

**Economics 102: Kelly  
Fall 1997  
Midterm #1  
October 6, 1997  
Version 1**

**Student Name:** \_\_\_\_\_  
**ID Number:** \_\_\_\_\_  
**Section Number:** \_\_\_\_\_  
**T.A. Name:** \_\_\_\_\_

**DO NOT BEGIN WORKING  
UNTIL THE INSTRUCTOR TELLS YOU TO DO SO.  
READ THESE INSTRUCTIONS FIRST**

You have 2 hours to complete the exam, which consists of 4 problems (Part I) and 20 multiple-choice questions (Part II). Each problem is worth 10 points for a total of 40 points in Part I, and each multiple-choice question is worth 3 points for a total of 60 points in Part II. This exam has 11 pages. Please answer Part I on this test booklet making sure that your answers are legible and that you are using complete sentences. **Show all work and formulas used. Your explanations will determine the grade.** Please answer Part II on your coding sheet with a #2 pencil. **Choose the best answer from the five alternatives offered.** Be sure to fill in the coding sheet carefully and accurately.

**How to fill in the coding sheet:**

1. Print your last name, first name and middle initial in the spaces marked “Last Name,” “First Name,” and “MI.” Fill in the corresponding bubbles below.
2. Print your student ID number in the space marked “Identification Number.” Fill in the corresponding bubbles below.
3. Write your discussion section number under “Special Codes” spaces **ABC**, and fill in the bubbles.
4. Write your version number under “Special Codes” space **D** and fill in the corresponding bubble.

The discussion sections are as follows:

John Jones	380	3:30 W	Moonsung Kang	385	12:05 R
	386	1:20 R		390	9:55 F
	387	2:25 R		391	11:00 F
				393	12:05 F
Kyoungwon Rhee	382	9:55 R			
	384	11:00 R			
	388	8:50 F			
	389	9:55 F			

- If you have any questions during the exam, stay seated and raise your hand.
- When you are finished, please get up quietly and bring your code sheet and this exam booklet to the place indicated by the instructors.
- **Stop, take a deep breath, and think carefully before you answer any questions. There are no intentional “tricks”; however, not all of the answers are intended to be obvious. Good Luck!**

**Part I. Problem-type Questions (4 problems at 10 points each)**

**Problem 1**

Define 5 out of the 8 following terms:

(a) Indeterminacy.

(b) Comparative advantage.

(c) Positive economics.

(d) Consumer surplus.

(e) Production possibility frontier.

(f) Opportunity cost.

(g) Circular flow.

**Problem 2.**

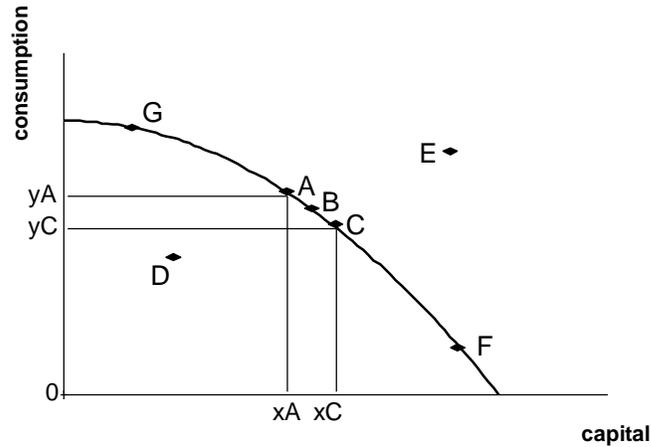
Consider a market for cars. The demand and supply for them are:

$$\begin{array}{ll} \text{Demand:} & P = 40000 - 2Q^d \\ \text{Supply:} & P = 10000 + 3Q^s \end{array}$$

- a) (2 pts.) Find the market equilibrium price and quantity for cars.
- b) (3 pts.) New research shows that car travel is safer than flying, which makes consumers more willing to purchase cars. As a result, the demand for cars becomes:  $P = 60000 - 2Q^d$ .
- (i) Find the new market equilibrium price and quantity.
  - (ii) How do the new equilibrium price and quantity compare to the old equilibrium price and quantity in your answer to (a)?
- c) (3 pts.) Consider the old demand and supply for cars which are:  $P = 40000 - 2Q^d$ ; and  $P = 10000 + 3Q^s$ . Suppose the government imposes a tax on the sellers of 5000 dollars on each car.
- (i) How much will consumers pay now for a car?
  - (ii) How much will producers earn per car?
  - (iii) How much total tax revenue will the government collect?
- d) (2 pts.) Continue with the setup of part (c) and find the loss of consumer surplus due to the tax.

**Problem 3.**

Assume that the U.S. and Japan have identical production possibility frontiers (PPFs). The graph immediately below shows the PPF for either the U.S. or Japan.



- (1 pt.) List all the feasible points in this graph.
- (1 pt.) If the U.S. is currently at point C, what is the opportunity cost to the U.S. of  $(y_A - y_C)$  additional units of consumption? Please specify units.
- (2 pts.) Suppose Japan values growth more highly than the U.S. Then \_\_\_\_\_ is more likely to be at point G and \_\_\_\_\_ is more likely to be at point F.
- (2 pts.) Suppose Japan moves from point G to point D. Would we expect growth to increase or decrease?
- (4 pts.) Suppose that Japan is at point G and the U.S. is at point F. Then \_\_\_\_\_ has a comparative advantage in capital goods and \_\_\_\_\_ has a comparative advantage in consumption goods.

**Problem 4.**

Consider the residents of Hazzard County, Georgia. These are:

- (i) Roscoe, who has a job for life as Sheriff.
- (ii) Beauregard, who drives race cars in the summers.
- (iii) Cooter, who works about 20 hours a week as a mechanic.
- (iv) Luke, who is looking for a job.
- (v) J.D. Hogg, who manages a diversified business.
- (vi) Waylon, a singer-songwriter, who never lacks for work.
- (vii) Daisy, who waits tables at a sleazy bar run by Mr. Hogg.
- (viii) Uncle Jesse, who is retired, but is full of sage advice.
- (ix) Cletus, a former deputy who is looking for work but whose driving skills are outdated.

a) (2 pts.) In the summer, how many people are in the labor force? Who is in the labor force in the summer?

b) (2 pts.) What is the unemployment rate in the summer ? (Use fractions if necessary.)

c) (2 pts.) Suppose now that winter comes, and, in addition, Luke quits looking for a job. How many people are in the labor force now? Who is in the labor force now?

d) Assume that the set-up of part (c) still applies.

(i) (2 pts.) What is the unemployment rate now? (Use fractions if necessary.)

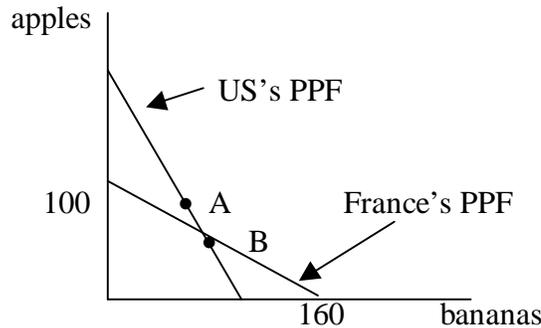
(ii) (1 pt.) Who is seasonally unemployed?

(iii) (1 pt.) Who is structurally unemployed?

**Part II. Multiple-choice Questions (20 questions at 3 points each)**

1. Which of the following is included in U.S. GDP?
  - a) Ross and Rachel move in together, so Ross sells his radio to Phoebe.
  - b) Phoebe earns the equivalent of \$1,000 performing folk songs in Mexico.
  - c) After Ross and Rachel have a spat, Rachel trashes Ross' television and Ross buys a new one from the factory.
  - d) Ross makes up to Rachel by doing her dishes for a month.
  - e) Ross buys \$100 of illegal Cuban cigars.
  
2. If the economy lies at a point inside the production possibility frontier, we know that:
  - a) The economy is saving money.
  - b) The economy specializes in producing one good.
  - c) The economy is technically efficient.
  - d) Technology limits production.
  - e) More output could be produced with existing resources.
  
3. Suppose that in an hour Japan can produce at most 3 cars or at most 2 boats, while in an hour the US can produce at most 6 cars or at most 4 boats. Assume that both countries have linear PPFs. Which of the following statements is **true**?
  - a) There are no gains to specialization.
  - b) Japan should export cars, because it has an absolute advantage in cars.
  - c) Japan should export boats, because it has an absolute advantage in boats.
  - d) Japan should export cars, because it has a comparative advantage in cars.
  - e) Japan should export boats, because it has a comparative advantage in boats.
  
4. Which of the following statements is **false**?
  - a) In order to avoid double counting, GDP includes only final goods and services.
  - b) Consider a simple economy with no depreciation. If GDP is \$100, wages are \$90 and interest payments are \$20, then if profits are the only remaining source of income, they must be -\$10.
  - c) Suppose that the only good in the economy is bread. If the value of the farmer's wheat is \$50, and GDP is \$150, then the value added by the miller, baker, and retailer is \$100.
  - d) The aggregate demand schedule shows the total amount of goods and services that consumers in an economy will buy at each aggregate price level.
  - e) The circular flow model shows that in every period the government's tax revenues must always equal the sum of government purchases and transfers.

Use the following graph to answer the next two questions.



We know that France can produce 100 apples and no bananas, or 160 bananas and no apples. Suppose that currently the US produces 70 bananas and 100 apples at point A, and France produces 80 bananas and 60 apples at point B, which lies on both PPFs.

5. What is the US's PPF equation? Use  $x$  for bananas and  $y$  for apples.
  - a)  $y = -x + 180$ .
  - b)  $y = 2x + 280$ .
  - c)  $y = -2x + 280$ .
  - d)  $y = -4x + 380$ .
  - e)  $y = 4x + 380$ .
  
6. Which of the following is **true**?
  - a) The US should specialize in producing apples.
  - b) France should specialize in producing bananas.
  - c) If these two countries specialize, the number of apples and bananas they can jointly produce can exceed the sum of the quantities at points A and B.
  - d) Statements (a) and (b) are both correct.
  - e) Statements (a), (b), and (c) are all correct.
  
7. The market wage for workers in a fast food restaurant is \$6 per hour. Now suppose that a minimum wage of \$7 per hour is imposed. Assuming that the demand and supply curves have their usual slopes, which of the following do you expect to happen?
  - a) The minimum wage will act as a wage ceiling.
  - b) The demand curve for fast food will shift.
  - c) Some workers will lose their jobs.
  - d) The price of hamburgers in this restaurant will fall.
  - e) There will be a shortage of workers.

8. Macroland can produce cars and bananas. Suppose that when we plot Macroland's PPF, with bananas along the x-axis, and cars along the y-axis, we find that the PPF is linear, with a slope of  $m$ . Which of the following statements is **true**?
- a) The opportunity cost of 2 more bananas is  $-2m$  cars.
  - b) The opportunity cost of 3 more cars is  $-3/m$  bananas.
  - c) Statements (a) and (b) are true.
  - d) Macroland's PPF displays increasing opportunity costs.
  - e) All of the preceding statements are true.
9. Who is frictionally unemployed?
- a) John, who works part-time at minimum wages as he goes back to school.
  - b) Isaac, who spends his time lying on his parents' sofa.
  - c) Frank, a homebuilder who lost his job when the economy declined.
  - d) Karen, a typesetter whose job has been replaced by desktop publishing software.
  - e) Mary, who moved to Seattle to look for a job writing computer programs.
10. Which of the following statements is **false**?
- a) "Income inequality is increasing" is a positive statement.
  - b) It is efficient for countries to specialize in their area of comparative advantage.
  - c) The PPF is bowed outward because of decreasing opportunity costs.
  - d) "Income inequality is bad for our society" is a normative statement.
  - e) None of the preceding statements is false.

**Use the following information to answer the next three questions:**

Steve owns a firm. Suppose that this firm's production possibility frontier (PPF) is linear, and that in a single day, this firm can either produce 6 scooters or 2 cars.

11. What is the equation for this firm's **weekly (Monday through Friday)** PPF? (Use scooters as your  $x$ -variable and cars as your  $y$ -variable.)

- a)  $y = 30 - 3x$
- b)  $y = 10 - (1/3)x$
- c)  $y = 36 - 3x$
- d)  $y = (28/3) - (1/3)x$
- e)  $y = 24 - 3x$

12. Which of the following combinations is **not** an efficient point on this firm's **weekly (Monday through Friday)** PPF?

- a) 30 scooters and 0 cars.
- b) 24 scooters and 2 cars.
- c) 18 scooters and 4 cars.
- d) 10 scooters and 6 cars.
- e) 6 scooters and 8 cars.

13. Suppose that this firm is currently producing 18 scooters and 4 cars per week. What is the opportunity cost to this firm of producing one more car?

- a) 1 scooter.
- b) 2 scooters.
- c) 1/2 scooter.
- d) 3 scooters.
- e) 1/3 scooter.

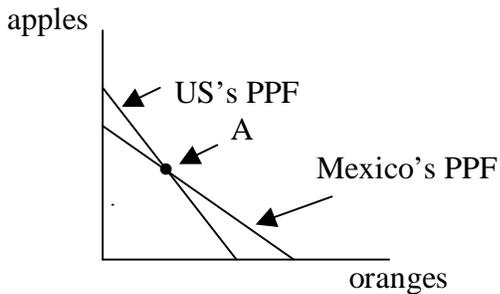
14. Consider the market for Pepsi Cola. Assuming that the demand and supply curves have their usual slopes, which of the following statements is **true**?

- a) An increase in the price of Coca Cola, a substitute for Pepsi, will shift the demand curve to the right.
- b) An increase in the price of pretzels, a complement for Pepsi, will shift the demand curve to the left.
- c) An increase in the price of pretzels will decrease the equilibrium quantity.
- d) An increase in the price of sugar, an ingredient in Cola, will shift the supply curve to the left.
- e) All of preceding statements are true.

15. Which of the following facts is **not** related to the 45° line? (Assume that the  $x$ - and  $y$ -axes are measured in the same units.)

- The slope is 1.
- The value of  $x$  is equal to that of  $y$  at every point on this line.
- This line passes through the origin.
- The  $y$ -intercept is positive.
- There is a direct (positive) relationship between the  $x$  and  $y$  variables.

16. Suppose the production possibility frontiers (PPFs) for the US and Mexico are given by the following graph.



Both the US and Mexico produce the combination of goods given by point A, which lies on both PPFs. Now suppose that both the US and Mexico want to produce one more orange. Then:

- Mexico's opportunity cost is higher than that of the US.
- The US has an absolute advantage in oranges.
- The US has a comparative advantage in oranges.
- Mexico has a comparative advantage in oranges.
- None of the above statements is true.

17. Suppose that the FDA reports that hamburgers could be contaminated, while at the same time a scientist finds a more efficient way to make hamburgers. Assuming that the demand and supply curves have their usual slopes, the net effect of these changes in the market for hamburgers must be:

- Both the equilibrium price and quantity increase.
- Both the equilibrium price and quantity decrease.
- The equilibrium price decreases but the effect on the quantity is indeterminate.
- The equilibrium price increases but the quantity decreases.
- The equilibrium quantity increases but the effect on the price is indeterminate.

18. Which of the following statements is **false**?

- a) China can have a large total economy and a fairly small per capita economy.
- b) Any point on or outside the PPF is feasible.
- c) Scarcity causes the PPF to have a negative slope.
- d) Specialization within a country causes its PPF to be bowed outward.
- e) None of the preceding statements is false.

19. Consider an aggregate demand/aggregate supply model of the U.S. economy. Suppose that U.S. technology suddenly gets **worse**. We would then see price \_\_\_\_\_, and the economy will have a(n) \_\_\_\_\_.

- a) Inflation, recession.
- b) Deflation, recession.
- c) Inflation, expansion.
- d) Deflation, expansion.
- e) None of the preceding answers is correct.

20. Which of the following sources of income would **not** be included in the US GDP?

- a) Interest payments that the owners of Jingles Sports Bar in Madison make to their lenders.
- b) Payments to TAs at UW-Madison.
- c) Wages that foreign students earn from working in Wisconsin.
- d) The profits of a company based in New York but owned by a foreigner.
- e) The profits that the US-based Pepsi Cola Corporation earns in China.

Problem 1 \_\_\_\_\_

Problem 2 \_\_\_\_\_

Problem 3 \_\_\_\_\_

Problem 4 \_\_\_\_\_

Total from Problems \_\_\_\_\_

Total from Multiple Choice \_\_\_\_\_

Grand Total \_\_\_\_\_