**Econ 101 – Summer 2010 Exam 1 – Professor Kelly**

**Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Section Day and Time:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

There are 2 short answer questions and 15 multiple choice.

Question 1 – 20 points Your Score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Question 2 – 20 points Your Score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Multiple Choice – 60 points Your Score: .

Total: 100 points Your Total: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

No calculators are allowed for the exam. Cell phones should be silenced and in your backpacks, away from your seat.

You will have 75 minutes to work. Good luck.

**I, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, agree to neither give nor receive any help on this exam from other students. Furthermore, I understand that use of a calculator is an academic misconduct violation on this exam.**

 **Signed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Question 1 – World Trade (20 Points)**

The small economy of Oompa-Loompa Land is characterized by the following equations which describe the supply and demand of chocolate. Assume that Oompa-Loompa land is initially a closed economy, undiscovered by the rest of the world.

$$Demand:P=80- \frac{1}{2}Q$$

$$Supply:P=20+Q$$

1. **(1 point)** Determine equilibrium price for this closed economy.

**P\*=60**

1. **(1 point)** Determine equilibrium quantity for this closed economy.

 **Q=40**

Now assume that Willy Wonka has discovered Oompa-Loompa Land and opened it up for world trade. The world price for chocolate is currently $30 per unit.

1. **(3 points)** How many units of chocolate will the Oompa-Loompas import?

 **Imports = 90**

Under pressure by the domestic producers, the King of Oompa-Loompa Land restricts imports with a quota of 30 units, but continues to keep Oompa-Loompa Land open for world trade.

1. **(2 points)** Determine the new equilibrium price for chocolate in Oompa Loompa land.

 **P\*=50**

1. **(2 points)** Determine the value of license holder revenue after this quota is implemented.

 **$600**

1. **(2 points)** Determine the value of consumer surplus after this quota is implemented.

 **$900**

1. **(2 points)** Determine the value of producer surplus after this quota is implemented.

 **$450**

1. **(2 points)** Determine the value of the deadweight loss generated by the Quota.

 **$600**

1. **(5 points)** In general, after an economy opens up for world trade, our models demonstrate that total surplus increases. As a result, many economists emphatically endorse free trade. However, many politicians talk about how Americans are losing jobs to cheaper labor in the international marketplace once we open for trade. As a result, many politicians emphatically oppose free trade and campaign against it. How can you reconcile these two viewpoints? Are the economists right or are the politicians right or do both arguments have some merit? Explain carefully.

 **-Brief answer about benefiting consumer (CS goes up), but hurting producer (PS goes down). Winners and losers from trade. A net gain for society since total surplus increases.**

**Question 2 – Perfect Competition (20 points)**

The market for plastic chairs for viewing the Rhythm and Booms Fireworks in Madison is described by perfect competition. Assume that all plastic chairs are equally good, and that many firms are providing identical plastic chairs.

The market demand for plastic chairs for viewing Rhythm and Booms is characterized by the following equation.

$$P=130-Q$$

The market supply for plastic chairs for viewing Rhythm and Booms is characterized by the following equation.

$$P=2+Q$$

1. **(1 point)** Determine the equilibrium quantity of chairs.

**Q=64**

1. **(1 point)** Determine the equilibrium price for a chair.

 **P=$66**

Each firm faces the following cost functions:

$$TC=4q^{2}+2q+64$$

$$MC=8q+2$$

1. **(2 points)** At the current equilibrium price, calculate a representative firm’s profit (which may be negative).

 **$192. The firm will produce where MR = MC or 66 = 8q + 2 and q = 8. TR will equal 8\*66 = 528. TC = 4\*8\*8 + 2\*8 + 64 = 336. Profit is equal to TR – TC = 192.**

1. **(2 points)** At the current equilibrium price, what is the quantity of chairs provided by a representative firm?

 **8**

1. **(2 points)** How many firms are in the market in the short run?

**8**

1. **(2 points)** What is the long-run profit-maximizing level of output for a representative firm?

**4**

1. **(2 points)** What is the long-run equilibrium price in the market?

 **$34**

1. **(2 points)** What are the long-run profits for the firm?

 **$0**

1. **(3 points)** In our models of perfect competition, economic profits are zero in the long run. As an owner of a firm, would you be willing to accept zero economic profits? How do economic profits differ from accounting profits? If you owned a perfectly competitive firm and were earning zero economic profits, would you be able to eat, pay rent, and otherwise survive? Explain carefully.

 **-Brief answer about difference between accounting profit and economic profit. Economic profit of zero has still paid everyone at the firm their opportunity cost. Economic profit of zero, workers and owners of firm still are compensated, there are just no additional profits above the individual's opportunity cost.**

1. **(3 points)** Describe which assumptions about perfect competition enable profits to be zero in the long run.

 **-Brief answer talking about free entry/exit of firms, no barriers to entry, homogenous product, small identical firms without market power. Firms enter as long as there is a positive profit opportunity, and firms enter (and the market price decreases) until all profit opportunities disappear**

**Multiple Choice (Circle your answer). Each question is worth 4 points.**

1. If demand for bicycles is given by P = 60 – 2Q, what is the price elasticity of demand at P=40?
	1. ½
	2. 1
	3. **2**
	4. 4
	5. None of the above
2. Suppose you are working as an economist for a barbershop and you know the following information. In 2008, the price of a men’s haircut was $20 and total revenue was $128,480. In 2009, the price of a men’s haircut was reduced to $15 and total revenue was $103,240. Based on what you’ve learned about elasticity, what would you suggest the barbershop do?
	1. Shut down in 2010 (in the short run)
	2. **Raise Prices for 2010**
	3. Lower Prices for 2010
	4. Leave the industry entirely
	5. Become a salon instead
3. If the income elasticity of demand for Fresca is ½, then we know that Fresca is
	1. A substitute good
	2. A complementary good
	3. An inferior good
	4. **A normal good**
	5. Elastic
4. The supply of coffee is characterized by P = 100 + 2Q. Determine the price elasticity of supply between Q = 40 and Q = 100.
	1. 3/28
	2. 7/12
	3. **12/7**
	4. 2
	5. None of the above

Use the following table for the next question

|  |  |  |
| --- | --- | --- |
| Quantity of Milk | Quantity of Cookies | Price of Cookies |
| 100 | 100 | 2 |
| 80 | 75 | 4 |

1. Using the arc-elasticity formula, find the price elasticity of demand for cookies.
	1. 1/3
	2. -1/3
	3. **3/7**
	4. -3/7
	5. None of the above
2. Jon Stewart’s nominal annual salary was $1.5 million in 2002. Suppose the CPI index for 2009 is 120, using 2002 as a base year. Assume the CPI index is measured on a 100 point scale. What is the minimum nominal salary he must receive in 2009 in order for him to maintain the same real salary/purchasing power he had in 2002?
	1. $1 million
	2. $1.25 million
	3. **$1.8 million**
	4. $3 million
	5. None of the above

Use the following table about the economy of Cake-Land for the next **TWO** questions.

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Price of Vanilla | Price of Sugar | Price of Flour |
| 2008 | $20 | $3 | $1 |
| 2009 | $24 | $3 | $1.50 |

The market basket of goods for Cake-Land is 2 units of Vanilla, 2 units of sugar and 4 units of flour.

1. Using 2008 as the base year, what is the CPI for 2009? Assume the CPI is measured on a 100 point scale.
	1. 50
	2. 60
	3. 100
	4. **120**
	5. None of the above
2. Using 2009 as the base year, what is the CPI for 2008?
	1. 50
	2. 60
	3. 100
	4. 120
	5. **None of the above**
3. Based on **discussion session**, which of the following is **not** a source of bias for the CPI?
	1. Technology Bias
	2. New Product Bias
	3. Substitution Bias
	4. Retail Bias
	5. **All of the above are sources of bias.**
4. Your friend is trying to optimize their consumption of Icee drinks and Krispy Kreme Donuts at a convenience store. The price of Icee drinks is $1, and the price of a Krispy Kreme donut is currently $2. They are currently consuming 3 Icee drinks and 4 Krispy Kreme donuts. The marginal utility for the last Icee drink was 4, and the marginal utility for the last Krispy Kreme donut was 6. What would you recommend your friend to do?
	1. Consume more Krispy Kremes and fewer Icees
	2. **Consume fewer Krispy Kremes and more Icees**
	3. Nothing, they are optimally choosing consumption
	4. It depends on whether Krispy Kremes are a normal or inferior good.
	5. None of the above.
5. Suppose utility is $U\left(X,Y\right)=X^{1/2}Y^{1/2}$ where the $MRS=\frac{Y}{X}$. If Px = 15, and Py = 30, and Income = 900, what is the optimal consumption bundle?
	1. X=30, Y=30
	2. X=40, Y=10
	3. X=20, Y=20
	4. **X=30, Y=15**
	5. None of the above
6. Dr. Dre enjoys drinking rum and coke. He always consumes the two goods together, in a one to one ratio, and the two are perfect complements. If the price of rum is $8 a bottle, and the price of coke is $2 a bottle, and Dr. Dre’s has $100 to spend, what is his optimal consumption bundle?
	1. 80 rum and 20 coke
	2. **10 rum and 10 coke**
	3. 5 rum and 5 coke
	4. Any amount of rum and coke that puts Dr. Dre on his budget constraint is optimal.
	5. Since he is a Dr., he shouldn’t be drinking rum and coke.
7. Chef Gordon Ramsay enjoys desserts. His utility function for eating chocolate cake (C) and strawberry shortcake (S) is: U = 4C + 3S. Gordon has $80 to spend. The price of chocolate cake is $4, and the price of strawberry shortcake is $5. How many units of chocolate cake and strawberry shortcake should Gordon consume?
	1. **He should buy 20 pieces of chocolate cake.**
	2. He should buy 16 pieces of strawberry shortcake.
	3. It doesn’t matter what he buys as long as he spends all of his income.
	4. He should buy 10 pieces of chocolate cake and 8 pieces of strawberry shortcake.
	5. He should buy 15 pieces of chocolate cake and 10 pieces of strawberry shortcake.
8. In class, you learned that perfect competition in the long run is
	1. Allocatively efficient.
	2. Productively efficient.
	3. Not total surplus maximizing.
	4. **Answers A and B are both correct**
	5. Answers B and C are both correct
9. Use the following graph to answer this question. Initially, a consumer is choosing their optimal consumption at point A. After the price of X decreases, they consume at point B. What describes the substitution effect?
	1. Moving from A to B
	2. **Moving from A to C**
	3. Moving from C to B
	4. Moving from B to D
	5. Moving from A to D

D

C

Y

X

A

B