New Senior Secondary

Exploring Economics Exam Practice

Microeconomics
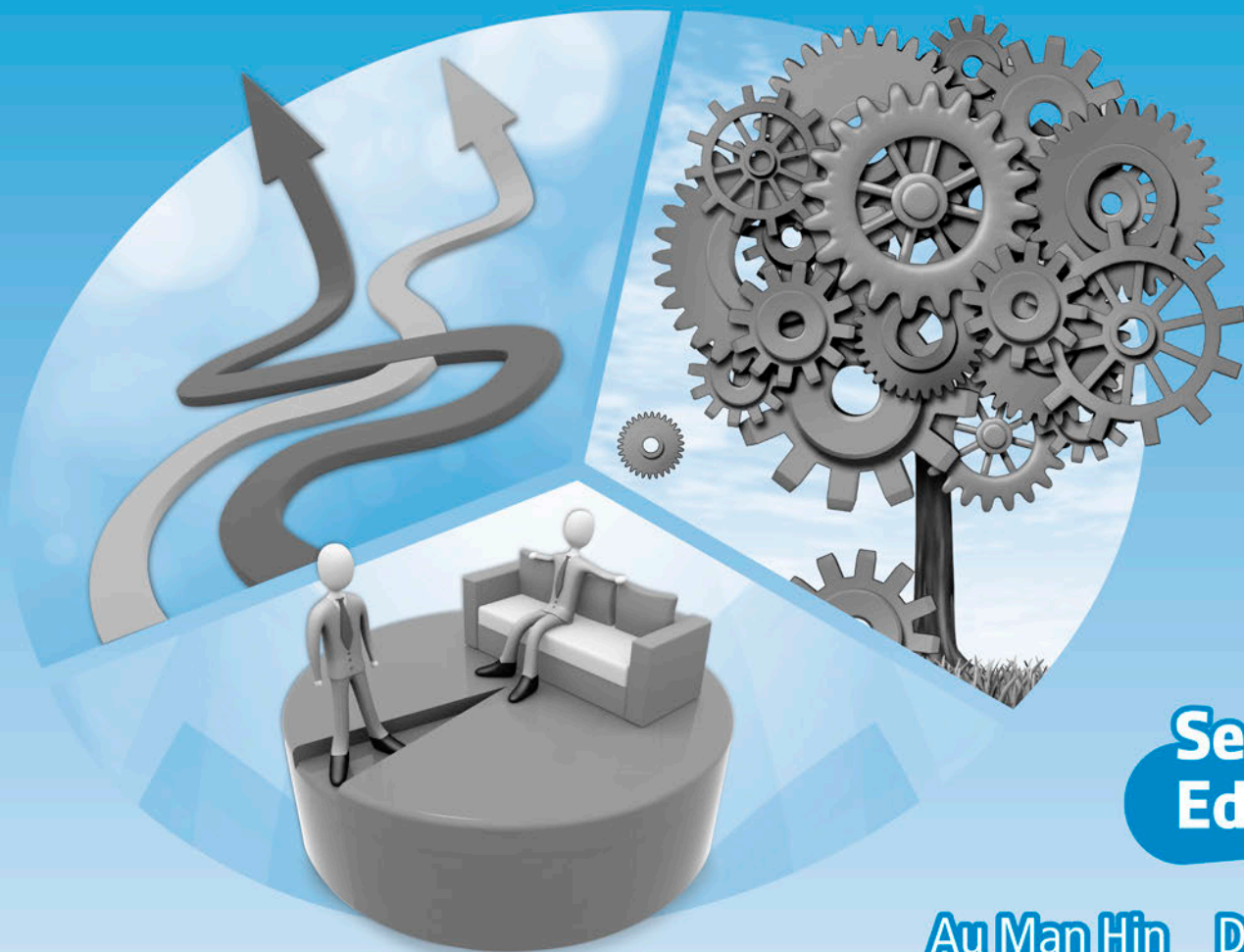
Second Edition

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ALWAYS LEARNING

PEARSON

Typical Question 2   Relative price and the law of demand

The price of premium gasoline is more expensive than that of standard gasoline. Suppose the government imposes a per-litre gasoline duty（汽油税）on both premium and standard gasoline. How will the following be affected?

a.   The quantity demanded of gasoline

b.   The relative price of premium gasoline in terms of standard gasoline

c.   The ratio of premium gasoline to standard gasoline consumed

1.   Question analysis

Key words: 'relative price' and 'ratio'.

2.   Answering techniques

- If the money price of both types of gasoline increases by 50%, the relative price will remain unchanged. However, if the money price of both increases by $5 per litre, the relative price will change because the percentage changes in the prices of both are different.

- The relative price of premium gasoline in terms of standard gasoline $= \dfrac{P_{premium}}{P_{standard}}$

    where $P_{premium}$ = Money price of premium gasoline

    $P_{standard}$ = Money price of standard gasoline

    As gasoline duty is levied on a per litre basis, the percentage increase in the premium gasoline price (more expensive) will be smaller than that for the standard gasoline price (less expensive).

    In other words,

    $$\frac{P_{premium} + \text{Unit tax}}{P_{standard} + \text{Unit tax}} < \frac{P_{premium}}{P_{standard}}$$

- The ratio of premium gasoline to standard gasoline consumed is affected by the relative price rather than the money price.

3.   Suggested answer

a. After the imposition of a gasoline duty, the price of gasoline will increase. According to the law of demand, the quantity demanded of gasoline will fall.

b. The imposition of a per-litre gasoline duty will lead to a smaller percentage increase in the premium gasoline price (more expensive) than that in the standard gasoline price (less expensive). Hence, the relative price of premium gasoline (in terms of standard gasoline), equal to the ratio of money price of premium gasoline to that of standard gasoline, will fall.

c. As the price of premium gasoline falls relative to standard gasoline, acccording to the law of demand, among those consuming gasoline, some may shift from consuming standard gasoline to premium gasoline. Hence, the ratio of premium gasoline to standard gasoline consumed increases.

B Correcting Common Errors

The following sentences contain mistakes. The corrections and underlying reasons are explained.

1. **'Market equilibrium is obtained by the intersection of individual demand and supply curves.'**

    ### Correction

    Market equilibrium is obtained by the intersection of market demand and market supply curves. Market demand and market supply curves are obtained via the horizontal summation of all individual demand and supply curves, respectively.

    ### Explanation

    An individual demand (supply) curve only shows the quantities demanded (supplied) by an individual consumer (producer) at different prices. It cannot determine the market price alone.

2. **'When the money prices of two goods increase, the relative prices of the two goods must increase too.'**

    Example:

	Good X	Good Y
Original price	$10	$4
New price	$12	$6

    'The relative price of Good X increases by 20% when the money price of Good X increases from $10 to $12. The relative price of Good Y increases by 50% when the money price of Good Y increases from $4 to $6.'

    ### Correction and explanation

    When the money price of a good increases, other things being constant, the relative price of the good in terms of other goods must increase. However, if the money prices of two goods increase, the directions of changes (i.e., increase, decrease or remain unchanged) of their relative prices will depend on the percentage changes of their money prices.

B   Correcting Common Errors

The following sentences contain mistakes. The corrections and underlying reasons are explained.

1.

Labour (units)	Machines (units)	Average output of labour (units)
3	2	12
4	2	14
5	2	18
6	2	21
7	2	22

'From the above table, the marginal products for the 4th to 7th units of labour are 2, 4, 3 and 1, respectively. Since the marginal product of labour starts to decrease when the 6th unit of labour is added, the data illustrate the law of diminishing marginal returns.'

Correction and explanation

The above answer mistakenly uses the average output to calculate the marginal product. The marginal product of labour should be:

Labour (units)	Machines (units)	Average output (units)	Total product (units)	Marginal product (units)
3	2	12	36	—
4	2	14	56	20 (= 56 – 36)
5	2	18	90	34 (= 90 – 56)
6	2	21	126	36 (= 126 – 90)
7	2	22	154	28 (= 154 – 126)

The data illustrate the law because the marginal product of labour starts to decrease from 36 to 28 when the 7th unit of labour is added.

2.

Machines (units/week)	Labour (units/week)	Output (units/week)
4	1	50
5	2	70
6	3	80
7	4	85

'The above data illustrate the law of diminishing marginal returns because the marginal product of labour starts to decrease from 20 to 10 when the 3rd unit of labour is added.'

Correction and explanation

The above data cannot illustrate the law because all factors are variable. Production is in the long run.

B Correcting Common Errors

The following sentences contain mistakes. The corrections and explanations are provided.

1. **'The Gini coefficient will increase when**

    a. the income of low-income households decreases.

    b. the numbers of both low-income and high-income households increase.'

    ✔ **Correction and explanation**

    a. The Gini coefficient is a relative measure that provides a picture about the income of the rich households relative to that of poor households.

    Without knowing the change in the income of the rich (relative to the poor), we cannot draw a conclusion about the change in the Gini-coefficient.

    If the income of the rich also decreases and its percentage decrease is larger than that of the poor, the Gini coefficient will fall.

    b. This statement is incorrect because we do not know the change in the total number of households. The Gini coefficient may decrease if the total number of households increases so that the numbers of low, middle and high-income households all increase while the increase in the number of middle-income households is proportionately larger.

    Moreover, we do not know the change in their income. Even if the number of low-income households increases and their income increases at a faster rate than high-income households, the Gini coefficient may decrease.

2. **'The Gini coefficient of Country X increases. We can conclude that**

    a. the general living standard of Country X declines.

    b. the income of low-income households in Country X decreases while the income of high-income households increases.'

    ✔ **Correction and explanation**

    a. The Gini coefficient is merely an indicator of income distribution, not the standard of living. Moreover, less even income distribution may not imply a lower standard of living. Hence, no conclusion can be drawn about the living standard of an economy from the Gini coefficient.

    b. This may not be true.

    For example, the Gini coefficient will also increase when both the rich and the poor have an increase in income and the percentage increase of the rich is larger.

    The only conclusion we can draw from an increase in the Gini-coefficient is that income inequality becomes larger.

3. 'The income inequality among private medical doctors is larger than that among security guards. The reasons are as follows:

   a. Doctors receive more education and training than security guards.

   b. Different people have different talent, knowledge and educational backgrounds.'

   Correction

   The two reasons should be:

   - Compared to security guards, the income earned by medical doctors varies more greatly with their qualifications and experience, and there are larger differences in qualifications and experience among doctors. For example, a specialist usually earns more than a general practitioner.

   - Most security guards are paid by a time rate whereas most private medical doctors operate their own clinic; their income (profits) depends on many factors, with factors such as location and reputation, leading to a larger income difference.

   Explanation

   Statement (a) can only explain why there is an income difference between doctors and security guards but fails to address why income inequalities in these two professions are different.

   Statement (b) provides a general reason for income inequality. Again, it fails to address why income inequalities in these two professions are different.

4. 'Imposition of an effective minimum wage will necessarily narrow the income gap.'

   Correction and explanation

   Although imposition of a minimum wage will increase low-income workers' income, it may cause/increase unemployment. Some low-income workers' income will drop if they are unemployed. In short, a minimum wage will

   (i) increase income inequality among low-income workers, and

   (ii) reduce income inequality among employed low-income workers and high-income workers.

   Overall, the effect on income distribution is uncertain.

5. 'There is a disincentive effect on work when the government tries to narrow the income gap by giving a one-off cash grant to low-income households.'

   Correction and explanation

   A one-off grant to low-income households will not create a disincentive effect.

   This is because the one-off grant is unexpected. It will not provide any incentive for low-income households to change their behaviour (unless they have formed an expectation that they will receive the grant).

   However, if the grant is recurrent（反覆出現）in nature, this will discourage them from working harder. Some may choose to stay in the low-income group in order to be eligible for the grant.
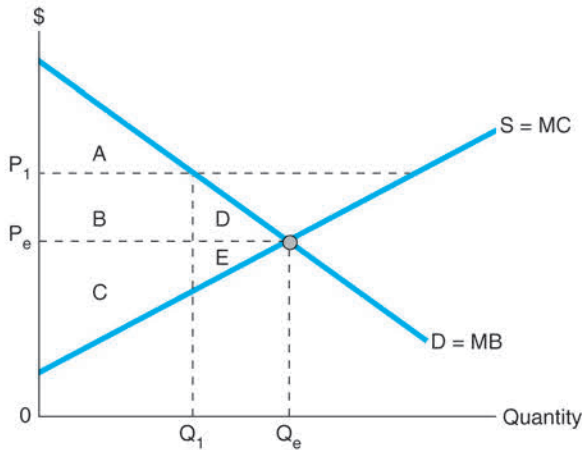
| C | **Multiple Choice Questions** |

Choose the BEST answer for each question.

1. Efficiency means _____.

    A. maximisation of consumer surplus
    B. maximisation of producer surplus
    C. maximisation of total social surplus
    D. All of the above

2. Which of the following implies efficiency in resource allocation?

    A. $MC = P$
    B. $MB = P$
    C. $MC = MB$
    D. Minimum deadweight loss

3. Refer to the following diagram.


    If a price ceiling is set at P_1, the consumer surplus is equal to Area _____.

    A. A
    B. A + B
    C. A + B + D
    D. A + B + C + D + E

3. China Light & Power Company (CLP) is the only electricity supplier in Kowloon, the New Territories and most of Hong Kong's outlying islands.

   a. Suppose CLP practices uniform pricing. With the aid of Figure 1, explain how the profit-maximising output (Q_m) and price (P_m) of electricity produced by CLP are determined.

   (3 marks)

Price ($)　　　　　Figure 1

0　　　　　　　　　　　　　　　　D　Quantity
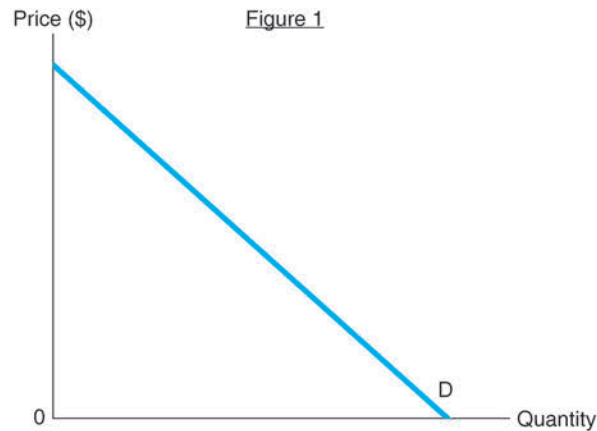
   b. With the aid of Figure 1, explain why the output level of a monopolist may be inefficient.

   (4 marks)

   c. The following shows CLP's energy charges:

Total Monthly Consumption Block	Rate (Cents/Unit)
Each of the first 200,000 units	70.0
Each unit over 200,000	68.4

   Source: CLP Power Hong Kong Limited

   Does the practice in the above table constitute price discrimination? Explain. (3 marks)

   d. Name the anti-competitive behaviour that each of the following cases may constitute and explain how such behaviour restricts competition. (4 marks)

      i. A power generating company signs a contract with a natural gas supplier to supply natural gas for 10 years. The contract does not allow the company to change to other suppliers.

      ii. Country A has two power generating companies. They agree that each would supply power to a specific territory in the country.

   e. Provide ONE justification for introducing competitors into the power supply market in Hong Kong.

   (2 marks)

_____

_____

_____

ii. First, after specialisation, farmers could concentrate on the farm work which they did best. With the same amount of resources, farmers could produce more crops than before, and total output (in terms of crops) would increase. As farmers could consume more, their standard of living would increase. (2 marks)

Second, farmers could enjoy a greater variety of goods by exchanging their products, leading to a higher standard of living. (2 marks)

❸ Demand and supply

Multiple Choice Questions

1. D Demand refers to wants supported by the ability to buy (purchasing power). Jackie has the want but not the purchasing power. On the other hand, David has the purchasing power but not the want.

2. B Option (1) is incorrect. An individual demand curve shows the quantities demanded by an individual at different prices. Hence, it should be a change in price that affects the quantity demanded, not the other way around.

Options (2) and (3): With the same demand curve, all other factors except the price of the good (soft drinks in this question) are kept constant.

3. A The first blank should be 'demand' because it refers to different quantities demanded at different prices.

Peter's quantities demanded per month at $3 and $4 are 40 apples (= 10 apples × 4) and 32 apples (= 8 apples × 4), respectively. Peter's demand is greater because he buys more apples per month than Mary at different prices.

4. A Options (1) and (3) are incorrect. A market demand curve shows the quantities of a good that all consumers are willing and able (plan) to buy at different prices. It does not show the quantities that an individual consumer plans to buy.

5. B

6. A Option (3) is incorrect. At $6, there is a surplus because quantity supplied is greater than quantity demanded.

7. C