

**AEC 305 (Fall 2007)**  
**Exam I (25%)**

Name \_\_\_\_\_

1. An economist can analyze agricultural markets by using the behavioral, institutional, and functional approaches. Define each approach. How would the term consumer sovereignty apply to the behavioral approach? **(5 points)**
2. Which one of the following statements is **FALSE**? Circle the statement that is false, no need to correct if false. **(4 points)**
- a. The farm share of the consumer food dollar has declined over time in response to additional marketing services demanded by consumers.
  - b. Higher farm commodity prices represent a major factor increasing the marketing bill.
  - c. A decline in the farm share of the consumer retail food dollar does not necessarily indicate that farm prices or profitability has declined
  - d. The farmer's share of food items consumed at home is typically higher than the farmer's share of food items consumed away from home.
3. Answer the following:
- a. Distinguish between the marketing bill, farm to retail price spread, and the market basket. **(6 points)**
  - b. Consumer food expenditures are more than \$600 million higher today than they were in the 1970s. Identify three economic reasons why this has occurred. **(6 points)**
  - c. Look at the table below. Interpret the June 2007 index value for the retail cost and the farm value relative to the base period. **(4 points)**.

**Farm-Retail Price Spreads**

	Annual			June 2007
	2004	2005	2006	
<b>Market basket</b>				
Retail cost (1982-84=100)	194.4	198.2	201.9	210.4
Farm value (1982-84=100)	124.4	122.3	120.0	139.4
Farm value-retail cost (%)	22.4	21.6	20.8	23.2
<b>Source: ERS/USDA</b>				

d. According to the table in 3c above, did the **June 2007 farm value to retail cost price spread** of the market basket increase or decrease compared to their **annual values for 2006**? How can you tell (no calculations needed to answer this one)? (4 points)

4. Identify three economic uses for the Consumer Price Index (CPI). (6 points)

5. Look at the table below that presents the Consumer Price Index (CPI) values for all consumer items and for various foods.

a. Assume one's personal income has increased from an average of \$20,000 during 1982-1984 base period to \$39,000 in 2007. Has nominal income increased since the 1982-1984 period? What about real income during the same time frame if you use the CPI for all items? Justify your answer. What does that tell you about the individual's purchasing power today vs the 1982 – 1984 base period? (6 points)

**Consumer Price Indexes for All Urban Consumers, U.S.  
Average (not seasonally adjusted)**

	Annual			July 2007
	2004	2005	2006	
	<i>1982-84=100</i>			
Consumer Price Index, all items	188.9	195.3	201.6	208.3
CPI, all items less food	189.4	196.0	202.7	209.2
All food	186.2	190.7	195.2	203.1
Food away from home	187.5	193.4	199.4	206.9
Food at home	186.2	189.8	193.1	201.4
Meats	183.2	187.5	188.8	196.2
Beef and veal	195.3	200.4	202.1	211.7
Pork	174.2	177.7	177.3	185.0
Poultry	181.7	185.3	182.0	194.9
Fish and seafood	194.3	200.1	209.5	219.3
Eggs	167.0	144.1	151.2	188.1
Dairy and related products	180.2	182.4	181.4	197.9
Fats and oils	167.8	167.7	168.0	173.7
Fresh fruits	286.8	297.4	315.2	316.8
Fresh vegetables	261.2	271.7	284.3	280.1
Source: ERS/USDA				

b. Based on the index values above, have the price of eggs increased more or less than fresh fruits from their **2006 annual values** compared to **July 2007**? How can you tell? (4 points)

c. If the price of eggs were sold on average for \$1.00 per dozen in 2006, provide a mathematical expression to show how one would use this table to derive the July 2007 price for eggs. **(4 points)**

d. If the CPI indicated that *food consumed away from home* increased by 4% in August 2007, provide a mathematical expression to show how one would use this table to derive the August 2007 index value for *food away from home*. **(4 points)**

6. Assume you were asked to develop an index that would portray the changes in food costs for college students. Describe three decisions that you would have to make in developing such an index. Other than using different consumers, how would this index be different from the one for *food for all consumers* listed in the CPI table in #7 above? **(4 points)**

7. Assume the average price of french fries is \$1.00 per order and sales are 50 million orders annually. You estimate the elasticity of demand for french fries to be -0.2.

a. Briefly define in words (i.e., not an equation) the term own-price elasticity of demand. **(4 points)**

b. Assume the government imposes a 5% “health” tax on the price of french fries and that the entire tax is passed on directly to consumers. What percentage change in quantity demanded do you expect will occur given the above assumptions, holding all other factors constant? **(4 points)**

c. If one year later the government decided to increase the tax from 5% to 10%, would you expect the government’s total tax revenue to increase or decrease from its initial tax (assuming the elasticity of demand remains at -0.2). Why? **(4 points)**

8. Fill in the blanks given the selected choices. **(6 points)**

If a food product has few substitutes, then there is likely to be a relatively \_\_\_\_\_ **(large or small?)** quantity response for any given price change (holding all other factors constant), and therefore the \_\_\_\_\_ **(greater or smaller?)** the elasticity of demand (in absolute value) and thus is demand more \_\_\_\_\_ **(elastic or inelastic?)**

Identify two other factors (besides the number of substitutes) that affect the elasticity of demand.  
\_\_\_\_\_ and \_\_\_\_\_.

The price flexibility coefficient for a commodity with few substitutes would likely be \_\_\_\_\_  
(**greater or smaller?**) than one (1) in absolute value?

9. You are asked to conduct a demand analysis to assist organic vegetable farmers in deciding on planting, marketing and pricing decisions. Provide a summary of how you might go about conducting such an analysis to assist producers in making optimal decisions drawing upon some of the concepts we have studied this semester in Chapter's 1-4. (7 points)

10. Answer any 6 of the following 8 True/False questions. Circle if the statement is either *True or False*:  
If False, correct the statement to make it true. (3 points each)

**True or False:** If the price of milk increases by 5%, while the CPI during the same period goes from a value of 200 to 210, the real price of milk has declined.

**True or False:** A Laspeyres price index can be solved by summing the product of all the price relatives for the commodities in the index times their respective weights, which are determined by the base quantities.

**True or False:** The elasticity of demand tends to be greater in absolute value at higher prices along a linear demand curve than for lower prices.

**True or False:** An increase in the price of beef will shift the demand curve for beef to the left

**True or False:** If the price elasticity of demand is -0.25 then the price flexibility coefficient will be - 2.5.

**True or False:** If the price of grapes declines from \$1.25/lb in a selected base period to a current price of \$0.99/lb, the price relative and the price index value for grapes will be less than zero.

**True or False:** The price index value can only be equal to 100 in the base period.

**True or False:** Disappearance is a measure of consumption which can be derived by the following expression: (beginning stocks + production + imports) – ( exports + ending stocks)

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**Bonus (Extra 5 points):** Suppose that the following equation represents the annual household demand equation for poultry.

$$Q = 160 - 25P_1 + 10 P_2 + 0.001 \text{ INC}$$

where: Q = annual pounds of poultry  
P<sub>1</sub> = price/lb of poultry (\$0.80/lb)  
P<sub>2</sub> = price/lb of beef (\$3.00/lb)  
INC = annual income (\$30,000/year)

- a) Set up (you do not need to solve) an equation to calculate the point elasticity of demand for poultry and the income elasticity of demand.