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CPA

Economics

April 2026

Level: Foundation Level

Question 1b

□ Demand, supply and determination of equilibrium

- (i) Define the term “marginal utility” as used in economics.
- (ii) With the aid of a well-labelled diagram, illustrate the law of diminishing marginal utility and explain its implication for consumer behaviour.



✓ Answer for Question 1b

(i) Definition of "Marginal Utility"

Marginal utility (MU) is the additional satisfaction or benefit a consumer derives from consuming **one more unit** of a good or service. Mathematically, it is the change in total utility divided by the change in the quantity consumed:

(ii) The Law of Diminishing Marginal Utility

The **Law of Diminishing Marginal Utility** states that as a consumer increases the consumption of a specific commodity, the additional satisfaction (marginal utility) derived from each successive unit decreases, holding the consumption of all other goods constant.

Graphical Analysis of the Diagram

The provided diagram clearly maps this relationship using specific quantities of Good X against its Marginal Utility (MU):



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Question 2b

□ Demand, supply and determination of equilibrium

The demand function for a commodity is given as: $QD = 120 - 3P$.
Where QD is quantity demanded and P is price.

Required:

- (i) Determine the price elasticity of demand when price is Sh.20.
- (ii) Explain THREE types of price elasticity of demand.



✓ Answer for Question 2b

(i) Determine the Price Elasticity of Demand when Price is Sh. 20

Price elasticity of demand (E_p) measures the responsiveness of the quantity demanded to a change in price. The formula for point price elasticity of demand is:

$$E_p = \frac{dQ_D}{dP} \times \frac{P}{Q_D}$$

Step 1: Calculate the quantity demanded (Q_D) when $P=20$

Given the demand function:

$$Q_D = 120 - 3P$$

$$P = 20 :$$

$$Q_D = 120 - 3(20)$$

$$Q_D = 120 - 60 = 60 \text{ units}$$

Step 2: Find the derivative of the demand function ($\frac{dQ_D}{dP}$)

Differentiating $Q_D = 120 - 3P$ with respect to P :

$$\frac{dQ_D}{dP} = -3$$

Step 3: Compute the Price Elasticity of Demand

Substitute the values into the elasticity formula:

$$E_p = -3 \times \frac{20}{60}$$

$$E_p = -3 \times \frac{1}{3} = -1$$



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Question 2

□ Demand, supply and determination of equilibrium

- (a) Highlight FOUR causes of demand-pull inflation.
- (b) Outline FOUR determinants of elasticity of supply of labour.
- (c) Discuss SIX roles of government in an economy.
- (d) Using a well labelled diagram, illustrate the price ceiling for a good or service.



✓ Answer for Question 2

(a) Highlight causes of demand-pull inflation.

- **Increases in Government Spending:** High levels of government expenditure can stimulate demand for goods and services beyond the economy's immediate productive capacity.
- **Expansionary Monetary Policy:** Lower interest rates and an increased money supply encourage borrowing and spending, driving up aggregate demand.
- **Growth in Consumption:** Rising consumer confidence or expectations of future price increases can lead to higher present consumption.
- **Increase in Investment:** Businesses may increase their spending on capital goods, adding to overall demand.
- **Growth in Exports:** A significant increase in demand for a country's products from abroad can pull up prices in the domestic market.

(b) Outline determinants of elasticity of supply of labour.

- **Mobility of Labour:** The ease with which workers can move between jobs (occupational mobility) and between regions (geographical mobility). Higher mobility leads to more elastic supply.
- **Time Period:** Supply is generally more inelastic in the short run, as workers need time to acquire new skills or relocate. It becomes more elastic in the long run.
- **Nature of Skills:** Supply of highly specialized labour is more inelastic than that of unskilled labour, as training takes significant time.
- **Level of Unemployment:** When unemployment is high, the labour supply is more elastic, as many workers are available even for small wage increases.
- **Ease of Training and Education:** Availability and affordability of training and education facilities make labour supply more elastic.
- **Age Structure of Population:** A younger, more adaptable population typically results in more elastic labour supply.



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Question 3a

□ Demand, supply and determination of equilibrium

The demand and supply functions of a certain product are given as follows:

$$Q_d = 110 - 2P$$

$$Q_s = -40 + 3P$$

The government imposes a tax of Sh.5 per unit.

Required:

Determine:

- (i) Equilibrium price after tax.
- (ii) Equilibrium quantity after tax.



✓ Answer for Question 3a

(i) Equilibrium price after tax

1. **Understand the effect of the tax:** A tax of Sh. 5 per unit is an added cost for producers. For every unit they sell, they only receive (Price received - Tax). Therefore, the price consumers pay (P_c) and the price suppliers receive (P_s) are related as follows:

$$\circ P_s = P_c - 5$$

2. **Rewrite the Supply Function:** The original supply function is in terms of the price received by suppliers:

$$\circ Q_s = -40 + 3(P_s)$$

- Since $P_s = P_c - 5$, we substitute this into the supply function to get a new supply function in terms of the price paid by consumers (P_c):

$$\circ Q_s \text{ after tax} = -40 + 3(P_c - 5)$$

$$\circ Q_s \text{ after tax} = -40 + 3P_c - 15$$

$$\circ Q_s \text{ after tax} = -55 + 3P_c \text{ (This is the supply function after the tax)}$$

3. **Find the new equilibrium:** At equilibrium after the tax, the quantity demanded (Q_d) equals the new quantity supplied (Q_s after tax):

$$\circ Q_d = Q_s \text{ after tax}$$

$$\circ 110 - 2P = -55 + 3P_c \text{ (Here, } P \text{ in the demand function is the same as } P_c, \text{ the price paid by consumers)}$$

4. **Solve for P_c (the new equilibrium price paid by consumers):**

$$\circ 110 + 55 = 3P_c + 2P_c$$

$$\circ 165 = 5P_c$$

$$\circ P_c = 165 / 5$$



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Question 2b

□ Demand, supply and determination of equilibrium

Explain THREE exceptions to the law of diminishing marginal utility.



✓ Answer for Question 2b

Law of Diminishing Marginal Utility

This law states that as a consumer consumes additional units of a good, the extra satisfaction (marginal utility) derived from each additional unit declines, assuming other factors remain constant.

Exceptions to the Law of Diminishing Marginal Utility

In practice, there are situations where marginal utility may not decline, or may even increase temporarily, defying the assumptions of the law. These include:

1. Rare or Collectible Goods

- For items like antiques, stamps, rare art, or collector's items, the value or satisfaction may increase with each additional acquisition due to prestige or collection completeness.
 - *Example:* The second or third rare coin may provide more utility than the first as it enhances a collection.
-

2. Addictive Goods

- Goods like cigarettes, alcohol, or drugs may defy the law because consumers develop dependence, and satisfaction may increase temporarily with each additional unit.
 - *Note:* In the long run, utility may still decline, but addiction alters short-term behaviour.
-

3. Hobbies and Interests

- Activities like playing video games, painting, or reading novels may bring increasing satisfaction initially as the individual gets more engaged.
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Question 3c

☐ National income



The following information represents the national income of country X in billions of shillings.

$$C = 220 + 0.8Y_d$$

$$T = 30 + 0.1Y$$

$$I = 70$$

$$G = 20$$

Where: C = Consumption expenditure

T = Taxes

G = Government expenditure

Y_d = Disposable income

Required:

- (i) The marginal propensity to save.
- (ii) The multiplier.
- (iii) The consumption expenditure.
- (iv) The equilibrium level of national income and taxes.

✓ Answer for Question 3c

(i) Marginal Propensity to Save (MPS)

- Marginal Propensity to Consume (MPC) is the coefficient of Y_d in the consumption function:

$$MPC = 0.8.$$

- **MPS** is the complement of MPC:

$$MPS = 1 - MPC = 1 - 0.8 = 0.2$$

$$MPS = 0.2$$

(ii) The Multiplier (k)

The multiplier is calculated as:

Since taxes are dependent on income ($T = 30 + 0.1Y$), we use the multiplier formula for an economy with proportional taxes:

$$\text{Multiplier } (K) = \frac{1}{1 - c(1 - t)}$$

Where:

- c = marginal propensity to consume (MPC) = 0.8
- t = marginal tax rate (from $T = 30 + 0.1Y$, so $t = 0.1$)

$$(K) = \frac{1}{1 - 0.8(1 - 0.1)}$$

$$(K) = \frac{1}{1 - 0.72}$$

$$(K) = \frac{1}{0.28}$$

$$K = \approx 3.57$$



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Question 2a

□ Economic growth, economic development and economic planning

- (i) Explain the term “Gini Coefficient” as used in economics.
- (ii) Describe THREE principles of the Gini Coefficient.



✓ Answer for Question 2a

(i) Gini Coefficient – Explanation

The Gini Coefficient is a statistical measure used to gauge the level of income inequality in a population.

- It ranges between 0 and 1 (or 0% to 100%):
 - A Gini Coefficient of 0 indicates perfect equality – everyone has the same income.
 - A Gini Coefficient of 1 (or 100%) indicates perfect inequality – one person has all the income, and everyone else has none.
- It is derived from the Lorenz Curve, which compares the cumulative percentage of income earned to the cumulative percentage of the population.

(ii) Principles of the Gini Coefficient

1. Boundedness

The Gini Coefficient is always between 0 and 1:

- 0 = perfect equality
- 1 = perfect inequality

2. Anonymity Principle

It does not consider *who* earns the income, only *how* income is distributed. It treats everyone equally in calculation regardless of identity.

3. Scale Independence

The Gini Coefficient is independent of the *size* of the economy or total income. Doubling everyone's income does not change the Gini value.



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Question 7a

□ Demand, supply and determination of equilibrium

- (i) Differentiate between a “stable equilibrium” and an “unstable equilibrium”.
- (ii) With the aid of a well labelled diagram, illustrate an unstable equilibrium.

✓ Answer for Question 7a

(i) Differentiate between a “stable equilibrium” and an “unstable equilibrium”.

Aspect	Stable Equilibrium	Unstable Equilibrium
Definition	A situation where the system returns to equilibrium after a disturbance.	A situation where the system moves further away from equilibrium after a disturbance.
Market Adjustment	Forces of demand and supply restore equilibrium if disrupted.	Forces of demand and supply cause further divergence from equilibrium.
Graphical Behavior	Demand and supply curves intersect with stable slopes (D downward, S upward).	Unstable if both curves have unusual slopes (e.g., both downward).
Price Movement	A change in price leads to quantity adjustments that bring back equilibrium.	A change in price leads to adjustments that move the market away from equilibrium.
Example	Normal supply and demand interaction.	Backward-bending supply curves or speculative bubbles.

Summary Interpretation:

- In **stable equilibrium**, the market is self-correcting. If price rises or falls, excess supply or demand will push it back to the original equilibrium.
- In **unstable equilibrium**, any small change can lead to runaway effects — prices and quantities spiral away from the original point instead of returning.

(ii) With the aid of a well labelled diagram, illustrate an unstable equilibrium.



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December 2022

Level: Foundation Level

Question 3b

□ Demand, supply and determination of equilibrium

With the aid of a well labelled diagram, explain the THREE stages of production according to the law of diminishing marginal returns.

✓ Answer for Question 3b

Explanation of the Three Stages of Production According to the Law of Diminishing Marginal Returns

The **Law of Diminishing Marginal Returns** states that, in the short run, as successive units of a variable input are added to a fixed input, the marginal product of the variable input will eventually decrease. This leads to three distinct stages of production:

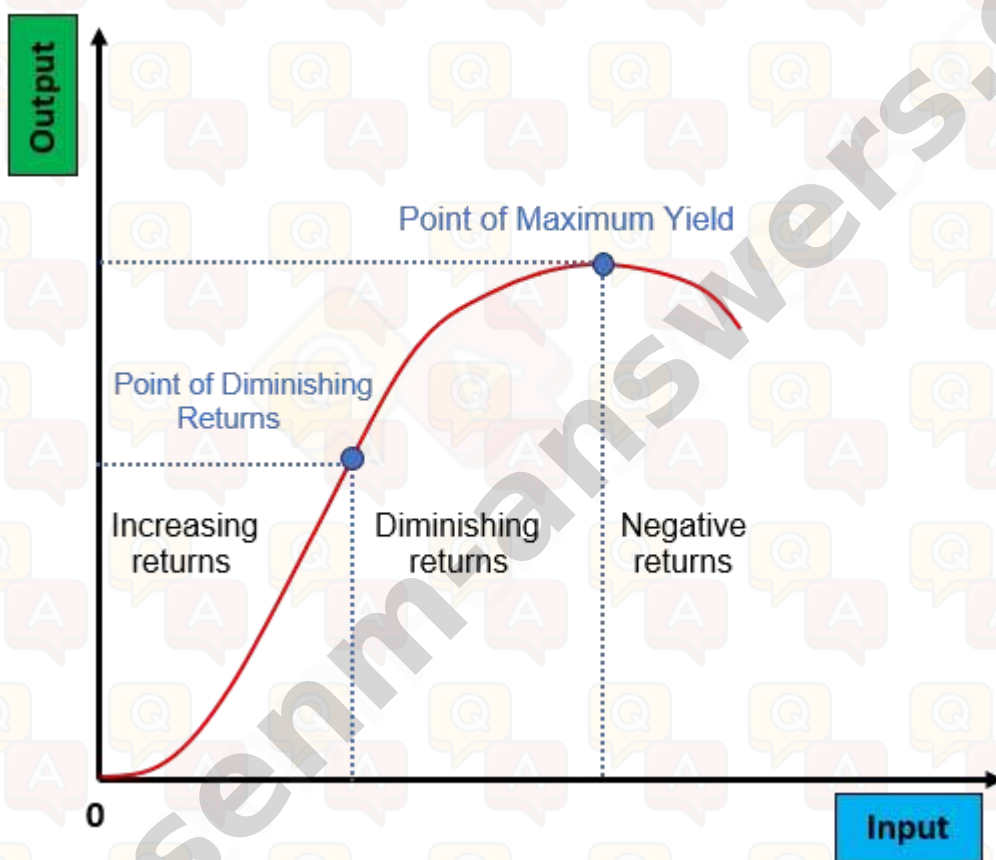


Diagram Elements:

- **Input (X-axis):** Represents the quantity of the variable input (e.g., labor).
- **Output (Y-axis):** Represents the total product (total output).
- **Total Product Curve:** The red curve shows how total output changes as more units of input are added.