

Econ 001: Midterm 1 Make up
February 16, 2005

Instructions:

- **This is a 60-minute examination.**
- **Write all answers in the blue books 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 10 multiple-choice questions. Please use the first page of a blue book to record your answers.

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

Part I: Multiple Choice Questions (4 points each/40 points total):

1.

The economic cost of going to a U2 concert should **not** include:

- a. The price of the ticket.
- b. Cost of transportation.
- c. Opportunity cost of ones time.
- d. The pleasure of hearing the band sing.

2. Suppose that US and Canada have the technologies represented in the following table:

	US	Canada
Computers	20/worker	X/worker
CDs	20/worker	50/worker
Population	10000	8000

It is known that in the computer production Canada has an absolute advantage and US has a comparative advantage. Which of the following could be the X value for Canada?

- a. 10
- b. 15
- c. 25
- d. 150

3. Countries A and B produce only two goods. Which of the following **cannot** be true:

- a. Country A has comparative advantage in one good and absolute advantage in the two goods.
- b. Country A has NO comparative advantage and NO absolute advantage in any of the two goods.
- c. Country A has no comparative advantage in any good but Country B has comparative advantage in one good.
- d. Country A has comparative advantage in one good and absolute advantage in neither of the two goods.

4. If the price of gasoline increased by 1%, which of the following statement about the supply of gasoline is true?

- a. The supply of gasoline has decreased.
- b. The supply of gasoline has increased.
- c. The supply of gasoline has not changed.
- d. The change in the supply of gasoline is uncertain.

5. Mike spends \$20 a month on gas for his car irrespective of the price of gasoline. This means that his price elasticity of gas is:

- a. 0
- b. 1
- c. 100
- d. infinite

6. The quantity demanded of iPods has increased dramatically since their delivery to the market. Nevertheless, their price hasn't shown a significant increase.

This phenomenon can be explained by:

- a. The demand is perfectly inelastic while supply is upward sloping and the change is due to a shift in demand.
- b. Students are the main consumers of iPods, and their demand is very elastic and the change is due to a shift in supply.
- c. The demand is perfectly inelastic while supply is upward sloping and the change is due to a shift in supply.
- d. None of the above would explain an increase in quantity demanded despite only a small change in price..

7. Suppose people became aware of the importance of conservation and this reduces their consumption of oil. Oil is a key factor input to the generation and distribution of electricity. What will happen to the equilibrium price & quantity of *electricity*?

- a. Both price and quantity may increase, not change, or decrease and the point of allocative efficiency with respect to electricity and oil production remains the same as before conservation is understood as important.
- b. Both price and quantity will decrease and the point of allocative efficiency with respect to electricity and oil production remains the same as before conservation is understood as important.
- c. Both price and quantity may increase, not change, or decrease and the point of allocative efficiency with respect to electricity and oil production will change.
- d. The price of electricity will decrease and the quantity increase; the point of allocative efficiency with respect to electricity and oil production has changed.

8. Suppose the supply curve for bananas is given by $Q_s = 15 + P$ and demand for bananas is given by $Q_d = 30 - P$. If the government imposes a tax of \$2 per unit of banana sold, total tax burden on the consumers will be:

- a. \$0
- b. \$20.
- c. \$30.
- d. \$60.

9. The government is considering what good to tax. For the sake of efficiency it should choose a good that is:

- a. A normal good.
- b. Has many substitutes.
- c. Has few substitutes.
- d. Only the rich buy.

10. The market for hamburgers has an upward-sloping supply curve and a downward-sloping demand curve. When a per-unit tax is levied on either producers or consumers, which of the following statements are true?

- a. Both the total amount spent by consumers on hamburgers and the total amount of post-tax revenue for producers will necessarily decrease.
- b. The total amount spent by consumers on hamburgers will necessarily increase but the total amount of post-tax revenue for producers could increase or decrease, depending on the slopes of the supply and demand curves.
- c. The total amount spent by consumers on hamburgers could increase or decrease, depending on the slopes of the supply and demand curves. However, the total amount of post-tax revenue for producers will necessarily decrease.
- d. None of the above statements are necessarily true. It depends on whether the tax is levied on producers or consumers.

Answers:

- 1. D
- 2. C
- 3. C
- 4. D
- 5. B
- 6. B
- 7. D
- 8. D
- 9. C
- 10. C

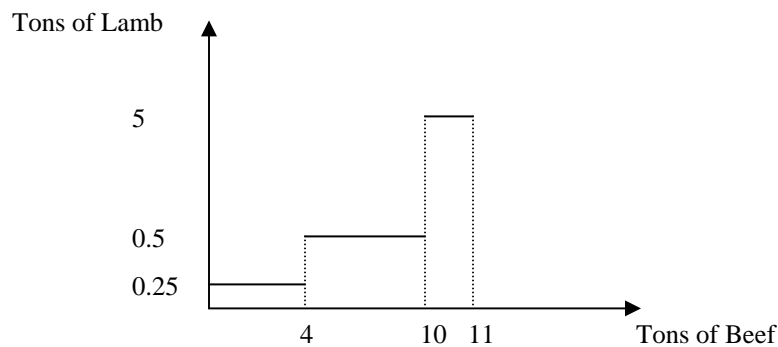
Part II: Short Answer Questions (30 points each/60 points total):

Please use a separate blue book for each question.

Explain answers carefully using graphs where appropriate. Your grade depends on your explanation as well as your answer: so show your work!

Q1.

Old McDonald had a farm, and on his farm he had cows and sheep. The following picture shows the MC cost of producing beef in terms of lamb.



- a) Suppose he has three workers and that this is the only resource in production. Fill out the following table: (filled in 2nd row)

	Worker 1	Worker 2	Worker 3
Tons of Beef	4	6	1
Tons of Lamb	1	3	5

6 POINTS: 2 POINTS EACH CELL

2+2+2

- b) Draw the production possibilities frontier.

(Partial credit will be given here, so give you best try!)

9 POINTS: 2 PER AXIS, 2 PER KINK, 1 FOR STRAIGHT LINES:

2+2+2+2+1

with beef on the horizontal axis, the PPF should be straight lines connecting the points (11,0),(10,5),(4,8),(0,9)

- c) If Old McDonald wants to produce 5 Tons of beef, which workers should be allocated to the production of each good?

8 POINTS:

2 FOR WHICH WORKER PRODUCING WHAT.

2 FOR GIVING TOTAL AMOUNT OF LAMB PRODUCED.

2+2+2+2

To produce 5 tons of beef, Worker 1 makes only beef, Worker 2 makes 1 ton of beef (and 2.5 tons of lamb) and Worker 3 makes only lamb.

d) Suppose McDonald wants to produce 10 tons of beef and 6 tons of lamb. Is this combination possible? Explain numerically or graphically.

This isn't possible; making 10 tons of beef the best he can do is 5 tons of lamb (when workers 1 and 2 make beef, and worker 3 makes lamb.)

7 POINTS:

2 FOR SAYING NOT POSSIBLE.

5 FOR GIVING AN EXPLANATION (GRAPHICALLY OR NUMERICALLY)

2+5

Q2.

A market for milk has demand given by

$$Q=100-4P$$

The supply of milk is given by

$$Q = 20 + P$$

- a. What is the equilibrium for this milk market?

4 POINTS. 2 FOR Q, 2 FOR P

2+2

$$P=16, Q=36$$

- b. What is the total surplus generated by this market?

We ignore the area where prices are negative, and get a total surplus of 610 (if my math is correct.) CORRECT: $162+448=610$ (or $162+648=810$ if took the whole area).

6 POINTS:

2 FOR CS.

2 FOR PS.

2 FOR TOTAL SURPLUS.

2+2+2

- c. The government imposes a price ceiling of 15. What will be the effect of this regulation?

The price ceiling is below the current price, so it will cause an excess demand. In particular at $P=15$ $Q_d=100-60=40$ and $Q_s=20+15$ so we have an excess demand of 25

CORRECT: Excess Demand=5.

6 POINTS:

2 FOR MENTIONING EXCESS DEMAND.

2 FOR Q_s AND Q_d .

2 FOR CORRECT E.D.

2+2+2

- d. A technological improvement occurs such that at any price above zero the quantity supplied is 50% larger than before. Show graphically how would this effect the demand and supply.

This will shift supply to the right in a rotation.

(Note to grader: Please give almost full credit even if change intersection with X axis)

6 POINTS:

3 FOR CORRECT GRAPH (CHANGE IN SLOPE)

3 FOR CORRECT NEW SUPPLY FUNCTION.

3+3

- e. Combine the information in parts c & d above what will be the effect of the price ceiling after technological improvement is in place. Solve numerically.

To find the new equilibrium, we need to write down the new supply curve. We write this as $Q_s' = 20 + 1.5P$. We use the equation $Q_d = Q_s'$ to get the new equilibrium price (absent a price ceiling) of $80/5.2$, which is about 14.5. Therefore the price ceiling is no longer relevant.

(Note to grader: Please give full credit even if set $Q_s' = 1.5Q_s = 30 + 1.5P$)

8 POINTS:

4 FOR CORRECT NEW PRICE.

4 FOR MENTIONING NO EFFECT OF PRICE CEILING.