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

PPA 897, Fall 2020

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=16-2\*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 |  | ------------------------------- |
| $1.50 |  |  |
| $2.00 |  |  |
| $2.50 |  |  |
| $3.00 |  |  |

* 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=24-2\*q is the inverse demand curve and p=8+2\*q is the inverse supply curve.

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

1. Illustrate the effect of a price floor set at $20 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 $12 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. For a demand curve in this market, identify an example of something that could change in the ‘all else equal’ conditions to cause a shift in demand?
3. I know the price of one donut is $1.00 and the price of one cup of coffee is $2.00 per unit. The marginal utility of a donut at a bundle the consumer is considering buying is 2 and the marginal utility of a cup of coffee is 3. 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 = 4, p2=5, and Y=100
   1. Draw the budget constraint.
   2. Illustrate by drawing 2 budget constraints on a single graph what happens if p1=4changes to p1 = 10 all else constant.
5. Circle whether the statement is true of false:
   1. A change in consumer income causes a shift in the supply curve.

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. A good for which the price elasticity of demand is elastic has a larger percent change in quantity than the corresponding percent change in price.

TRUE FALSE

* 1. The Total Effect is larger than the Substitution Effect if the good in question is inferior.

TRUE FALSE

* 1. The cross price elasticity for a complement is positive.

TRUE FALSE

* 1. The income elasticity for an inferior good is negative.

TRUE FALSE

7) A student has a stipend that pays her $1,250 per month and she spends it on two goods: food and education. The price of one unit of education per month is $250. The price of one unit of food per month is $25. She just got an additional award that will give her $500 more per month, but this additional money can only be used on education.

a. Illustrate her original budget line and her budget line after she receives the award.

b. Illustrate using indifference curves how she could be made even better off if the grant had been given in cash and unconstrained in how she uses it compared to having it constrained to be spent only on education (a person for **whom it does matter**.)

8) Compared to last year, the quantity purchased of lettuce has decreased by 2% in the United States this year. The United States Department of Agriculture (USDA) argues that this is because last year was a very good year for lettuce production given rainfall conditions and this year was much worse. The US Lettuce Growers Association (USLGA) disagrees. They blame the decrease on media coverage of E. Coli contamination of lettuce earlier this year.

a. Graph USDA’s argument on a supply and demand graph for lettuce.

b. Graph USLGA’s argument on a supply and demand graph for lettuce.

1. Which explanation is more consistent with the facts if the price of lettuce decreased 3% over the past year? Justify your answer.

9) A ferry in Boston Harbor travels between Hingham (south of Boston) and Rowes Wharf (downtown Boston). A monthly pass on this ferry costs $348. The Massachusetts Bay Transit Authority (MBTA) is considering increasing the price for the monthly pass to $368. Currently the MBTA sells an average of 2,400 monthly passes on this route to commuters.

a. An estimate for the short run price sensitivity of commuters to the monthly pass price is ε= -0.8. If this is the case, how many monthly passes will be sold if the price is raised to $368?

b. Is the current revenue with the pass price of $348 higher or lower than the expected revenue if the price is $368?

c. If the -0.8 estimate is a short run elasticity, what is the expected long run number of passes sold and expected revenue if long run ε= -1.3?

10) Indifference curves.

a) Draw an indifference curve for two goods that are perfect substitutes.

b) Why do indifference curves slope downward?

c) What is the name of the slope of the indifference curve and how is it defined?

Work Page.