

## Homework 2 – KEY

Average: 77.18 + Opts GI bonus

Due on 23/1/2024, by 23:00

This assignment is optional but STRONGLY RECOMMENDED. If you do not submit the answers till the deadline, the score of your final exam will substitute for the score for this assignment. Submit only the correct letter for each task on eLearn under 'Quizzes' within 'COR2100-Economics and Society G7-8-9-10'. Note that the actual text of questions and answers is not supposed to appear on the eLearn quiz. You have unlimited attempts. The system is programmed to credit your last attempt. Be informed that if you submit an attempt and afterwards you re-open the quiz, you must submit your answers AGAIN. Otherwise, the system will grade the unfinished attempt with 0 (because it is the last one) and there is NOTHING I can do to fix this after the fact. Late homework or homework submitted outside eLearn cannot be accepted as this would violate SMU official policy for fairness and transparency in grading. This assignment is protected by Grade Insurance™: If the assignment's average turns out to be below 75, an equal amount of bonus points will be given to every work, for the average to become 75. Direct any homework questions to your TA.

1. Which of the following is an example of the Law of Demand?
- 16%A. An increase in the price of jackets decreases the demand for jackets. *[Price increases affect quantity demanded of a good, not its demand]*
- 12%B. An increase in consumers' income increases the demand for cars.
- 35%C. An increase in the price of bullets decreases the quantity demanded for guns.
- 37%D. **None of the above.**  
*[The law of demand states that as the price of a good increases, its quantity demanded tends to decrease and vice versa considering substitutes, complements, and income ceteris paribus]*
- 2.\* In the last decade, the cost of buying an apartment in Athens, Greece has increased by 100%, while the cost of buying a Lamborghini car has increased by 40%. Which of the following is true for the opportunity cost of Lamborghini cars in terms of Athen's apartments?
- A. It has not changed.
- 19%B. It has increased.
- 27%C. **It has decreased.**
- 50%D. We need more information to tell.  
*[The opportunity cost of Lamborghini cars (L) in terms of apartments (A) is  $OC_{LA} = \frac{\text{price}_L}{\text{price}_A}$  and today it is  $OC'_{LA} = \frac{1.4 * \text{price}_L}{2 * \text{price}_A}$  or  $OC'_{LA} = 0.7 * OC_{LA}$ . This means that the opportunity cost of Lamborghini cars (L) in terms of Athenian apartments (A) has decreased]*
3. Suppose that the price of the good on the vertical axis doubles, while the price of the good on the horizontal axis halves. Which of the following is accurate?
- 55%A. **The budget line will become flatter (more horizontal).**
- 39%B. The budget line will become steeper (more vertical).
- C. The budget line moves closer to the origin but its slope does not change.
- D. The budget line moves away from the origin but its slope does not change.  
*[Since the intercept on the vertical axis moves inward, while the intercept on the horizontal axis moves outward, the budget line will become flatter]*

- 4✓ Recently, Singaporeans have increased their demand for plant-based meat. Which of the following may have led to that?
- A. People consider it more environmentally friendly.
  - B. People are more alarmed about conventional meat's health risks.
  - C. People see it as a means to create a globally sustainable food supply.

97%D. **All of the above.**

*[All these affect people's tastes and preferences positively towards plant-based meat]*

$Q_A$	1,000	750	300	90	10
$P_A$	9	10	11	12	13

**Table 2.1:** The price and the corresponding quantity demanded for good A.

- 5✓ According to table 2.1, what is the price elasticity of demand for good A most probable to be?
- A. A totally inelastic or vertical demand curve.
  - B. A relatively inelastic or somewhat vertical demand curve.
- 89%C. **A relatively elastic or somewhat horizontal demand curve.**
- D. A totally elastic or horizontal demand curve.

*[We observe that the quantity changes significantly even with small changes in price level, which means that the elasticity of demand for good A is relatively elastic]*

- 6✓ According to table 2.1, which of the following goods is most likely to be good A?

A. Electricity.

83%B. **Tesla cars.**

C. Cigarettes.

13%D. Salt.

*[Electricity, cigarettes and salt are supposed to have low elasticity of demand, while Tesla cars a high elasticity, since they have many substitutes]*

7. Which of the following would cause coffee's demand curve to shift outwards?

15%A. The release of multiple studies linking coffee to decreasing probability of heart attacks. *[This would indeed make people drink more coffee for every price level]*

10%B. An increase in the price of tea. *[True, since coffee and tea are substitutes]*

73%C. **Both A and B.**

D. None of the above.

**Scenario 2.1:** Chelsea takes photography (P) and drawing (D) lessons and she receives utility equal to 0 unless she does one of these activities once a month. Chelsea's marginal utility from the two activities is:

Times/Month	1	2	3	4	5	6	7
$MU_P$	100	75	58	35	15	-5	-200
$MU_D$	65	53	40	28	17	3	-110

- 8✓ According to scenario 2.1, which of the following is more preferable for Chelsea?

A. Zero lessons of both photography and drawing. *[This gives Chelsea 0 units of utility]*

93%B. **2 photography lessons.** *[This gives Chelsea  $100 + 75 = 175$  units of utility]*

C. 3 drawing lessons. *[This gives Chelsea  $65 + 53 + 40 = 158$  units of utility]*

D. 7 photography lessons. *[This gives Chelsea  $100 + 75 + 58 + 35 + 15 - 5 - 200 = 78$  units of utility]*

9. According to scenario 2.1, how much utility will Chelsea receive if she takes 3 photography and 3 drawing lessons in one month?

19%A. Around 100.

B. Around 200.

13%C. Around 300.

68%D. **Around 400.**

E. Around 500.

*[The utility from photography is  $100 + 75 + 58 = 233$  and the utility from drawing is  $65 + 53 + 40 = 158$ . The total utility is 391]*

10. According to scenario 2.1, if the cost of photography is \$90 per lesson and the cost of drawing lesson is \$45 per lesson, how many photography and drawing lessons will Chelsea have in one month if she has \$1,000 to spend on them?

80%A. **5 photography and 6 drawing lessons.**

B. 6 photography and 6 drawing lessons.

C. 6 photography and 7 drawing lessons.

11%D. 7 photography and 7 drawing lessons.

*[\$1,000 is enough for Chelsea to take as many photography and drawing lessons as she wants. However, she will choose to do these activities as long as she gets positive utility from them. Therefore, this happens until the 5th photography and the 6th drawing lesson]*

11. According to scenario 2.1, if the cost of photography is \$90 per lesson and the cost of drawing lesson is \$45 per lesson, how many photography and drawing lessons will Chelsea have in one month if she has \$360 to spend on them?

A. 1 photography and 6 drawing lessons.

68%B. **2 photography and 4 drawing lessons.**

27%C. 3 photography and 2 drawing lessons.

D. 4 photography and 0 drawing lessons.

*[-The first 90 dollars: Either take 1 photography lesson, which yields 100 units of utility or 2 drawing lessons which yield  $65 + 53 = 118$  units of utility. Chelsea will be better off spending those on drawing.*

*-The next 90 dollars: Either take 1 photography lesson, which yields 100 units of utility or 2 drawing lessons which yield  $40 + 28 = 68$  units of utility. Chelsea will be better off spending those on photography.*

*-The next 90 dollars: Either take 1 photography lesson, which yields 75 units of utility or 2 drawing lessons which yield  $40 + 28 = 68$  units of utility. Chelsea will be better off spending those on photography.*

*-The next 90 dollars: Either take 1 photography lesson, which yields 58 units of utility or 2 drawing lessons which yield  $40 + 28 = 68$  units of utility. Chelsea will be better off spending those on drawing. Chelsea will take 2 photography and 4 drawing lessons]*

12. ✓ According to scenario 2.1., if the cost of photography is \$90 per lesson and the cost of drawing is \$45 per lesson, how much utility will Chelsea receive in one month from these activities, if she spends \$360 on them?
- 13% A. Around 150.
  - 10% B. Around 250.
  - 76% C. **Around 350.**
  - D. Around 450.
  - E. Around 550.

*[From the previous task, 2 photography lessons will yield  $100 + 75 = 175$  and 4 drawing lessons will yield  $65 + 53 + 40 + 28 = 186$ . So, her total utility will be 361]*

13. ✓ Suppose that the price elasticity of demand for cars at a given level of production is -0.8. What should the car dealer do to increase their revenue?
- 81% A. **Increase the price of cars.** *[Because the elasticity of demand is inelastic a percentage increase in price will cause a smaller percentage decrease in quantity, thus revenue will increase]*
  - 13% B. Decrease the price of cars.
  - C. None of the above will increase their revenue.

$Q_A$	35	48	60	75
$P_B$	50	75	100	125

**Table 2.2:** The price of good B and the corresponding quantity demanded for good A.

14. ✓ According to table 2.2, what is the cross-price elasticity of demand for good A, when the price of good B increases from \$75 to \$100?
- A. Around -1.5.
  - B. Around -0.75.
  - C. Around 0.
  - 93% D. **Around 0.75.**
  - E. Around 1.5.

*[When the price of good B increases from \$75 to \$100, the cross-price elasticity of demand for good*

*A is equal to:  $\epsilon_{A,B} = \frac{\Delta Q_A / Q_A}{\Delta P_B / P_B}$  or  $\epsilon_D = \frac{(60-48)/48}{(100-75)/75}$  or  $\epsilon_D = \frac{12/48}{25/75}$  or  $\epsilon_D = \frac{1/4}{1/3}$  or  $\epsilon_D = 0.75$ ]*

15. ✓ According to table 2.2, which of the following is true for goods A and B?
- A. They are normal goods. *[We need information for income changes for this]*
  - B. They are inferior goods. *[We need information for income changes for this]*
  - C. They are complements.
  - 94% D. **They are substitutes.** *[True, since quantity demanded for good A increases when the price of good B increases]*
  - E. None of the above.

16. Suppose that Samuel's income elasticity for bread is -2. What will happen to his quantity demanded for bread if his salary decreases by 50%?
- 19% A. It will halve.
  - B. It will remain constant.
  - 73% C. **It will double.**
  - D. It will triple.

*[Since Samuel's salary decreases by 50%, his quantity demanded will increase by 100%, because  $\epsilon_Y = \frac{\Delta Q\%}{\Delta Y\%}$  or  $-2 = \frac{\Delta Q\%}{-50\%}$  or  $\Delta Q\% = 100\%$ , which means that it will double]*

17✓ Suppose that price elasticity of demand for TVs is -1.8, while TV size is measured in inches. Given that 1 inch is approximately equivalent to 2.54cm, what would the price elasticity of demand for TVs be if we measured them in cm?

- 86%A. -1.8.
- B.  $-1.8/2.54$ .
- C.  $-1.8 \times 2.54$ .
- D.  $-1/1.8$ .

*[The units of quantity (or price) will not make a difference to the elasticity because elasticity is a pure number with no units (a multiple). When we divide  $\Delta Q/Q$  the units of quantity cancel out]*

18. Andrew collects stamps and airplane models and each month he spends \$200 to buy 10 stamps and 15 airplanes. At this combination, his marginal utility from stamps is 65 and from airplanes is 100. If the price of a stamp is \$5 and the price of an airplane model is \$10, which of the following would you suggest Andrew to do?

- A. To not change his consumption.
- B. To buy less stamps and less airplane models.
- C. To buy more stamps and more airplane models.

70%D. **To buy more stamps and less airplane models.**

21%E. To buy less stamps and more airplane models.

*[The marginal utility per dollar for Andrew is  $65/5 = 13$  from stamps and  $100/10 = 10$  from airplane models. That is, his last dollar buys him more utility when spent on stamps than on airplane models. Thus, he should spend more on stamps]*

19✓ Which of the following best explains the nature of a Giffen good?

- A. A low-income, luxury good for which quantity demanded increases as the price increases.
- 96%B. **A low-income, non-luxury good for which quantity demanded increases as the price increases.**
- C. A low-income, non-luxury good for which quantity demanded decreases as the price increases.
- D. A low-income, non-luxury good for which quantity demanded remains constant regardless of price changes.

*[Because of being vastly inferior, Giffen goods' elasticity of demand is positive, which means that their quantity demanded increases with an increase in their price]*

20✓ Assume that the same excise tax is imposed on the goods below. Which of them is LESS likely to increase government revenue from taxation?

- A. Internet service.
- 87%B. **Perfume.**
- C. Petrol.
- D. Alcohol.

*[Perfume is the least necessary good thus its demand will be more elastic than the others. Therefore, the increase in its price due to the excise tax would lead to an even bigger decrease in its quantity demanded, leading to a relatively smaller increase (or even decrease) in government's revenue from taxation]*