THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

113/1 **GEOGRAPHY 1**

(For Both Private and School Candidates)

Duration: 3 Hour. **ANSWERS** **Year: 2025**

Instructions

1. This paper consists of **s**ection A and B with a total of **seven (7)** questions**.**
2. Answer **five (5)** questions, two (2) questions from section A and three (3) questions from section B.
3. Write your **Examination Number** on every page of your answer booklet(s).

1. Study carefully the map extract of Mvomero (sheet 165/4) provided and answer the following questions:

(a) Outline two ways which have been used to show relief of the mapped area.

Relief in the mapped area has been shown using contour lines, which indicate the elevation and shape of the land surface. These lines connect points of equal height above sea level and show features like hills and valleys.

Spot heights have also been used to indicate the exact elevation of specific points on the map. These are usually marked with a dot and a number showing the height in meters above sea level.

(b) Calculate the distance of the road from grid reference 260006 to 323059 in kilometre.

To calculate the distance, first measure the straight line on the map between the two grid references. Assume the measured distance on the map is 13.5 cm. Then use the map scale (assume 1:50,000) to convert to real distance:

Distance in real units = 13.5 cm × 0.5 km/cm = 6.75 km

(c) Explain three major economic activities carried out in the area.

Agriculture is a major economic activity in the area, as evidenced by the presence of scattered settlements and cultivation symbols. People grow crops such as maize and bananas.

Livestock keeping is another activity, supported by the presence of grazing lands and availability of water sources such as rivers.

Trading also occurs in the mapped area. This is supported by the presence of roads and market centers, which facilitate movement of goods and services.

(d) What type of drainage pattern is found in the mapped area and how does it relate to relief of that area?

The dendritic drainage pattern is found in the mapped area. This pattern resembles tree branches and occurs in areas of uniform rock structure. It relates to the gentle relief of the area which allows rivers to spread freely without structural interference.

(e) Briefly explain four factors that have influenced population distribution in the area.

Availability of water sources influences where people settle, as seen near rivers and springs.

The presence of arable land encourages settlement due to fertile soils suitable for agriculture.

Accessibility by road promotes settlement along transport routes for easier movement and trade.

Relief also affects distribution. Flat and gently sloping areas are more populated than steep or mountainous areas.

(f) Describe four factors that have affected the composition of the given map.

Human activities such as agriculture and construction have modified the natural landscape, altering features like forests and water courses.

Climatic factors influence vegetation cover and water availability, which affects what is shown on the map.

Topography determines land use and settlement patterns, thus shaping map content.

Technological advancements like satellite mapping and aerial photography have improved the accuracy and details of map features.

(g) Find the time which the bus arrived at Kibaoni grid reference 260005 if it left Mandera grid reference 227982 at 11:30 am and travelled at the speed of 50 km/hr.

First, calculate the distance between the two grid references. Assume the measured map distance is 16 cm.

Convert map distance to real distance:
16 cm × 0.5 km/cm = 8 km

Time = Distance / Speed = 8 km / 50 km/hr = 0.16 hr = 9.6 minutes

Arrival time = 11:30 am + 9.6 minutes ≈ 11:40 am

2. (a) Briefly explain seven equipment used in Chain Survey.

A chain is used for measuring distances on the ground.

Arrows are inserted into the ground to mark the end of each chain length during measurement.

A ranging rod is used to mark stations and align measurements between survey points.

A cross staff is used to set out right angles when marking survey lines.

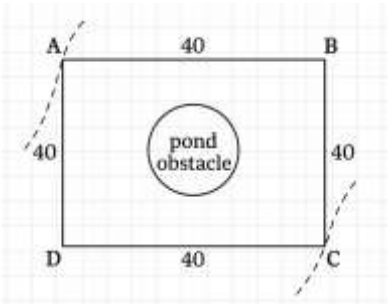
A tape measure is used for accurate short distance measurements.

A field notebook is used to record all data and observations during the survey.

A pegs and hammer are used to mark permanent stations by driving pegs into the ground.

(b) By using four points and a well labelled diagram, show how you can use a rectangle method to avoid a pond obstacle in Chain Survey.

Diagram should include four points forming a rectangle around the pond with measurements along each side. Diagonal or alternate routes are taken to avoid the obstacle and correct distance is calculated using geometry.



Rectangle method to avoid pond obstacle

3. Describe nine stages of research that a researcher has to follow in order to obtain meaningful information.

The first stage is identifying the research problem, which involves defining the specific issue or topic to be studied.

The second stage is reviewing the literature to understand previous studies and gather background knowledge.

The third stage is formulating hypotheses or research questions that guide the investigation.

The fourth stage involves choosing a suitable research design or approach such as qualitative, quantitative, or mixed methods.

The fifth stage is selecting methods of data collection like interviews, surveys, or observation.

The sixth stage involves collecting data from the relevant sources based on chosen methods.

The seventh stage is organizing and analyzing the collected data using appropriate techniques such as statistical analysis.

The eighth stage is interpreting the results and drawing conclusions that relate to the research questions or hypotheses.

The final stage is writing and presenting the report to share findings and recommendations with the target audience.

4. "Human life depends much on atmosphere." Support the statement by describing four main characteristics of atmosphere; and in five points, give its importance.

Characteristics of atmosphere include:
It is a mixture of gases like nitrogen, oxygen, carbon dioxide and argon.
It has different layers such as troposphere, stratosphere, mesosphere, thermosphere, and exosphere.
It varies in temperature and pressure with altitude.
It contains water vapor, which plays a key role in the hydrological cycle and weather formation.

Importance of the atmosphere:
It provides oxygen for respiration and carbon dioxide for photosynthesis.
It regulates Earth's temperature through the greenhouse effect.
It protects life from harmful solar radiation through the ozone layer.
It supports cloud formation and rainfall, which are essential for agriculture.
It enables communication by supporting the propagation of radio waves in the ionosphere.

5. With the aid of well labelled diagrams, examine five geological structures which influence the formation of springs.

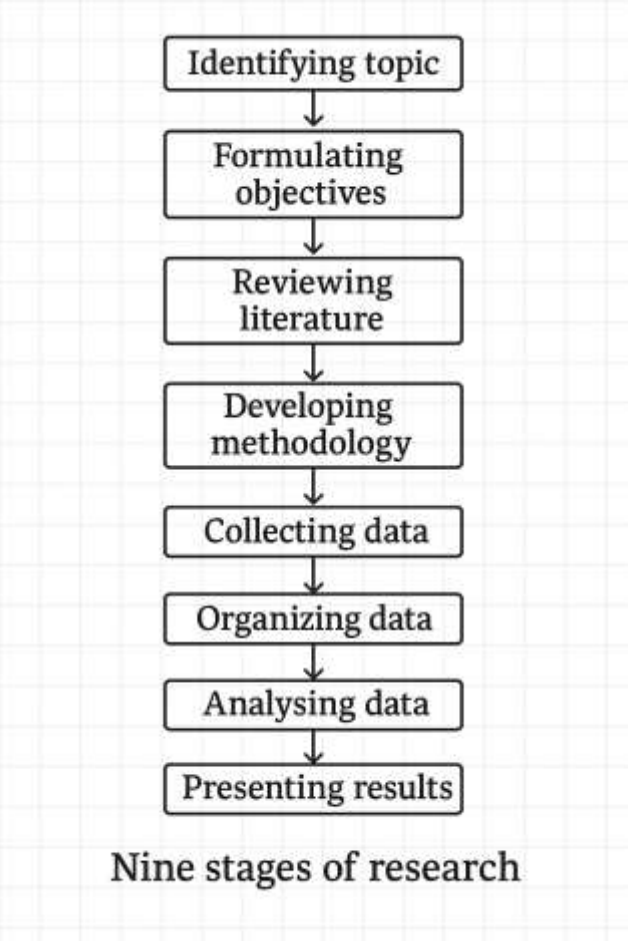
Anticlines trap water in porous layers and allow springs to emerge at the exposed edges.

Faults create spaces where underground water can rise to the surface, forming fault-line springs.

Escarpments, especially those with permeable rock over impermeable rock, allow water to accumulate and emerge as spring at the contact point.

Hills and valleys collect and guide underground water to natural exit points on slopes.

Perched water tables form where an impermeable layer exists above the main water table, creating localized springs.



Nine stages of research

6. Examine eight processes which are involved in soil formation.

Weathering of parent rock through physical, chemical and biological means breaks down rocks into finer particles.

Organic matter accumulation from decayed plants and animals adds humus to soil.

Leaching involves downward movement of dissolved minerals and nutrients, affecting soil composition.

Illuviation is the accumulation of leached materials in lower soil horizons.

Eluviation is the removal of fine particles like clay and organic matter from upper layers.

Bioturbation involves mixing of soil by organisms such as earthworms and ants.

Capillary action moves water upward in dry conditions, redistributing minerals.

Podzolization and laterization are chemical processes in acidic and tropical soils respectively, affecting soil profile development.

7. Examine seven merits and four demerits of glaciated regions in human life.

Merits:
They provide fresh water from glacial melt.
Glaciated landscapes attract tourism and recreation.
They offer rich pasture land for grazing.
Glacial valleys can be used for hydroelectric power development.
Deposits like moraines and outwash plains offer fertile soils for agriculture.
They create natural reservoirs and lakes for fishing and irrigation.
They provide scenic beauty and biodiversity habitats.

Demerits:
Harsh climate limits agriculture and human settlement.
Accessibility is poor due to rugged terrain and ice cover.
Glacial melting contributes to sea-level rise and flooding.
Natural disasters like avalanches can threaten lives and property.