Econ 2016: Principles of Microeconomics

Homework 6 (Total score: 20 Points)

Due Date: Oct 3nd, 12:40 PM

1. Multiple Choice (8 points)

C 1. (1 point) Refer to Figure 1.1. Molly's budget constraint is BD. If the price of CDs decreases, her new budget constraint becomes.

$P_{CD}\downarrow$ $Q_{CD}\uparrow$

A. AD B. AO C. CD D. EF

Figure 1: Question 1.1-1.2, 1.4

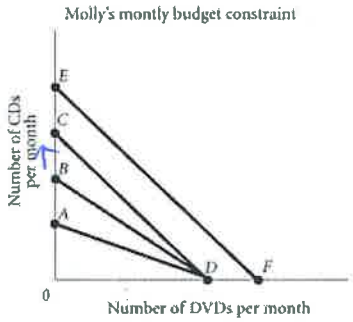

Figure 1.1.

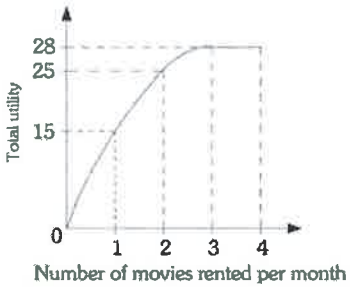

Figure 1.2.

C 2. (1 point) Refer to Figure 1.1. Molly's budget constraint is CD. If her income increases, her new budget constraint is

A. AD B. BD C. EF D. It is not shown on this graph.

A 3. (1 point) Kathy eats five slices of pizza on a Saturday night but admits each slice of pizza doesn't taste as good as the previous one. This suggests that for Kathy the

A. marginal utility of a slice of pizza is positive but decreasing

B. marginal utility of a slice of pizza is negative

C. total utility of slices of pizza is declining

D. total utility of slices of pizza is increasing by larger and larger increments

A 4. (1 point) Refer to the Figure 1.2. The marginal utility of the fourth movie rental is

A. 0 B. 3 C. 25 D. 28

C 5. (2 points) Jon is consuming X and Y so that he is spending his entire income and $\frac{MU_x}{P_x} = 8$ and $\frac{MU_y}{P_y} = 4$. To maximize utility, he should consume

A. the same amount of X and Y since he is already maximizing utility

$\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$.

We try to make it equalize.

By the law of diminishing MU

more Q_x. less MU_x. $\Rightarrow$ More X. less Y.

B. less of both X and Y
C. more X and less Y
D. less X and more Y

D

6. (2 points) Upon graduating with an accounting degree, you open your own accounting firm of which you are the sole employee. To start the firm you **gave up** a job offer with a large accounting firm that offered you a salary of $60000 annually. Last year you earned a total revenue of $100,000. Rent and supplies last year were $50000.

A. Your annual economic costs are $0, and annual economic profit is $40000
B. Your annual economic costs are $50000, and annual economic profit is −$10000
C. Your annual economic costs are $60000, and annual economic profit is $50000
D. Your annual economic costs are $110000, and annual economic profit is −$10000

2. Short Answer Questions (3 points): Rachel is working in Bay area. Her monthly salary is $5,000. In 2021 spring, She rent a house and paid rental fees $2,000 per month. Rachel purchased bags to reward herself every month. However, in the 2021 summer, the landlord told Rachel that the rental fees would increase from $2,000 to $3,000 for 2022 rental year. Rachel likes the house, so she signed a new contract with the landlord, and she has to pay rental fee $3,000 per month now. Her income does not change, but we found that her consumption on bags decreases.

1. What is the income effect for the bag?
Answer:
IE: Rent ↑ ⇒ purchasing power (or Income) ↓ ⇒ less house (quality) / less bags

2. What is the substitution effect for the bag?
Answer:
SE: Rent ↑ ⇒ Bag is relative cheaper ⇒ less house / More Bags

3. Which effect is the dominant effect in this example?
Answer: Since we found her consumption on bags decreases, IE plays an dominant role.

3. Short Answer Questions (2 points):

1. Please explain the differences between firm's long run decision and short run decisions.
Long-run: No fixed inputs; Firms can enter / exit
Short-run: Fixed inputs; Firms cannot enter / exit.

2. Please show the law of diminishing returns is true by using "proof by contradiction".

Assume: "the law of diminishing returns" is wrong

⇒ As the firm adding more inputs. when the other input is fixed. the marginal product ~~is decreasing~~ caused by the additional input is increasing.

Suppose the fixed input be a small land.

If our assumption is correct. as we add more labor (or water), the marginal product should increase

⇒ total product also increases

⇒ Not seen in practice

⇒ Assumption is wrong.

4. Calculation Questions (7 points): The following table shows a firm's cost for producing cola. Please read the following table and answer the questions.

Table 1

q	TFC	AVC	TVC	MC	Price
0	A 3	0	0 B	/	9
1	3	1	C	H	9
2	3	3.5	D	I	9
3	3	5	E	J	9
4	3	7	F	K	9
5	3	9	G	L	9

$MC = \frac{\Delta TC}{\Delta Q} = \frac{\Delta(TVC + TFC)}{\Delta Q} = \frac{\Delta(TVC)}{\Delta Q}$

$\Delta TFC = 3 - 3 = 0$

- Please calculate the value for A-L in the table.

Answer: A: 3 ; B: 0 ; C: 1 D: 7 ; E: 15 ; F: 28

G: 45 ; H: 1 ; I: 6 J: 8 ; K: 13 ; L: 17

- How many cola should a profit-maximizing firm produce ?(Tips: Use the equation $MC = P$)

Answer: 3