THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

151/1 **ECONOMICS 1**

(For Both School and Private Candidates)

Time: 3 Hours **ANSWERS** **Year: 2022**

Instructions

1. This paper consists of EIGHT questions.
2. Answer all questions in section A and choose two questions each from section B and C.

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Prepared by: Maria Marco for TETEA

1. Briefly explain the following concepts:

(i) Dependence ratio.

Dependence ratio refers to the proportion of the non-working population (children and elderly) compared to the working-age population. It shows the economic burden on workers. For example, if a country has 50 dependents and 100 working people, the dependence ratio is 0.5 or 50%.

(ii) An ageing population.

An ageing population occurs when a large proportion of people in a country are elderly due to increased life expectancy and low birth rates. This leads to a high number of retirees, increasing pension and healthcare costs, as seen in countries like Japan and Italy.

(iii) Optimum population.

Optimum population is the number of people who, when combined with the available resources and technology, result in the highest possible per capita output. For example, a country with too few or too many people compared to its resources will not achieve maximum productivity.

(iv) Under population.

Under population occurs when the population size is too small to fully utilize a country's natural and capital resources. For instance, in countries like Namibia, there are vast lands but few people to exploit them economically.

(v) Over population.

Over population happens when the number of people exceeds the carrying capacity of available resources, leading to congestion, unemployment, and poor living standards. For example, densely populated urban areas like Dhaka face severe housing and sanitation issues.

2. By giving five points, explain the importance of opportunity cost.

Opportunity cost helps in better decision-making by comparing the benefits of the next best alternative. For instance, a farmer choosing to grow maize instead of beans does so after evaluating which brings more return.

It ensures efficient allocation of resources. For example, a government choosing to build a hospital instead of a stadium does so based on the higher value of healthcare to the population.

It encourages prioritization of needs, especially when resources are scarce. Households use opportunity cost to decide whether to spend money on education or entertainment.

It supports investment planning by businesses. A firm deciding to invest in new machinery instead of advertising considers the opportunity cost in terms of future returns.

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It guides economic policy decisions. Governments consider opportunity costs in budgeting, like choosing between military spending and infrastructure development.

3. (a) Why a monopolist cannot charge any price in the market? Explain by giving five points.

A monopolist faces a downward-sloping demand curve, meaning to sell more units, they must lower the price. For example, if a monopolist increases the price too much, quantity demanded will fall drastically.

Consumers still have a reservation price beyond which they will not purchase, even if alternatives are limited. This creates a limit to pricing freedom.

The monopolist aims to maximize profit, not price. There is a specific price-output combination where marginal cost equals marginal revenue. Any other price would lead to less profit or losses.

Government regulations and price controls in essential services like electricity or water can prevent monopolists from setting excessively high prices.

High prices may attract new firms or substitute goods in the long run, reducing monopoly power. For example, if a monopolist overcharges for mobile services, consumers may switch to landlines or internet-based communication.

(b) Suppose a market for mobile phones has a demand function $Q = 1000 - 10P$, and the cost of the monopolist for producing mobile phones is $C = 0.005Q^2 + 500$.

(i) Profit maximizing output level.
First, find Total Revenue (TR):
$TR = P \times Q$
From demand: $Q = 1000 - 10P \rightarrow P = (1000 - Q)/10$
$TR = P \times Q = Q(1000 - Q)/10 = 100Q - 0.1Q^2$
Then Marginal Revenue (MR) = $d(TR)/dQ = 100 - 0.2Q$

Marginal Cost (MC) = $d(C)/dQ = d(0.005Q^2 + 500)/dQ = 0.01Q$

Set MR = MC:
$100 - 0.2Q = 0.01Q$
$100 = 0.21Q$
$Q = 476.19$ (approx. 476 units)

(ii) Price of mobile phones.
Use demand function: $Q = 1000 - 10P$
$476 = 1000 - 10P$
$10P = 524 \rightarrow P = 52.4$

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(iii) Maximum profit.
$TR = P \times Q = 52.4 \times 476 = 24{,}942.4$
$TC = 0.005Q^2 + 500 = 0.005(476^2) + 500 = 0.005(226576) + 500 = 1132.88 + 500 = 1632.88$
$Profit = TR – TC = 24{,}942.4 – 1632.88 = 23{,}309.52$

4. (a) What is cross elasticity of demand? Explain how it is calculated and interpreted.

Cross elasticity of demand measures how the quantity demanded of one good responds to a change in the price of another good. It is calculated as:
E = % change in quantity demanded of Good A ÷ % change in price of Good B.

A positive value indicates substitutes. For example, if the price of Coca-Cola rises and the demand for Pepsi increases, cross elasticity is positive.

A negative value shows complements. For example, if the price of printers increases and demand for ink cartridges falls, the elasticity is negative.

(b) Why does demand curve slope downwards from left to right? Explain by giving four points.

The law of diminishing marginal utility states that as consumers consume more units of a good, the additional satisfaction gained decreases, so they are willing to pay less.

The income effect shows that as price falls, the real income of consumers increases, allowing them to buy more of the good.

The substitution effect means consumers switch from more expensive substitutes to the cheaper good when its price falls.

New buyers enter the market when prices drop, increasing overall quantity demanded, contributing to the downward slope.

5. (a) Using illustration, show the stages of the law of diminishing marginal returns.

A graph showing labor input on the x-axis and total output on the y-axis will have three phases:
- Increasing returns: Output rises rapidly.
- Diminishing returns: Output rises at a decreasing rate.
- Negative returns: Output starts to fall as more labor is added.

(b) Explain five limitations of the law of diminishing marginal returns.

It assumes only one variable factor is changed, which rarely occurs in real situations where multiple inputs change.

It applies only in the short run since in the long run all factors are variable.

It assumes a fixed level of technology, yet advancements in technology can offset diminishing returns.

It ignores the possibility of improved worker coordination or specialization which can delay diminishing returns.

It assumes homogeneous units of input, but in practice, workers may differ in skill and efficiency, affecting output differently.

6. Examine six circumstances in which increase in money supply in the economy do not lead into increase in the general price level.

An increase in money supply may not lead to inflation when there is excess capacity in the economy. For example, if factories are underutilized and there is unemployment, increased money may stimulate production without raising prices.

When the velocity of money is low—meaning people are saving more and spending less—the extra money does not circulate fast enough to cause demand-pull inflation. For instance, during recessions, even if the money supply increases, demand remains weak.

Increased money supply may be offset by higher taxes or government borrowing. For example, if the government increases taxes to absorb excess liquidity, the effect of money supply on prices is neutralized.

If there is an increase in the supply of goods and services simultaneously with the increase in money supply, prices may remain stable. For example, a bumper harvest or improved industrial output balances the increased demand.

Strong monetary policy controls, such as central bank sterilization (selling government securities to absorb excess money), can prevent inflation despite growing money supply.

When the money is used for investment rather than consumption, it leads to asset creation rather than immediate consumption. For instance, money spent on infrastructure creates productive capacity, not instant demand for goods, hence minimal price impact.

7. “Privatization is vital in improving the Tanzanian Economy.” Substantiate this contention by providing five advantages and five disadvantages of privatization policy.

Advantages:

Privatization enhances efficiency as private firms are profit-driven and avoid unnecessary bureaucracy. For example, private telecom companies like Vodacom are known for reliable service compared to former public monopolies.

It attracts foreign direct investment (FDI), bringing in capital, technology, and expertise. For instance, private mining companies have brought advanced extraction techniques to Tanzania.

It reduces the financial burden on the government. By selling unprofitable parastatals, the government avoids losses and can focus on essential services like education and health.

Privatization expands consumer choice and improves quality. Competing private firms invest in customer satisfaction, as seen in the transport sector with various service providers.

It boosts economic growth by stimulating private sector development, creating employment and increasing tax revenues.

Disadvantages:

Job losses may occur as private firms cut costs through downsizing, which increases unemployment, especially among former public employees.

Essential services may become expensive or inaccessible to the poor. For instance, privatized water or electricity services may raise tariffs beyond affordability for rural communities.

Private monopolies may emerge, replacing public ones, leading to exploitation. If a single firm dominates without regulation, prices may rise while service quality declines.

Foreign ownership of key sectors may reduce national control over critical industries like minerals or banking, affecting economic sovereignty.

Privatization processes can be abused through corruption, leading to undervalued sales of public assets, benefitting only a few elites instead of the general population.

8. “Interaction between economic system and development is one of the major reasons for the existence of externalities.” Justify this statement by giving six causes of externalities in the economy.

Industrialization and urbanization lead to environmental externalities such as air and water pollution. For example, factories discharging untreated waste into rivers harm nearby communities and ecosystems.

Rapid economic development causes congestion and noise pollution in cities. The expansion of road networks and increase in vehicles may raise health and environmental costs borne by residents.

Inadequate government regulation or failure to enforce existing laws allows firms to create negative externalities unchecked. For instance, poorly monitored mining operations may destroy forests and pollute land.

Technological advancement can create both positive and negative externalities. While improved farming techniques may boost food supply, excessive use of fertilizers and pesticides may degrade soil and water quality.

Unplanned expansion of commercial and residential areas leads to deforestation and loss of biodiversity. For example, clearing forests to build shopping malls or houses displaces wildlife and increases flooding risks.

Market failure to account for social costs and benefits causes externalities. Producers focus on private profits and ignore external impacts, such as carbon emissions contributing to climate change without being priced into products.

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