ECONOMICS 101  
COLUMBIA COLLEGE  
QUIZ #1A  
Paul Geddes  
NAME:  
1 June 2016

TOTAL 50 Points. You have 55 minutes. Please place answers on test in space provided but you MUST show work either in the space below or on the attached sheets for credit. Please SHOW WORK CLEARLY.

A. Short Answer (5 pts) (You may want to use a D & S diagram to answer this question). Can there be a surplus of food in a society where people are hungry? Explain why or why not. (Textbook Q#3) (HINT: Can you show this in a diagram?)

B. Demand and Supply (24 pts)

<table>
<thead>
<tr>
<th>PRICE</th>
<th>QUANTITY DEMANDED</th>
<th>QUANTITY SUPPLIED</th>
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<tbody>
<tr>
<td>6</td>
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<td>64</td>
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\[ Q_d = 85 - 5P \]

\[ Q_s = 4 + 4P \]

\[ P = \frac{85}{9} \]

\[ Q_d = 50 - 40 \]

\[ Q_s = 160 \]

\[ S = 520 \cdot 162 = 3 \text{ 5 8} \]

\[ 160 \cdot 198 = 3 \text{ 5 8} \]

\[ \Delta \text{consumer surplus} = 162 \]

\[ \Delta \text{producer surplus} = 198 \]

\[ \text{Total gains from trade} = 3 \text{58} \]

\[ \frac{\text{ price } - \text{ cost}}{} \]

\[ 0 \text{ in } 20, 65 = 20 \]

\[ \frac{19}{2} \]

\[ \text{What is the quantity traded?} \]

\[ \frac{19}{2} \]

\[ \text{What is the consumer surplus when this law is passed?} \]

\[ -160 \]

\[ 0 = \text{160} \]

\[ 0 = \text{160} \]

\[ -90 \]

\[ \text{What is the deadweight cost caused by this price ceiling?} \]

\[ \text{Demand/Supply changes (6 pts) Draw a rough diagram showing equilibrium. Then in your diagram show how demand and supply will change because of the following event. Finally, complete a table showing whether D, S, P_1 and S increases, remains the same or decreases.} \]

\[ \text{EVENT: In our town there are only two jobs: Workers can pick peaches or work in the shoe factory. What happens in the market for our town's shoes if there is a large increase in the demand for our town's peaches?} \]

\[ \text{More peaches are demanded, Peach farmers want more workers and are willing to pay higher wages. If the shoe factories want to keep these workers they have to raise wages too. The cost of producing shoes will rise.} \]
A. Short Answer (5 pts) (You may want to use a D & S diagram to answer this question).
Can there be a surplus of food in a society where people are hungry? Explain why or why not. (Textbook Q#3)
Can you show this in a diagram? YES, A surplus occurs when price is kept above equilibrium.
This can happen with a price floor. More would offer, but if the price becomes serial.

B. Demand and Supply (24 pts)

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<tr>
<th>PRICE</th>
<th>6</th>
<th>2</th>
<th>8</th>
<th>2</th>
<th>10</th>
<th>2</th>
<th>12</th>
<th>4</th>
<th>etc.,</th>
<th>ΔD = 2</th>
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<tr>
<td>QUANTITY DEMANDED</td>
<td>52</td>
<td>5</td>
<td>44</td>
<td>5</td>
<td>36</td>
<td>5</td>
<td>28</td>
<td>4</td>
<td>20</td>
<td>etc.,</td>
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<tr>
<td>QUANTITY SUPPLIED</td>
<td>25</td>
<td>10</td>
<td>35</td>
<td>10</td>
<td>45</td>
<td>10</td>
<td>55</td>
<td>10</td>
<td>65</td>
<td>etc.,</td>
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1. \[ Q_d = 76 - 4P \]
Find the equation for demand \( Q_d = f(P) \).
2. \[ Q_s = -5 + 5P \]
Find the equation for supply \( Q_s = f(P) \).
3. \( P_e = \frac{51}{9} = 9 \) \( Q_d = Q_s = 40 \)
Find equilibrium P and Q.
4. \[ \text{Area} = \frac{(20 + 10)(40 - 20)}{2} = 200 \]
Find the area of "value" to consumers at equilibrium.
5. \[ \text{Consumer surplus} = \frac{(20 + 10)(40 - 20)}{2} = 200 \]
Find the consumer surplus at equilibrium.
6. \[ 160 = \frac{(14 + 4)(40 - 20)}{2} = 200 \]
Find the cost of producing at equilibrium.
7. \[ S = \frac{(8)(40)}{2} = 160 \]
Find the producer surplus at equilibrium.
8. \[ 200 + 160 = 360 \]
\[ 560 - 200 = 360 \]
Find the total gains from trade at equilibrium.

C. Ceiling/Floors (15 pts) Same Demand and Supply as B above, but now the government passes a law to keep the price below \$5.

1. \[ \min \left[ \frac{20}{5}, 56 \right] = 20 \]
What is the quantity traded?
2. \[ \text{Consumer surplus} = \frac{(20 + 10)(20 - 20)}{2} = 230 \]
What is the consumer surplus when this law is passed?
3. \[ 230 - 200 = 30 \]
What is the change in consumer surplus caused by this price ceiling?
4. Roughly draw the shape of this change in consumer surplus and show it in a D/S diagram. \( \frac{20}{A} \) \[ \frac{5}{20} \] \[ 8 \]

5. \[ Q = -90 \]
What is the deadweight cost caused by this price ceiling?

D. Demand/Supply changes (6 pts) Draw a rough diagram showing equilibrium. Then in your diagram show how demand and supply will change because of the following event. Finally, complete a table showing whether D, S, Q_e increases, remains the same or decreases.

EVENT: In our town there are only two jobs: Workers can pick peaches or work in the shoe factory. What happens to the market for our town's shoes if there is a large decrease in the demand for our town's peaches?

\[ \text{The cost of making shoes will fall.} \]
ECONOMICS 101  
COLUMBIA COLLEGE  
QUIZ #2 A  
Paul Geddes  
NAME:  ANSWERS  
18 June 2016

You MUST SHOW YOUR WORK clearly either in the margins or on an attached sheet of paper for complete credit.

A. Market Power (40 pts)  The market for widgets is:  
P: 24 48 72 96 120 etc., \( \frac{\Delta Qd}{\Delta P} = \frac{-3}{24} = \frac{-1}{8} \)  
Qd: 24 48 72 96 120 etc.,  
Qs: 1+6 7+6 13 19 25 etc., \( \frac{\Delta Qs}{\Delta P} = \frac{+6}{24} = \frac{1}{4} \)

1. \( Qd = 25 - \frac{1}{8}P \)  
What is the equation for the demand curve (Qd=f(P))?  

2. \( Qs = -5 + \frac{1}{8}P \)  
What is the equation for the supply curve (Qs=f(P))?  

3. \( P = 80 \)  
\( \frac{Qd - 15.6}{15} = 1350 \)  
What is equilibrium P and Q?  

4. \( \frac{12}{Qs} = \frac{10(25)}{2} = 375 \)  
What are the total gains from trade at equilibrium?  

5. \( MR = 200 - 16Q \)  
What is the equation for the marginal revenue curve (MR=f(Q))?  

6. \( MC = 20 + 4Q \)  
What is the equation for the marginal cost curve (MC=f(Q))?  

7. \( Q = \frac{180}{20} = 9 \)  
What is the Q that maximizes producer surplus?  

8. \( P = 128 \)  
What is the P which maximizes producer surplus?  

Draw a rough diagram, clearly showing equilibrium (#3) and the P & Q for the monopoly (#7 & #8).

What is the change in consumer surplus caused by the monopoly?  
\( \frac{128}{9} - \frac{48}{9} = \frac{18 \cdot 15}{9} = 30 \)  

What is the producer surplus for the monopoly?  
\( \frac{128}{9} - \frac{128}{9} = \frac{124 \cdot 72}{9} = 900 \)  

What is the change in producer surplus caused by the monopoly/price searching?  
\( \frac{128}{9} - \frac{128}{9} = \frac{124 \cdot 72}{9} = 900 \)  

What is the dead weight loss caused by price searching?  

Short Answers (10 pts)  From class and the textbook.  

The European Parliament has decided that Google has too much market power. They have passed a resolution calling for the "unbundling" of search engines from other services provided by the same company. They do not think that a company which earns income from advertising (i.e., sells the information from your private searches to advertisers) should at the same time use your private search information to sell stuff from Google's own shopping services. Does Google have too much market power?  How can we tell?

Two Theories → One (Static) measure market power by concentration ratio  
Google has \( \geq 65\% \) of search.  Bing \( \approx 20\% \)  Yahoo \( \approx 13\% \)

Two (Dynamic) → are companies competing (truly only over customers)  

Yes!  

If google has more power can they keep customers?  Advertise else?
You MUST SHOW YOUR WORK clearly either in the margins or on an attached sheet of paper for complete credit.

A. Market Power (40 pts)

The market for widgets is: P: 48 24 72 24 96 120 24 etc., \( \frac{dP}{dQ} = -6 \)
Qd: 58 6 52 6 46 6 40 34 etc., \( \frac{dQd}{dP} = 24 \)
Qs: 1 3 4 3 7 3 10 13 etc., \( \frac{dQs}{dP} = 3 \)

1. \( Qd = 70 - \frac{1}{4}P \) What is the equation for the demand curve (Qd = f(P))?

2. \( Qs = -5 + \frac{1}{8}P \) What is the equation for the supply curve (Qs = f(P))? \( Qs = \frac{75}{P} P = \frac{75}{Qs} = 200 \) What is equilibrium P and Q?

3. \( P=200 \quad Qd=20 \quad 6^2=20 \) What are the total gains from trade at equilibrium? \( P = 250 - 4Q \)

4. \( 2400 \frac{Qd}{2} = 2400 \) What are the marginal revenue curve (MR = f(Q))?

5. \( MR = 280 - 8Q \) What is the equation for the marginal revenue curve (MR = f(Q))?

6. \( MC = 40 + 8Q \) What is the equation for the marginal cost curve (MR = f(Q))?

7. \( Q = 15 \) What is the Q that maximizes producer surplus?

8. \( P = 220 \) What is the P which maximizes producer surplus?

9. Draw a rough diagram, clearly showing equilibrium (#3) and the P & Q for the monopoly in (#3) and the P & Q for the monopoly in (#8).

10. \( 20 \bigg\lfloor \frac{15}{24} \bigg\rfloor = -20 \left( \frac{15}{24} \right) = -350 \) What is the change in consumer surplus caused by the monopoly?

11. \( 20 \bigg\lfloor \frac{15}{40} \bigg\rfloor = \frac{180}{2} \bigg\rfloor = 150 \) What is the producer surplus for the monopoly?

12. \( 20 \bigg\lfloor \frac{15}{40} \bigg\rfloor = 300 - 100 = +200 \) What is the change in producer surplus caused by the monopoly/price searching?

13. \( 60 \bigg\lfloor \frac{15}{40} \bigg\rfloor = -150 \) What is the dead weight loss caused by price searching?

B. Short Answers (10 pts)

1. The European Parliament has decided that Google has too much market power. They have passed a resolution calling for the "unbundling" of search engines from other services provided by the same company. They do not think that a company which earns income from advertising (i.e. sells the information from your private searches to advertisers) should at the same time, use your private search information to sell stuff from Google's own shopping services. Does Google too much market power? How can we tell?
QUIZ #3A
Paul Geddes

MUST show work clearly. (No "dream" answers)

Choose C, I, G, X, M or N (for none of the above) to show how the following transactions will be recorded in GDP. Some transactions may require more than one answer.

1. -M You buy a new van that was made in Japan (to carry your children to school).
2. -M A restaurant buys a new van that was made in Japan (to pick up ingredients from farmers).
4. N The BC government gives a Christmas bonus ($300) to all people on welfare.

9 pts) Our economy produces only three final goods. Use 2014 as the base year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Good A</th>
<th>Good B</th>
<th>Good C</th>
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<tbody>
<tr>
<td>2011</td>
<td>8 5</td>
<td>2 10</td>
<td>2 7</td>
</tr>
<tr>
<td>2013</td>
<td>9 7</td>
<td>4 8</td>
<td>3 6</td>
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<tr>
<td>2014</td>
<td>5 8</td>
<td>5 9</td>
<td>2 3</td>
</tr>
<tr>
<td>2015</td>
<td>6 6</td>
<td>3 8</td>
<td>4 6</td>
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A. Calculate the nominal GDP and the nominal growth rate for each of the above four years.
B. Calculate the real GDP and the real growth rate for each of the above four years.
C. Calculate the GDP deflator and the inflation rate for each of the above four years.
D. Calculate the CPI and the inflation rate for each of the above four years.
E. Which year had the highest increase in the standard of living? What number did you use to determine this? 2014
F. Which year had the highest price level? What number did you use to determine this? 2013

8 pts) Suppose the GDP in current dollars went from $436.6 bn to $471.5 bn while the GDP in constant 2007 dollars increased by 2.5%. What was the EXACT inflation rate? 1.054

8 pts) Suppose the unemployment rate is 9.5%, the participation rate is 70.8%, there are 41.6 million employed and the population is 75.4 million.

- How many people are in the labour force of this country? 52.9
- How many people are not able to work? 15.4

13. Interest rates and Present Value

If the interest rate is 10% should you pay A. ($1000 today) for a TV or B. ($1500 in four years? B is better (A or B)? By how much?

What is the present value of a three year, $1 million bond which promises to pay 10% annual interest at 6.24%? 1.136, 162.40

Government Deficits/Debt In 2015, tax revenue is $120, Non-interest spending is $90 and the current interest rate is 3%. At the beginning of 2015, government debt is $600.

What will the debt be at the end of 2015? 120 - (90 + 72) = -42

If tax revenue increases by 10% and non-interest spending rises by 15%, what will the deficit be in the next year? 132 - (103.5 + 77.04) = -48.54
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<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>R</th>
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<td>89</td>
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<td>2013</td>
<td>113</td>
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<tr>
<td>2015</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>%ΔN</th>
<th>%ΔR</th>
<th>Poly</th>
<th>%ΔP</th>
<th>CPI</th>
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<tbody>
<tr>
<td>2012</td>
<td>XXX</td>
<td>XXX</td>
<td>83.1</td>
<td>XXX</td>
<td>96.7</td>
</tr>
<tr>
<td>2013</td>
<td>52.7%</td>
<td>-2.2%</td>
<td>130.0</td>
<td>56.4%</td>
<td>128.6</td>
</tr>
<tr>
<td>2014</td>
<td>-19.5%</td>
<td>4.6%</td>
<td>100.0</td>
<td>-23.1%</td>
<td>100</td>
</tr>
<tr>
<td>2015</td>
<td>-7.7%</td>
<td>-9.9%</td>
<td>102.4</td>
<td>2.4%</td>
<td>95.6</td>
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4 pts) 2350. In our country, consumers have deposits in near banks (credit unions, etc.) of $600. They have credit card balances outstanding of $1000. Consumers have $500 in their chequing accounts and $1300 in their savings accounts. They also have $300 of cash in their pockets and at home as well as $50 worth of gold. Businesses have 50 of cash in their cash registers, checking accounts of $800 and savings accounts of $900. Banks have $150 of cash.

How much M1 is in this economy?

5 pts) Comparative Advantage

Island A, workers can make up to 60 TVs and up to 300 chairs. (Assume constant opportunity costs). On island B, workers can make up to 30 TVs and up to 15 chairs. Assume people like to have equal numbers of chairs and TVs.

\[ 50 = TV = C \]

Before trade, how many TVs and chairs are produced on island A?

\[ 10 = TV = C \]

Before trade, how many TVs and chairs are produced on island B?

Which island has the "comparative advantage" at making TVs? Explain.

Draw a world production possibility curve (TVs on the Y-axis)

If people on the two islands are going to trade with each other, how many TVs and chairs will be produced on island A?

On island B?

After trade, how many TVs and chairs will be consumed on island A?

After trade, how many TVs and chairs will be consumed on island B?

Which island gained the most from trade? Island A or Island B?

What do trade and tariffs do? Use the diagram at the right to evaluate the effect of a tariff on this product.

What area shows the GAIN in

What is the international market for Canadian dollars be: Qd=800-200e, Qs=600+300e (e is US $ per Can $)

What is equilibrium e.

(Increase/decrease) What happens to e if US companies expand their businesses by borrowing Canadian banks?

(Buy/sell) The government thinks that our currency should be at e=0.75. Will the central bank sell or buy reserves to get to this new exchange rate?

How many dollars' worth of foreign reserves will the central bank buy or sell to get to this new exchange rate?
1. (4 pts) 22,500 In our country, consumers have deposits in near banks (credit unions, etc.) of $550, They have credit card balances outstanding of $1050. Consumers have $450 in their chequing accounts and $1350 in their savings accounts. They also have $250 of cash in their pockets and at home as well as $100 worth of gold. Businesses have $700 of cash in their cash registers, chequing accounts of $850 and savings accounts of $650. Banks have $200 of cash. Consumers own $300 worth of shares (stocks) in companies and $600 worth of bonds. How much M1 is in this economy?

\[
M1 = \text{Cash outside banks + DP} = \frac{22,500}{12,000} = 2250
\]

2. (30 pts) Comparative Advantage

On island A, workers can make up to 40 TVs and up to 120 chairs. (Assume constant opportunity costs). On island B, workers can make up to 20 TVs and up to 5 chairs. Assume people like to have equal numbers of chairs and TVs;

3. a. \[30 = TV = C\] Before trade, how many TVs and chairs are produced on island A?

3. b. \[45 = TV = C\] Before trade, how many TVs and chairs are produced on island B?

3. c. \[S = \text{In } A\] Every TV costs 3 chairs.

4. Which island has the “comparative advantage” at making TVs? Explain.

5. a. \[TV = 60 - \frac{1}{5} C\] Product

5. b. \[TV = 60\]

5. c. \[TV = \frac{1}{5} (60) = 45\]

5. d. \[S = \text{In } A\]

5. e. \[\frac{45}{C} = \frac{25}{TV}\] If people on the two islands are going to trade with each other, how many TVs and chairs will be produced on island A?

5. f. \[0 = C = 20 = TV\] On island B?

5. g. \[35 = C = TV\] After trade, how many TVs and chairs will be consumed on island A?

5. h. \[0 = C = TV\] After trade, how many TVs and chairs will be consumed on island B?

2. B gained 150% Which island gained the most from trade?

3. (4 pts) What do trade and tariffs do? Use the diagram at the right to evaluate the effect of a tariff on this product.

4. What area shows the LOSS in consumer surplus when we bring in a tax (on imports)

6. (12 pts) Let the international market for Canadian dollars be: Qd=1800-300e, Qs=300+200e (e is US $ per Can $)

3. a. \[e = \#3\] What is equilibrium e.

3. b. increase (Increase/decrease) What happens to e if Canadian companies expand their businesses by borrowing loans from US banks?

3. c. Buy (Buy/sell) The government thinks that our currency should be at e=2.00. Will the central bank buy or sell foreign reserves to get to this new exchange rate?

3. d. 500 worth How many dollars’ worth of foreign reserves will the central bank buy or sell to reach this new exchange rate?