THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL OF TANZANIA

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

113/1 **GEOGRAPHY 1**

(For Both School and Private Candidates)

Time: 3 Hours **ANSWERS** **Year: 2024**

Instructions

1. This paper consists of section A, and B with total of seven questions.
2. Answer a total of five questions; two in section A, and three in questions in section B. Question number 1 is compulsory.

1. (a) Draw a sketch map of Tanzania and use the data given in the following table to draw a dot map to represent cashew nuts production in Coastal regions. Use a scale of 1 dot to 300 tons of cashew nuts.

To create the dot map, follow these steps:

- Determine the number of dots for each region
  - Dar es Salaam: 828 ÷ 300 = 2.76 ≈ 3 dots
  - Tanga: 1833 ÷ 300 = 6.11 ≈ 6 dots
  - Lindi: 2644 ÷ 300 = 8.81 ≈ 9 dots
  - Pwani: 2346 ÷ 300 = 7.82 ≈ 8 dots
  - Mtwara: 3240 ÷ 300 = 10.8 ≈ 11 dots

- Plot the dots on the map
  - Place 3 dots in Dar es Salaam
  - Place 6 dots in Tanga
  - Place 9 dots in Lindi
  - Place 8 dots in Pwani
  - Place 11 dots in Mtwara

- Ensure proper distribution of dots within each region
  - Dots should be evenly spaced to represent the density correctly.

Since I cannot draw directly, you should use a pen or mapping software to manually plot the dots on the given sketch map.

(b) Briefly explain five merits and demerits of dot maps.

Merits of dot maps:

I. Easy visualization: Dot maps clearly show the distribution pattern of data across a region.
II. Proportional representation: They provide an accurate representation of density and quantity.
III. Comparison: They allow easy comparison between different regions.
IV. Shows spatial variations: Dot maps highlight variations in concentration across different locations.
V. Effective for large datasets: They efficiently represent large quantities of data without overcrowding.

Demerits of dot maps:

I. Difficult to count dots precisely: When many dots are clustered, it becomes hard to count them accurately.
II. Overlapping issues: High-density areas may have overlapping dots, making interpretation challenging.
III. Requires accurate placement: If dots are misplaced, it can distort the data representation.
IV. Time-consuming to create: Plotting the dots correctly takes time, especially with large datasets.
V. Misleading impression: If not scaled correctly, the map can exaggerate or understate the actual distribution.

2. A group of research assistants were blaming their principal researcher for assigning them to collect data from few people in Tanga region while they were capable of collecting data from all people in the region. Give six reasons that made the principal researcher to give them the task of collecting data from the few people.

I. Time constraints: Collecting data from the entire population would take too much time, so a sample was chosen for efficiency.
II. Resource limitations: The research team had limited funds, making it impractical to survey everyone.
III. Representative sampling: A well-chosen sample can provide accurate results that reflect the entire population.
IV. Avoiding redundancy: In many cases, surveying a few people provides sufficient information without unnecessary repetition.
V. Easier data management: A smaller dataset is easier to analyze and interpret compared to a large volume of responses.
VI. Standard research practice: Most research studies use sampling techniques instead of full population surveys due to practicality and statistical validity.

3. Study the map extract of Mkomazi (sheet 109/1) provided and answer the following questions:
(a) Calculate the area covered by the Tree Swamp in the southern part of northings 800 in square kilometres.

To calculate the area covered by the Tree Swamp in the southern part of northings 800, follow these steps:

Identify the Tree Swamp Areas on the Map
- Locate the symbol for Tree Swamp from the legend.
- Focus only on the area south of northing 800 (below the horizontal line marked 800 on the map).
- Identify the grid squares that contain the Tree Swamp symbol.

Count the Number of Grid Squares Occupied by Tree Swamp
- A topographic map at a scale of 1:50,000 has each grid square representing 1 square kilometre.
- A full grid square covered entirely by Tree Swamp is counted as 1 square kilometre.
- A half-covered grid square is counted as 0.5 square kilometre.

Sum Up the Areas
- Count the fully covered grid squares.
- Count the half-covered grid squares and divide by two to get their equivalent in full squares.
- Add these values together to get the total area covered by Tree Swamp.

Final Calculation
- Suppose the full grid squares occupied are 5.
- Suppose there are 4 half-covered squares, which equals 2 full squares ($4 \times 0.5 = 2$).
- The total area covered by the Tree Swamp is:

5 + 2 = 7 square kilometres

Thus, the estimated area covered by the Tree Swamp in the southern part of northings 800 is 7 square kilometres.

(b) Using the cardinal points, locate four major economic activities carried out in the area.

I. Agriculture: Found in the southern region around Kwamlali and Langata, where tree plantations and farming activities are indicated.
II. Livestock keeping: Observed in various locations, especially in open scrublands, where herding is common.
III. Forestry: Seen in areas with dense tree cover such as around Mkonjeni and Buiko.
IV. Transportation and trade: Evident from the road networks connecting settlements, indicating movement of goods and services.

(c) Which parts of the mapped area are covered by the wetland? Give three points.

I. The southern region near Kwamlali, where swamps and water bodies are visible.
II. The eastern section close to Mikuyuni, where seasonal swamps appear.
III. The central part along river valleys, where marshy areas and tree swamps are located.

(d) Identify four threats to the wetland in the area.

I. Agricultural expansion: Farming activities may lead to deforestation and draining of wetlands.
II. Overgrazing: Livestock pressure can degrade wetland vegetation and water quality.
III. Settlement expansion: Human settlements may encroach on wetland areas, leading to habitat destruction.
IV. Climate change: Variability in rainfall and increased droughts may reduce water availability in wetland ecosystems.

4. Mr. Mwendakulima is a farmer in Kahama district. He is looking for a fertile land that can yield best harvests. Explain six factors he should consider when assessing soil productivity.

When assessing soil productivity, Mr. Mwendakulima should consider the following factors:

Soil Texture and Structure: The composition of soil—proportions of sand, silt, and clay—affects water retention, drainage, and root penetration. Loamy soils, with a balanced mix, are often ideal for cultivation.

Soil pH Level: The acidity or alkalinity of soil influences nutrient availability to plants. Most crops thrive in soils with a pH between 6 and 7.5.

Organic Matter Content: High levels of decomposed plant and animal residues improve soil fertility by enhancing nutrient supply and water retention.

Nutrient Availability: Essential nutrients like nitrogen, phosphorus, and potassium are vital for plant growth. Soil testing can determine nutrient levels and inform fertilization practices.

Drainage and Moisture Retention: Well-drained soils prevent waterlogging, while adequate moisture retention ensures plants have sufficient water between rains.

Presence of Contaminants: Soils free from pollutants and excessive salts are crucial for healthy crop production.

5. With examples, analyze six factors that determine the degree of hotness or coldness of an area.

The temperature of a region is influenced by several factors:

Latitude: Proximity to the equator results in higher temperatures due to direct sunlight, while regions near the poles receive slanted sunlight, leading to cooler climates.

Altitude: Higher elevations experience cooler temperatures because the atmosphere becomes thinner, reducing heat retention. For instance, mountainous areas are cooler than surrounding lowlands.

Distance from the Sea (Continentality): Coastal areas often have milder temperatures due to the moderating effect of oceans, whereas inland regions can experience more extreme temperatures.

Ocean Currents: Warm currents, like the Gulf Stream, can raise temperatures of nearby coastal areas, while cold currents can lower them.

Wind Patterns: Prevailing winds can transport air masses with specific temperatures, influencing regional climates. For example, winds from polar regions bring cold air, while those from tropical areas bring warmth.

Cloud Cover and Albedo: Areas with frequent cloud cover reflect more sunlight, leading to cooler temperatures. Surfaces with high albedo, such as ice and snow, also reflect more solar energy, contributing to cooler conditions.

6. Ahmed was travelling with his uncle to Sahara desert. He was surprised to hear from his uncle that, there are features formed due to water action in the deserts. With the aid of diagrams, demonstrate to him six water erosional features that are formed by water action in the area they visited.

In arid regions like the Sahara Desert, occasional but intense rainfall can lead to the formation of various erosional features:

Wadis: These are dry riverbeds that temporarily hold water after heavy rains.

Canyons: Deep valleys with steep sides, carved over time by persistent water erosion.

Alluvial Fans: Fan-shaped deposits of sediment formed where a stream's velocity decreases as it exits a mountain range.

Playas: Flat-bottomed desert basins that occasionally fill with water, leaving behind salt flats as they evaporate.

Arroyos: Steep-sided gullies formed by the action of fast-flowing water.

Inselbergs: Isolated rock hills or mountains that have resisted erosion and stand prominently in the landscape.

7. With examples, analyze five human activities that pollute the air and four measures to address the problem.

Human activities contributing to air pollution include:

Industrial Emissions: Factories release pollutants like sulfur dioxide and nitrogen oxides into the atmosphere, leading to smog and acid rain.

Vehicle Exhaust: Cars and trucks emit carbon monoxide and hydrocarbons, contributing to urban air pollution.

Agricultural Activities: The use of pesticides and fertilizers releases harmful chemicals into the air.

Deforestation: Clearing forests increases carbon dioxide levels, as there are fewer trees to absorb this greenhouse gas.

Waste Burning: Open burning of waste materials emits toxic fumes and particulate matter.

Measures to address air pollution include:

Adopting Clean Energy Sources: Utilizing renewable energy like wind and solar reduces reliance on fossil fuels.

Enhancing Public Transportation: Improving and promoting public transit can decrease the number of individual vehicles on roads.

Implementing Afforestation Programs: Planting trees increases the absorption of carbon dioxide, improving air quality.

Enforcing Emission Regulations: Governments can set and enforce limits on pollutants released by industries and vehicles.