

Economics 101

Fall 2016

October 18, 2016

First Midterm

Name _____

TA Name _____

Discussion Section Number _____

Student ID Number _____

Version 1

READ THESE INSTRUCTIONS CAREFULLY.

DO NOT BEGIN WORKING UNTIL THE PROCTOR TELLS YOU TO DO SO

You have 75 minutes to complete this exam. The exam consists of 9 binary response questions worth 2 points each and 20 multiple choice questions worth 4 points each for a total of 98 points. You will receive two points if you accurately and completely provide your name, ID number, discussion section number, version number, and TA name on the scantron sheet AND this exam booklet. Thus, the total number of points on the exam is 100. Answer all questions on the scantron sheet with a #2 pencil. There are 20 printed pages in this exam, including this cover sheet.

WARNING: NO COMMUNICATION OR CALCULATING DEVICES, OR FORMULA SHEETS ARE ALLOWED. NO CONSULTATION AND CONVERSATION WITH OTHERS ARE ALLOWED WHILE YOU ARE TAKING EXAM OR IN THE EXAM ROOM. PLAGIARISM IS A SERIOUS ACADEMIC MISCONDUCT AND PUNISHABLE TO THE FULLEST EXTENT.

PICK ONLY ONE BEST ANSWER FOR EACH QUESTION.

How to fill in the scantron sheet and other information:

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 bubbles.
3. Write the number of the discussion section you've been attending under "Special Codes" spaces ABC, and fill in the bubbles. You can find the discussion numbers below on this page.
4. Write the version number of your exam booklet under "Special Codes" space D, and fill in the bubble. The version number is on the top of this page.

- **If you believe there is an error on the exam or you do not understand something, make a note on your exam booklet and the issue will be addressed AFTER the examination is complete. No questions regarding the exam can be addressed while the exam is being administered.**
- **When you are finished, please get up quietly and bring your scantron sheet and this exam booklet to the place indicated by the proctors.**

Discussion Sections (Sorted by TA):

| Section Number | Time | Room | TA | Section Number | Time | Room | TA |
|----------------|-----------------|----------------|--------------|----------------|------------------|----------------|---------------|
| 335 | F 11:00 – 11:50 | Van Hise 379 | Hans Schwarz | 332 | Th 15:30 – 16:20 | Soc. Sci. 6322 | Sam Schreiber |
| 339 | F 12:05 – 12:55 | Van Hise 205 | Hans Schwarz | 336 | F 11:00 – 11:50 | VanVleck B219 | Sam Schreiber |
| 331 | F 9:55 – 10:45 | Van Hise 395 | Saber Ahmadi | 341 | F 12:05-12:55 | VanVleck B325 | Sam Schreiber |
| 333 | F 13:20 – 14:10 | Van Hise 207 | Saber Ahmadi | 344 | F 9:55 – 10:45 | Ingraham 215 | Sam Schreiber |
| 337 | F 14:25 – 15:15 | Soc. Sci. 5231 | Saber Ahmadi | 334 | F 13:20 – 14:10 | Van Hise 140 | Shuheii Otani |
| 346 | F 12:05-12:55 | Sterling 2425 | Saber Ahmadi | 340 | F 14:25 – 15:15 | Soc. Sci. 6203 | Shuheii Otani |
| 330 | F 8:50 – 9:40 | Sterling 2329 | Yixi Yang | 342 | F 9:55 – 10:45 | Sterling 2319 | Shuheii Otani |
| 338 | F 9:55 – 10:45 | Sterling 2333 | Yixi Yang | 343 | F 11:00 – 11:50 | Sterling 2333 | Shuheii Otani |
| 345 | F 11:00 – 11:50 | Sterling 2425 | Yixi Yang | | | | |

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DO NOT DETACH THIS SHEET FROM THIS EXAM BOOKLET!

I, _____, agree to neither give nor receive any help on this exam from others. I understand that the use of a calculator or communication device on this exam is academic misconduct. I also understand that providing answers to questions on this exam to other students is academic misconduct as is taking or receiving answers to questions on this exam from other students. Thus, I will cover my answers and not expose my answers to other students. It is important to me to be a person of integrity and that means ALL ANSWERS on this exam are my answers. Any violation of these guidelines will result in a penalty of at least receiving a zero on this exam.

Signed _____

BINARY CHOICE QUESTIONS (9 QUESTIONS WORTH 2 POINTS EACH)

1. The lines $y = 5 + 2x$ and $3y + x = 30$ do **not** intersect.
 - a. True
 - b. False

2. Which of the following statements is a positive statement?
 - a. Sam and Hans should produce the number of apples and oranges at the kink point of their joint PPF graph.
 - b. Sam has an absolute advantage in the production of apples, while Hans has an absolute advantage in the production of oranges.

3. Kate is a junior in high school and is deciding whether or not she should attend college. The full-time salary that Kate forgoes to attend college is considered an accounting cost.
 - a. True
 - b. False

4. Tom owns a bakery. He uses two secret ingredients “A” and / or “B” to prepare his world-famous cookies. In a particular year, you observe that his demand curve for “A” shifts right. Which of the following statements might be consistent with this shift?
 - a. “A” and “B” are complements, and the price of “B” has gone up.
 - b. “A” and “B” are substitutes, and the price of “B” has gone up.

5. Consider that fast food is an inferior good for Beth. She will reduce her consumption of fast food if she receives a 15% wage increase.
 - a. True
 - b. False

6. Apartment rent in Madison is currently \$1,000 per month. The government is planning to establish a price ceiling of \$1,200 per month for apartment rent. This policy will most likely create a shortage of apartments in Madison.
 - a. True
 - b. False

7. Brazil and Colombia both produce soy beans and coffee beans. Suppose we observe Brazil imports coffee beans from Colombia, and they export their soy beans to Colombia. Which of the following statements may be **false** given this information? Assume that the coffee beans and soy beans grown by the two countries are identical.
- Colombia has the absolute advantage in the production of coffee beans.
 - Colombia has the comparative advantage in the production of coffee beans.
8. In the financial crisis, the value of the houses owned by American citizens collapsed. How would you represent this event in the T-account of American citizens?
- As a decrease in the value of assets and a decrease in net worth.
 - As a decrease in the value of liabilities and an increase in net worth.
9. Suppose that you have a market with a downward sloping demand curve and an upward sloping supply curve. The implementation of an excise tax in this market will always reduce the value of both the consumer surplus and the producer surplus.
- True
 - False

MULTIPLE CHOICE QUESTIONS (20 QUESTIONS WORTH 4 POINTS EACH)

10. (Warning: this problem will either be easy for you or VERY HARD-do not spend too much time on this question!) As of 2016, the European Union comprised 28 member states. The GDP (gross domestic product) per capita of the European Union is equal to \$40,000, and the average population of these 28 countries is 20 million inhabitants. Eight additional countries (Albania, Bosnia-Herzegovina, Croatia, Iceland, Macedonia, Montenegro, Serbia, and Turkey) have applied to join the European Union in the last decade. Suppose that the current GDP per capita of these eight countries is equal to \$20,000. Finally, consider that the average population of the eight countries that are looking forward to joining the European Union is equal to 10 million inhabitants.

Approximately, what would be the new GDP per capita of the European Union, if the current member states decide to accept the applications to join the European Union of these eight countries?

- a. \$ 30,000
- b. \$ 33,300
- c. \$ 34,400
- d. \$ 37,500

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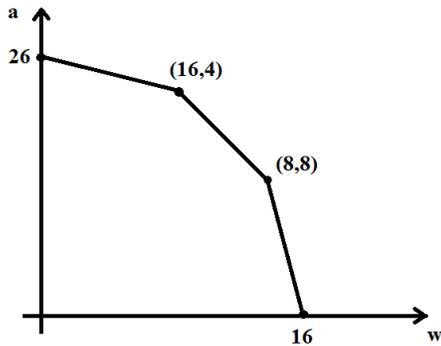
Use the following information to answer the **next two (2)** questions.

Susan is working on the family farm. She has two main responsibilities: picking apples and collecting eggs. Susan can collect 30 eggs in 2 hours, and can pick 60 apples in 1 hour.

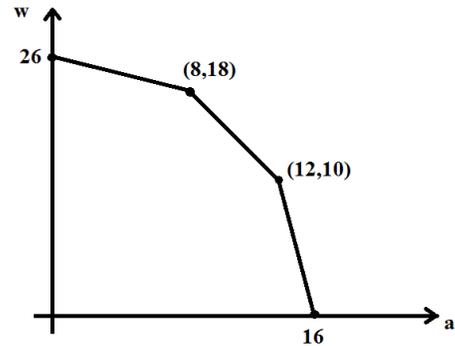
11. What is Susan's opportunity cost of collecting 1 egg (in terms of picking apples)?
 - a. 1/2 apples
 - b. 2 apples
 - c. 4 apples
 - d. 6 apples

12. Suppose a new technology is introduced on the farm that allows Susan to pick apples at a faster rate. Holding everything else constant, how does this affect Susan's opportunity cost of collecting 1 egg (in terms of picking apples)?
 - a. Her opportunity cost of collecting 1 egg increases.
 - b. Her opportunity cost of collecting 1 egg decreases.
 - c. There is no effect on her opportunity cost of collecting 1 egg.
 - d. Her opportunity cost of collecting 1 egg may have increased, decreased, or remained the same.

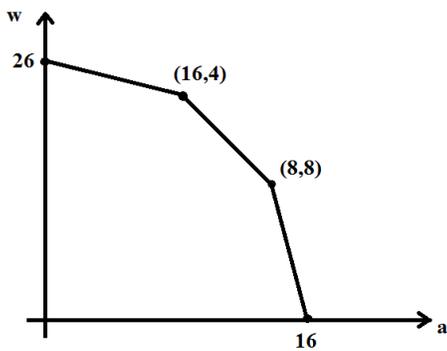
13. Mark, Kim, and Larry are students at the computer engineering department at UW Madison. Besides studying, each of them can work 800 hours per year. Each of them can use their time to design either websites (w) or Android apps (a). Assume that each of these individuals has a linear production possibility frontier in the production of these two goods. Mark can design a website in 100 hours and an Android app in 200 hours, Kim can design a website in 80 hours and an Android app in 200 hours, and Larry can design a website in 100 hours and an Android app in 100 hours. Assume that they decide to create a company together. Which graph (these graphs are **NOT** drawn to scale) represents most accurately the joint PPF of their company?



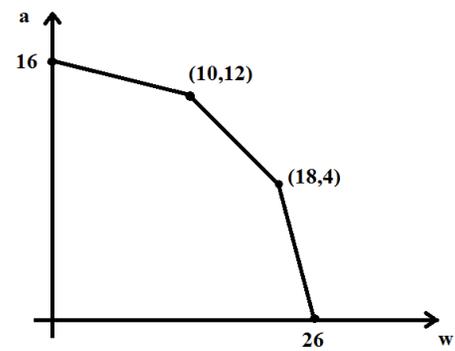
Graph A



Graph B



Graph C



Graph D

- Graph A
- Graph B
- Graph C
- Graph D

Use the following information to answer the **next three (3)** questions.

Every Japanese or American worker can produce 5 cars per year. Each American worker can produce 2 tons of rice and each Japanese worker can produce 3 tons of rice per year. Assume that each country has 10 million workers.

14. Which of the following statements is true, given the above information and holding everything else constant?
- a. Neither country has a comparative advantage in the production of cars. Japan has a comparative advantage in the production of rice.
 - b. Japan has the comparative advantage in the production of both rice and cars.
 - c. Japan has the comparative advantage in the production of cars, and the US has the comparative advantage in the production of rice.
 - d. Japan has the comparative advantage in the production of rice, and the US has the comparative advantage in the production of cars.

15. What is the equation for their joint PPF? Consider that c represents millions of cars and r represents millions of tons of rice.

a.
$$c = \begin{cases} 100 - 5/3 r, & \text{if } r \leq 30 \\ 125 - 5/2 r, & \text{if } r > 30 \end{cases}$$

b. $c = 100 - 2r$

c.
$$c = \begin{cases} 125 - 5/2 r, & \text{if } r \leq 20 \\ 100 - 5/3 r, & \text{if } r > 20 \end{cases}$$

d.
$$c = \begin{cases} 100 - 5/2 r, & \text{if } r \leq 20 \\ 250/3 - 5/3 r, & \text{if } r > 20 \end{cases}$$

16. Which of the following is an acceptable price to both countries for one car in terms of tons of rice assuming that both countries are specializing in the production of the good for which they have a comparative advantage?
- a. 1/8 tons of rice
 - b. 1/4 tons of rice
 - c. 1/2 tons of rice
 - d. 1 ton of rice

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17. Which of the following events will most likely **NOT** cause a shift to the left in the supply curve of tomatoes in Florida? Holding everything else constant,
- The publication of a scientific study that links tomato consumption and stomach cancer.
 - A financial crisis in Florida that forces the majority of tomato harvesters to go bankrupt.
 - An increase in the price of fertilizers required to harvest tomatoes.
 - A hurricane that destroys a big percentage of tomato fields.
18. Suppose that the price of leather shoes has not changed in the last month, but the quantity sold has increased dramatically. Which of the following combination of events is consistent with this information?
- The cost of leather has increased, and the price of wool socks (a complement of leather shoes) has also increased.
 - The cost of leather has increased, and the price of tennis shoes (a substitute of leather shoes) has increased.
 - The cost of leather has decreased, and the price of tennis shoes (a substitute of leather shoes) has also decreased.
 - The cost of leather has decreased, and the price of wool socks (a complement of leather shoes) has also decreased.
19. Suppose that you are a policymaker that wants to increase the consumption of milk in your economy. Which of the following policies could help you achieve your goal without having to intervene directly in the milk market? (Assume milk and cereal are complements, while milk and soy milk are substitutes.) Holding everything else constant, enact a policy that
- Reduces the price of cereal.
 - Increases the supply of soy milk at every price.
 - Reduces the price of soy milk.
 - Increases the price of cereal.

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Use the following information to answer the **next three (3)** questions:

Consider the market of airplane tickets from Madison to Chicago, in which only two companies offer tickets: American Airlines and United Airlines. An analyst is analyzing the whole market using the available data. The analyst knows that the following equations describe the individual supply curves for the two firms where P is the price per ticket and Q is the number of tickets.

American Airlines supply curve: $P = 100 + 1/4 Q$

United Airlines supply curve: $P = 300 + Q$

20. Given this information and holding everything else constant, the market supply curve (include the supply from both airlines) is given by:

a. $P = 400 + 5/4 Q$

b. $P = \begin{cases} 100 + 1/4 Q, & \text{if } 0 \leq Q \leq 800, \\ 140 + 1/5 Q, & \text{if } 800 \leq Q \end{cases}$

c. $P = \begin{cases} 100 + 1/4 Q, & \text{if } 0 \leq Q \leq 800, \\ 300 + Q, & \text{if } 800 \leq Q \end{cases}$

d. $P = 140 + 1/5 Q$

21. Hint: This is a challenging question and you need to be careful in your analysis! The analyst also has the following demand schedule representing the demand for airplane tickets for men and women.

| Price of ticket | Q demanded by men | Q demanded by women |
|-----------------|-------------------|---------------------|
| \$ 0 | 400 | 200 |
| \$ 300 | 250 | 50 |
| \$ 600 | 100 | 0 |

Assuming that the demand curves for men and women are linear, what are the coordinates of the kink point of the market demand curve?

a. $(Q = 300, P = \$300)$

b. $(Q = 200, P = \$400)$

c. $(Q = 100, P = \$600)$

d. The market demand curve doesn't have a kink point.

22. Using all the previous information, which is the equilibrium quantity of airplane tickets?
- a. 100 airplane tickets
 - b. 200 airplane tickets
 - c. 400 airplane tickets
 - d. We don't have enough information to solve for the equilibrium quantity.

Use the following information to answer the **next two (2)** questions.

In Oshkosh, Wisconsin the following equations describe the demand and supply for bananas where P is the price per banana and Q is the quantity of bananas:

$$\text{Market demand: } Q_d = 9 - P$$

$$\text{Market supply: } Q_s = \frac{1}{2} P$$

23. Suppose that the government establishes a price floor of \$8 per banana. At that price floor:
- There is a shortage of 1 banana.
 - There is a shortage of 3 bananas.
 - There is a surplus of 3 bananas.
 - At a price floor of \$8 per banana there is not a surplus nor a shortage of bananas.
24. The government decides to repeal the price floor, so that the price and quantity are now determined by the market outcome. Which of the following statements accurately describes a consequence of the removal of the price floor?
- Total surplus increases by \$6.
 - The producer surplus is smaller in the market equilibrium than it was with the price floor.
 - Consumer surplus increases by \$2.
 - Nothing happens. The equilibrium quantity and equilibrium price stay the same as they were with the price floor.

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Use the following information to answer the **next two (2)** questions.

Suppose that the state government is trying to promote apple production in Eau Claire, Wisconsin. To do this, they implement a “Price Support Program” in which the government sets up a price floor and agrees to buy any surplus generated in the apple market. Assume that there are no storage costs to this program.

The following equations describe demand and supply in this market where P is the price per apple and Q is the quantity of apples:

$$\text{Market demand: } Q_d = 10 - P$$

$$\text{Market supply: } Q_s = P - 2$$

25. If the government has a limited budget of \$54 to spend on this program and is trying to maximize as much as it can the producer’s surplus, which price floor would the government select?
- A price floor set at \$5 will maximize producer's surplus while staying within the budget constraint.
 - A price floor set at \$7 will maximize producer's surplus while staying within the budget constraint.
 - A price floor set at \$9 will maximize producer's surplus while staying within the budget constraint.
 - A price floor set at \$11 will maximize producer's surplus while staying within the budget constraint.
26. Suppose now that the government decides to change its policy and implement a “Price Guarantee Program” (a subsidy program) instead of a “Price Support Program”. If the government implements a price guarantee of \$8, how much money would the government spend on this program?
- \$ 24
 - \$ 30
 - \$ 36
 - \$ 48

Use the following information to answer the **next three (3)** questions.

The state government wants to reduce the consumption of soda in Wisconsin. The following equations describe the market for soda in Wisconsin where P is the price per soda and Q is the quantity of sodas:

$$\text{Market demand: } Q_d = 60 - 3P$$

$$\text{Market supply: } Q_s = 2P$$

To reduce consumption of soda the government imposes an excise tax of \$5 per soda that is levied on the consumers.

27. This tax causes the quantity of soda consumed in equilibrium to decrease by approximately:
- 16.67%
 - 25%
 - 33.33%
 - 66.67%
28. Fill in the following two blanks based on the information you have been given and holding everything else constant. The tax revenue from this excise tax of \$5 per soda is equal to _____. If the government decided to increase the excise tax by an additional \$15 per soda, the tax revenue would _____.
- \$100; increase.
 - \$90; decrease.
 - \$70; increase.
 - \$60; decrease.
29. Suppose now that after establishing the excise tax of \$5 per soda, the government plans to use the tax revenue to reduce the consumption of soda even further. Which combination of the following additional policies would best accomplish the government's goal? Use the following assumptions in doing your analysis: 1) sugar cane is an input in the production of soda; 2) soda and coffee are substitutes in consumption; and 3) you use coffee beans to produce coffee.
- Establish an effective Price Support Program for coffee beans.
 - Establish an effective Price Support Program for sugar cane where the government buys the surplus and then destroys the surplus.
 - Establish an effective Price Guarantee Program for sugar cane.
 - Either (b) or (c) would be policies that would diminish the consumption of soda.

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