrams where appropriate and label all diagrams carefully.
- Write your name and your Recitation Instructor's name in every blue book that you use.
- This exam is given under the rules of Penn's Honor system.
- All blue books, blank or filled, must be handed in at the end of this exam. No blue books may be taken from the room.
- The use of Programmable Calculators is in violation of Departmental rule. It is strictly forbidden!

The Midterm has 2 parts.

Part 1 consists of 12 multiple-choice questions. Please use the bubble sheet for this part.

Part 2 consists of 2 short answer questions. Please use a separate blue book for each answer.

PART I: MULTIPLE CHOICE SECTION – 4 points each/48 points total

1. Assume a country can produce only two goods: textiles and cars. Assume further that it is currently producing positive amounts of both goods at a point on the PPF. Suppose there is an improvement in the technology used to produce cars. Which of the following becomes true for the country?
 - a. It can only produce more cars than before.
 - b. It can produce more of both goods.
 - c. It can produce more cars than before, but only if it reduces the production of textiles.
 - d. There is no change in the production possibilities.

2. Use the information in the table to answer the following question.

George's Utility:

Number of milkshakes consumed	0	1	2	3	4
Total utility from milkshakes (in \$)	0	\$23	\$28	\$31	\$33

- Suppose George has unlimited income to spend on milkshakes and the price of each milkshake is \$4. At his optimal choice, his consumer surplus from milkshakes will be
- a. \$4
 - b. \$5
 - c. \$28
 - d. \$20
3. Suppose a tax is imposed on the producers of a good, the market demand for which is perfectly inelastic. Who will bear the tax burden?
 - a. The producers will bear the whole tax burden.
 - b. The consumers will bear the whole tax burden.
 - c. The tax burden will be divided between the two.
 - d. No one will, because quantity demanded will fall to zero.

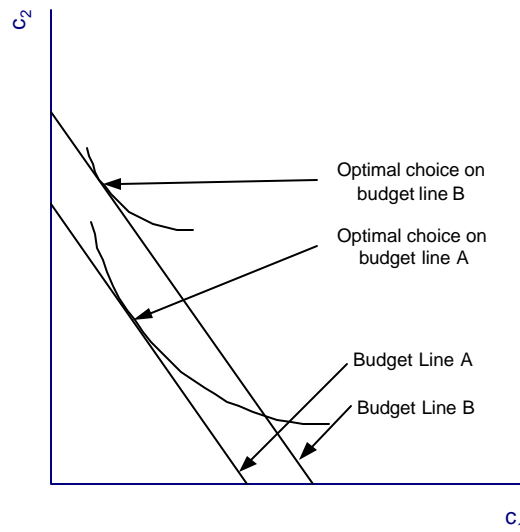
 4. Suppose that the supply and the demand for printers can be described by
$$Q^S = 100 + 3P$$
$$Q^D = 460 - P,$$
where Q^S is the supply of printers, Q^D is the demand for printers, and P is the price in dollars. If a price floor is set at \$50 per printer, then:
 - a. There will be excess demand.
 - b. There will be excess supply.
 - c. Markets will clear at a price of \$50.
 - d. None of the above.

5. In January, 2,500 quarts of ice cream are sold in Boston at \$2 a quart. In February, the price went down by 10% and the quantity sold increased by 2%. This means that the price elasticity for ice cream (disregarding the minus sign) is:
- 1.0
 - 0.2
 - 2.0
 - 0.1
6. One of the benefits of the market system in allocating goods is that:
- Everyone who can produce a good produces it.
 - Everyone who wants a good buys it.
 - Consumers who value the good the least buy it.
 - Producers with the lowest opportunity costs produce it.
7. At Luciano's pizza parlor there are four workers with the following productivity of making pizza and salads:

	Worker 1	Worker 2	Worker 3	Worker 4
pizza	1	2	2	3
salad	3	2	2	1

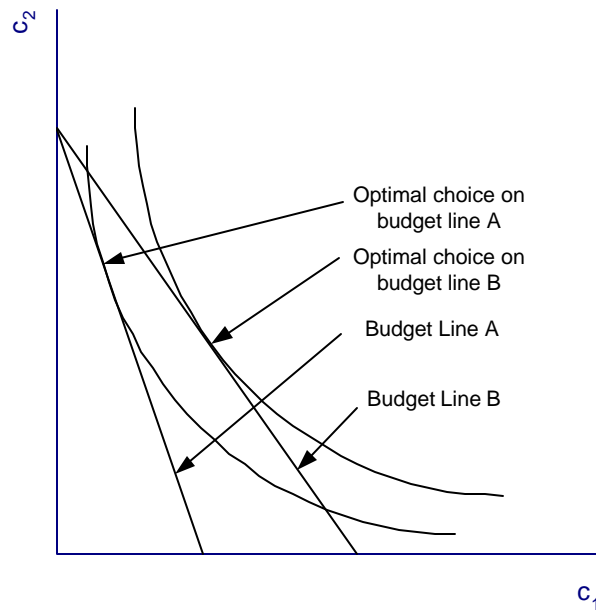
- The joint PPF of the four workers is:
- Bowed-out with three kinks
 - Bowed-out with two kinks
 - Bowed-out with one kink
 - Bowed-out with no kinks
8. In our standard model of consumer theory with two infinitely divisible goods, which condition best describes a consumer's optimal decision?
- $MRS > \text{price ratio}$
 - $MRS = \text{price ratio}$
 - $MRS < \text{price ratio}$
 - Any of the above could be true

9. Consider the following indifference curve/budget line diagram, in which budget line A has the same slope as budget line B



- From the diagram, you can conclude:
- Good 1 is an inferior good for at least some range of income
 - Good 2 is an inferior good for at least some range of income
 - Both goods 1 and 2 are inferior goods for at least some range of income
 - None of the above
10. If the marginal utility for good 1 is always constant and the marginal utility for good 2 is always constant, then which of the following best describes the indifference map over good 1 and good 2?
- The indifference curves are downward-sloping with increasing absolute slope.
 - The indifference curves are downward-sloping with constant absolute slope.
 - The indifference curves are downward-sloping with decreasing absolute slope.
 - Any of the above could describe the indifference map.

11. Consider the following indifference-curve/budget line diagram, and suppose there are no taxes.



- From the diagram, you can conclude:
- The cross-price elasticity of good 1 with respect to the price of good 2 is negative.
 - The cross-price elasticity of good 2 with respect to the price of good 1 is negative.
 - Good 2 is an inferior good for at least some range of income.
 - None of the above.
12. If a market achieves output-mix efficiency on its own (i.e., **without** the need of a "Social Planner"), which of the following is the most accurate statement?
- The line just tangent to the PPF at the optimal output mix has a slope equal to the marginal rate of substitution of all consumers.
 - The line just tangent to the PPF at the optimal output mix has a slope equal to the (absolute) price ratio of the two goods.
 - The line just tangent to the PPF at the optimal output mix has a slope equal to the marginal rate of transformation of the economy.
 - All of the above are accurate statements.

PART II: SHORT-ANSWER SECTION

In conducting your analyses here, if you use graphs be sure to **carefully label them!** Remember that **full credit depends on your explanation/logic** as much as on your final answer.

1. **Aggregating Choices over Many Consumers (26 points).** Consider an economy populated by 100 consumers, each of whom has exactly the same preferences and income. The two goods which consumers can purchase are c_1 and c_2 . Each consumer has income $I=8$, all of which he will spend on purchasing some bundle (combination) of the two goods. Each of the two goods is a normal good for all ranges of income.

For parts a and b, assume that the market supply curves for both good 1 and good 2 are perfectly elastic.

- a. **(6 points)** The equilibrium price of good 1 is $P_1 = 2$ and the equilibrium price of good 2 is $P_2 = 2$. At the optimal consumption choice of each individual, each individual consumes two units of good 2 and his marginal rate of substitution is one. What is the **total quantity of good 1 consumed in the entire economy?**
- b. **(6 points)** Now suppose the income of one individual in the economy suddenly falls by 50%, while the incomes of all other individuals remain the same. Show graphically what happens to this individual's optimal consumption choice. Provide brief economic intuition.

For the remainder of this question, **the market supply curve for good 2 is perfectly elastic, but the market supply curve for good 1 is given by $c_1^S = 3P_1$.**

- c. **(5 points)** Suppose the income of every individual in the economy falls to $I = 4$. What happens to the price of good 1? What happens to the price of good 2?
- d. **(9 points)** Using your answer in part d, explain **two different effects** on each individual's optimal consumption of good 1.

- 2. The Apparel Markets. (26 points)** In this question you are asked to analyze apparel markets using the supply and demand model. **Again remember to clearly label any graphs you provide and explain your logic!**
- a. Suppose that there has been a technological improvement in the manufacturing of shirts. Using a supply and demand diagram, explain how this improvement will affect the equilibrium price and quantity of shirts. Will revenues from shirts increase or decrease?
 - b. Suppose that there has been no change in the technology of manufacturing jeans. What effect, if any, will the technological improvement in shirts have on the market for jeans? Specifically, using a supply and demand diagram, explain how the equilibrium price and quantity of jeans will be affected. Will revenues from jeans increase or decrease?
 - c. Suppose now that there was no technological change in the manufacturing of shirts. A market analyst has found that the price of jeans has gone up, and she also observes that consumers' incomes have fallen. She concludes that jeans must be an inferior good. Is she correct?