Exam One Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PPA 897, Fall 2016

Professor John McPeak

The total exam is worth 15 points. Each numbered question is worth 1 ½ points, and each sub question within a numbered question is worth an equal share of the 1 ½ points.

1. The demand curve is given to you as Q=180-20\*p.
   1. Fill out the following table (**use the relatively higher price / relatively lower quantity pair in the elasticity calculation**).

|  |  |  |
| --- | --- | --- |
| Price | Quantity | Elasticity |
| $1.00 |  | ------------------------------- |
| $2.00 |  |  |
| $3.00 |  |  |
| $4.00 |  |  |
| $5.00 |  |  |

* 1. Draw this demand curve with price on the y-axis and quantity on the x-axis. Identify the range over which the demand curve is inelastic and over which it is elastic.

2) You are given that p=58-4\*q is the inverse demand curve and p=10+2\*q is the inverse supply curve.

a. What is the equilibrium price quantity pair if the market is perfectly competitive?

b. Illustrate the effect of a price floor set at $34 on a graph and solve for the size of the difference between the quantity supplied and quantity demanded.

c. Illustrate the effect of a price ceiling set at $22 on a graph and solve for the size of the difference between the quantity supplied and quantity demanded.

3) Perfectly competitive markets.

1. What are the four assumptions that need to be met for a market to be perfectly competitive?
2. What does it mean for an outcome to be Pareto Optimal?
3. I know the price of one muffin is $2.00 and the price of one cup of coffee is $1.50 per unit. The marginal utility of a muffin at a bundle the consumer is considering buying is 3 and the marginal utility of coffee is 5. This bundle is on the budget line.
   1. Is the bundle the consumer is considering buying the optimal bundle? Why or why not?
   2. Show on graph the consumption bundle described in the introduction to this problem and where it lies in relation to the optimal bundle.
4. If p1 = 3, p2=6, and Y=300
   1. Draw the budget constraint.
   2. Illustrate by drawing 2 budget constraints on a single graph what happens if p1=3changes to p1 = 10 all else constant.
5. Circle whether the statement is true of false:
   1. A good for which there is an inelastic price elasticity of supply has a smaller percent change in quantity than the corresponding percent change in price.

TRUE FALSE

* 1. Indifference curves cross due to the property of transitivity.

TRUE FALSE

* 1. The opportunity set becomes larger when the price of one good decreases, all else held equal.

TRUE FALSE

* 1. The slope of the indifference curve reflects the rate at which the market allows the consumer to transform one commodity into another holding prices and income constant.

TRUE FALSE

* 1. The Marginal Rate of Transformation changes if one price changes while income and the other price are held constant.

TRUE FALSE

* 1. Different consumption bundles on a given indifference curve generate the same amount of utility for the consumer.

TRUE FALSE

1. A food stamp policy is put in place in a state. For our representative consumer impacted by this policy, their initial income of $2,000 is supplemented by a cash value of food stamps of $200. The initial budget constraint is , where f is food, o is all other goods, and the two prices are subscripted by their commodity. The price of food is $20 per unit, the price of other is $10 per unit.
   1. Draw the original budget line and the budget line after the food stamp policy is implemented.
   2. Illustrate the preferences for a person **who would be better off being given the $200 in cash compared to food stamps**.
2. The Tappan Zee bridge management authority currently charges $5 per crossing to cross this bridge over the Hudson River near New York City. They currently average around 140,000 crossings per day. They are considering increasing the charge to $6 per crossing.

a. Recent estimates for the price sensitivity for drivers to the cost of crossing the Tappan Zee indicated ε=-0.5. If this is the case, how many bridge crossings do we predict there will be per day if the toll is raised to $6?

b. Is the current revenue with the toll at $5 per car and 140,000 crossings per day higher or lower than the predicted revenue with the toll set to $6 per car?

c. If the -0.5 estimate is a short run elasticity, will the long run number of crossings per day in response to the toll increase be more or less than what you found for the short run in part (a) (recalling that things tend to become more elastic when we compare short run elasticity to long run elasticity)?

1. From 2014 to 2015, the quantity of bacon purchased in the United States decreased by 10%. The United States Department of Agriculture (USDA) argues that there was a pig disease in early 2015 that reduced the supply of hogs that can be used to make bacon, thus making the input of hogs more costly. They say this explains why purchase levels have dropped. The American Heart Association (AHA) argues that the ad campaigns they ran in early 2015 stressed the negative health effects of bacon and that this explains the decrease in purchases.
   1. Graph USDA’s argument on a supply and demand graph for bacon.
   2. Graph AHA’s argument on a supply and demand graph for bacon.
   3. Which explanation is more consistent with the facts if the price of bacon decreased 5% from 2014 to 2015? Justify your answer.
   4. What is the implied elasticity and is it a supply elasticity or a demand elasticity?

1. Inverse demand is defined by p=24-2\*q. Inverse supply is defined by p=4+2\*q.
   1. Solve for the equilibrium price quantity pair.
   2. Illustrate this on a graph and calculate the area of consumer surplus and the area of producer surplus.
   3. Solve for the price quantity pair if there is a subsidy paid to producers of 4 per unit.
   4. Illustrate this on a graph and calculate the area of consumer surplus, the area of producer surplus, the total cost of the subsidy, and the size of deadweight loss.