**ECON 201: Introduction to Macroeconomics**
**Professor Robert Gordon**
**Midterm Exam 1:**
**October 16, 2017**

**NAME ________________________________**

Circle the **TA session** you attend:
- Bianchi Vimercati - 3PM  
- Bianchi Vimercati - 4PM  
- Montag - 3PM  
- Montag - 4PM  
- Akkoyun - 3PM  
- Kozlov - 3PM

**Directions:** This test is in two parts, a multiple choice question part and a short-answer part. Calculators are permitted. Books, notes, reference materials, etc. are prohibited. Good luck!

**Part 1:** Referring to the following multiple choice questions, choose the one alternative that best completes the statement or answers the question. Each question is worth one point. There is no penalty to guessing, so be sure to answer all of them. Write your answers in the following table using capital letters; circled answers will not be graded.

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1. Which of the following factors would result solely in a movement along the demand curve for a particular good?
   A) a change in the prices of related goods
   B) a change in the price of that good
   C) a change in the size of the population
   D) both a change in the price of that good and a change in the size of the population

2. Because of an increase in the price of wheat, an important ingredient in the production of bread, combined with an increase in the number of people consuming bread:
   A) both the equilibrium price and quantity will increase.
   B) equilibrium quantity will decrease, but equilibrium price may decrease, increase, or stay the same.
   C) both the equilibrium price and quantity will decrease.
   D) equilibrium price will increase, but equilibrium quantity may decrease, increase, or stay the same.

3. Scarcity exists when:
   A) making choices among two or more alternatives is not necessary.
   B) individuals can have more of any good without giving up anything.
   C) individuals can have more of one good but only by giving up something else.
   D) resources are unlimited.

4. An effective minimum wage ultimately means that:
   A) some unskilled workers have a difficult time finding a job.
   B) employers must encourage workers to apply for positions.
   C) employers will have difficulty finding enough workers for their positions.
   D) employees are generally guaranteed employment.

5. ”Adverse selection” in an insurance market occurs
   A) when insurance companies reject high-risk applicants for insurance
   B) when insurance companies reject low-risk applicants for insurance
   C) when insurance companies have better information than applicants
   D) when applicants have better information than insurance companies

6. A scatter diagram shows:
   A) how far apart dependent variables are.
   B) individual points of data showing both variable values.
   C) the slope of a line.
   D) the intercept of a curve.
7. Look at the figure The Demand and Supply of Wheat. If there is a decrease in supply of 2,000 bushels at each price, the equilibrium price and quantity will be _____ and _____ bushels, respectively.
   A) $5; 5,000
   B) $7; 5,000
   C) $6; 4,000
   D) $8; 6,000

8. Look at the figure The Demand and Supply of Wheat. If a price of $10 temporarily exists in this market, a _____ of _____ bushels will result.
   A) shortage; 10,000
   B) shortage; 8,000
   C) surplus; 8,000
   D) surplus; 4,000

9. On a production possibility frontier, opportunity cost is:
   A) the decrease in the output of one good when the output of the other good is increased.
   B) the rate at which people are willing to exchange goods as determined by demand and supply.
   C) the dollar cost of the good given up to get another good.
   D) independent of the slope of the curve.
10. Which degree extracts the largest earnings penalty on women who take 18 months off from work after having a child?  
A) Ph.D.  
B) J.D.  
C) M.D.  
D) MBA

11. The government decides to impose a price ceiling on a good because it thinks the market-determined price is too high. If the government imposes the price ceiling below the equilibrium price:  
A) consumers will respond to the lower price and wish to purchase more of the good than at the equilibrium price.  
B) producers will respond to the lower price and offer more units for sale.  
C) consumers will be able to purchase more of the good after the price ceiling is imposed.  
D) it will not be binding.

12. Which of the following statements is TRUE?  
A) Some very talented people have a comparative advantage in everything they do.  
B) Some very untalented people have a comparative advantage in nothing they do.  
C) Some very talented people have a very low opportunity cost in everything they do.  
D) It is possible to have an absolute disadvantage but a comparative advantage in something.

13. What is the definition of an “externality”?  
A) an effect of a product on those other than buyers and sellers  
B) an external event which shifts the supply curve to the right  
C) an external event which shifts the demand curve to the right  
D) an effect of an external event on both buyers and sellers
14. Look at the figure The Market for Hybrid Cars. What area represents consumer surplus if there is a binding price floor at $P_1$?
A) $a$
B) $a + b$
C) $a + b + c$
D) $a + b + d$

15. If Japan removed subsidies in the market for rice
A) consumer surplus would not change.
B) consumer surplus would decrease.
C) total surplus would decrease.
D) producer surplus would decrease.

16. The provision of disabled-parking passes to those with disabilities often requires that more than enough spaces be available for those with disabilities. As a result, many of these spaces are vacant quite often when they could be used by able-bodied individuals. Such a situation illustrates the:
A) trade-off between efficiency and equity.
B) trade-off between efficiency and specialization.
C) ability of markets to provide efficient and equitable outcomes.
D) power of the market to provide for equilibrium outcomes.

17. Which of the following is a quota?
A) rent controls in New York City
B) property taxes on beachfront property in Florida
C) limits on the number of bushels of clams that can be caught in New Jersey
D) the maximum reimbursement that insurance will pay for a medical procedure

Use the following to answer question 14:

**Figure: The Market for Hybrid Cars**

![Diagram of the Market for Hybrid Cars]

Price

$P_1$

$P_2$

$P_3$

Quantity

$Q_1$

$Q_2$

$Q_3$

0

a

b

c

d

e

f

S

D
Use the following to answer questions 18-19:

**Figure: Demand for DVDs**

18. Look at the figure Demand for DVDs. A decrease in the rental price of DVD would result in a change illustrated by the move from:
   A) $f$ to $g$ in panel A.
   B) $h$ to $i$ in panel B.
   C) $j$ to $k$ in panel C.
   D) $l$ to $m$ in panel D.

19. Look at the figure Demand for DVDs. A decrease in the price of movie tickets (a substitute) would result in a change illustrated by the move from:
   A) $f$ to $g$ in panel A.
   B) $h$ to $i$ in panel B.
   C) $j$ to $k$ in panel C.
   D) $l$ to $m$ in panel D.
20. Which of the following is NOT a consequence of the expansion of Uber in NYC?
   A) a reduction in quota rent.
   B) a leftward shift in the demand curve for taxis
   C) a leftward shift in the supply curve of taxis
   D) a reduction in the value of taxi medallions

21. It is certain that the equilibrium quantity will fall when:
   A) the supply curve and the demand curve both shift to the right.
   B) the supply curve shifts to the right and the demand curve shifts to the left.
   C) the demand curve shifts to the left and demand shifts to the right.
   D) supply shifts to the left and demand stays the same.

22. Taylor sees a bar graph showing the average weight of adult males over the past 200 years and concludes that men get more obese over time. Taylor's conclusion may be wrong, since she did not consider:
   A) the features of construction.
   B) omitted variables.
   C) reverse causality.
   D) tangent lines.

23. Which of the following is NOT a consequence of a drought in Russia?
   A) leftward shift in Russia supply curve of wheat.
   B) rightward shift in US supply curve of wheat.
   C) leftward shift in US supply curve of soybeans
   D) B) and C)

Use the following to answer questions 24-26:

<table>
<thead>
<tr>
<th>Price ($/unit)</th>
<th>Market for a Can of Soda</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Quantity Demanded (cans)</td>
</tr>
<tr>
<td>0.50</td>
<td>10</td>
</tr>
<tr>
<td>0.75</td>
<td>8</td>
</tr>
<tr>
<td>1.00</td>
<td>6</td>
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<tr>
<td>1.25</td>
<td>4</td>
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<tr>
<td>1.50</td>
<td>2</td>
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</table>

24. Look at the table The Market for Soda. If the government does not impose a price control, the price of a can of soda will equal:
   A) $0.50.
   B) $0.75.
   C) $1.00.
   D) $1.25.
25. Look at the table The Market for Soda. If the government imposes a price ceiling of $0.50 per can of soda, there will be:
   A) a shortage of two cans.
   B) a shortage of three cans.
   C) a surplus of three cans.
   D) equilibrium in the market for soda.

26. Look at the table The Market for Soda. If the government imposes a price ceiling of $1 per can of soda, the equilibrium quantity of soda supplied will be:
   A) 7 cans.
   B) 8 cans.
   C) 9 cans.
   D) 10 cans.

27. ______-income people had the greatest income gains during the time period _______.
   A) low; 1946-80
   B) middle; 1946-80.
   C) low; 1980-2014
   D) high; 1946-80.

Use the following to answer question 28:

<table>
<thead>
<tr>
<th>Table: Wheat and Aluminum</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Wheat Production</td>
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<tr>
<td>------------------</td>
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<tr>
<td>U.S.</td>
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<tr>
<td>100</td>
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<tr>
<td>0</td>
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<tr>
<td>Germany</td>
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<tr>
<td>50</td>
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<td>0</td>
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</tbody>
</table>

28. Look at the table Wheat and Aluminum. The United States and Germany can produce both wheat and aluminum. The table shows, in tonnage, the maximum annual output combinations of wheat and aluminum that can be produced. Which of the following choices represents a possible trade based upon specialization and comparative advantage?
   A) Germany would trade 2 tons of wheat to the United States for 1 ton of aluminum.
   B) Germany would trade 2 tons of aluminum to the United States for 0.5 ton of wheat.
   C) The United States would trade 1 ton of wheat to Germany for 1 ton of aluminum.
   D) The United States would trade 1 ton of wheat to Germany for 1.5 tons of aluminum.
29. High-fructose corn syrup, which is derived from corn, is an important ingredient in the production of many soft drinks. If the price of corn increases, one would expect:
   A) the supply curve for soft drinks to shift left.
   B) the quantity supplied of soft drinks to increase.
   C) the demand for soft drinks to increase.
   D) the supply curve for soft drinks to shift right.

30. Based on the calculations of Business Week, what is the largest component of the cost of earning an MBA?:
   A) tuition.
   B) forgone earnings.
   C) room and board.
   D) fees and books.
2: Solve the following problems in the provided space. Show all your work clearly.

Problem 1 (10 points)

Anne and Ben can either make bread or cake during a day. If Ben allocates all his time in making bread he can make 5 loaves of bread, and if he spends all his time in making cakes he can make 12 cakes. If Anne allocates all her time in making bread she can make 15 loaves of bread. Anne cannot make more than 4 cakes because of an equipment shortage, she has only 4 cake molds and each mold produces 1 cake. If she makes 4 cakes, she can also make 9 loaves of bread during a day.

You can assume that the productions possibility frontiers (PPF) are linear.

1. Draw the PPFs of Anne and Ben. Use separate graphs and put bread on the vertical axis and cakes on the horizontal axis. Make sure to label the intercepts clearly. (4 points)

2. The opportunity cost of making bread in terms of cake for Ben is __________, whereas for Anne it is __________. (2 points)

12/5; 2/3

3. Ben has a comparative advantage in __________ and an absolute advantage in __________. (2 points)

cakes; cakes

4. Cindy gives 10 cake molds to Anne as birthday present. Now, what is the opportunity cost of a bread for Anne? (Don’t forget to specify the units!) (1 point)

2/3 cakes

5. If they both specialize according to their comparative advantage, they can make __________ breads and __________ cakes in total. (1 point)

15; 12
Problem 2 (10 points)

Consider the demand and supply for traditional light bulbs. The table represents prices, quantity demanded and quantity supplied in a given week of the year.

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity Demanded</th>
<th>Quantity Supplied</th>
</tr>
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<tbody>
<tr>
<td>4</td>
<td>20</td>
<td>2</td>
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<td>12</td>
<td>16</td>
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<td>32</td>
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1. What is the demand equation? (2 points)

\[ P = 44 - 2Q^d \]

2. What is the supply equation? (2 points)

\[ P = -4 + 4Q^s \]

3. Calculate the equilibrium price and quantity. (3 points)

\[ P = 28; Q = 8 \]

4. Neon light is invented, and neon light bulbs partially substitute for traditional light bulbs. People now substitute 6 traditional light bulb each week with neon light bulbs. What happens to price and quantity of traditional light bulbs in equilibrium in a given week? (3 points)

\[ P = 20; Q = 6 \]
Problem 3 (10 points)

Consider the market for incandescent light bulbs. Demand and supply are given by the following equations:

\[
Q^s = -20 + 5P \\
Q^d = X - 4P
\]

where \(X\) is some unknown number.

1. Suppose the equilibrium price is \(P = 20\) cents per bulb. Find the equilibrium quantity and the value of \(X\). (2 points)

\[P = 20, \text{ so } Q^* = Q_s = -20 + 5*20 = 80. \text{ Therefore } 80 = X - 4*20, X = 160.\]

2. Calculate the consumer surplus, and producer surplus. (2 points)
\[CS = 0.5*20*80 = 800, \quad PS = 0.5*16*80 = 640.\]

3. The government introduces a tax on producers of \(t = 18\) cents per each bulb sold to stimulate switching to fluorescent bulbs. Draw a diagram showing producer surplus (PS), consumer surplus (CS), equilibrium quantity, tax revenue and deadweight loss after the tax is introduced (6 points)
Answer Key

1. B
2. D
3. C
4. A
5. D
6. B
7. B
8. C
9. A
10. D
11. A
12. D
13. A
14. A
15. D
16. A
17. C
18. C
19. A
20. C
21. D
22. B
23. B
24. B
25. B
26. B
27. A
28. D
29. A
30. B