THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

013 **GEOGRAPHY**

(For Both School and Private Candidates)

Time: 3 Hours **ANSWERS** **Year: 2023**

Instructions

1. This paper consists of ELEVEN questions.

2. Answer all questions in section A and B and two questions from section C.

1. For each of the items (i) - (x), choose the correct answer from the given alternatives and write its letter beside the item number in the answer booklet(s) provided.

(i) What will happen when the orbit of heavenly body is nearest to the Sun?
A Perihelion
B Aphelion
C Sunrise
D Equinox
E Sunset

Answer: A Perihelion
Reason: Perihelion is the point in the orbit of a planet where it is closest to the Sun.

(ii) At the road construction site, John saw a layer of land with finest soil particles and more humus. Identify the layer observed by him.
A B horizon
B E horizon
C D horizon
D A horizon
E C horizon

Answer: D A horizon
Reason: The A horizon is the topsoil layer, rich in humus and fine soil particles, ideal for plant growth.

(iii) Keino wants to transport his car from Japan to Tanzania. Which mode of transport would be best to use?
A Water
B Pipeline
C Cable
D Animal
E Road

Answer: A Water
Reason: Water transport is suitable and economical for moving heavy and bulky items like vehicles over long distances between countries.

(iv) Songoro prefers to cultivate vegetables, maize and beans in his farm. What type of farming is he practicing?
A Mixed farming
B Bush fallowing
C Large scale farming
D Crop rotation
E Shifting cultivation

Answer: A Mixed farming
Reason: Mixed farming involves the cultivation of crops and rearing of animals or different types of crops in one farm.

(v) Sometimes people living in the Central part of Tanzania experience sudden vibrations of the Earth's surface caused by movement of the molten rocks below or within the crust. Identify the instrument to be used to measure the magnitude of such vibrations.
A Hygrometer
B Thermometer
C Wind vane
D Richter Scale
E Barometer

Answer: D Richter Scale
Reason: The Richter Scale measures the magnitude of earthquakes or earth vibrations.

(vi) Coastal areas do not maintain its shape due to erosional and depositional processes. Which factors influence those processes?
(i) The strength of the wind that blows over the sea
(ii) Weather condition in the area
(iii) The depth of the sea water along the coast
(iv) The nature of the rocks on the coast

A (i), (ii) and (iv)
B (i), (ii), (iii)
C (i), (iii) and (iv)
D (ii), (iii) and (iv)
E (ii) and (iv)

Answer: C (i), (iii) and (iv)
Reason: These physical factors directly influence erosion and deposition on coastal areas.

(vii) It is noon in Adis Ababa (39°E). What will be the time in Dar es Salaam which is located along the same longitude?
A 12:00 pm
B 12:00 am
C 06:00 pm
D 11:00 am
E 06:00 am

Answer: A 12:00 pm
Reason: Both cities are along the same longitude, so local time remains the same.

(viii) Which factors cause Tanzania's population structure to be dynamic?
A Fertility, mortality and migration
B Fertility, fecundity and migration
C Mortality, fertility and fecundity
D Migration, mortality and fecundity
E Mortality, emigration and fecundity

Answer: A Fertility, mortality and migration
Reason: These three factors influence the size, age structure and distribution of population.

(ix) What could be the appropriate method for extracting gold deposits which are near to the surface?
A Shaft mining
B Underground mining
C Open cast mining
D Alluvial mining
E Placer mining

Answer: C Open cast mining
Reason: Open cast mining is used for extracting minerals found near the Earth's surface.

(x) Why are Japanese ship building industries located along the coast?
A Government policy
B Presence of skilled labour
C Availability of capital
D Good supply of power
E Presence of natural harbours

Answer: E Presence of natural harbours
Reason: Shipbuilding industries are established near harbours for easy launching and transport.

2. Match the description of environmental issues in List A with their environmental concepts in List B by writing a letter of the corresponding response beside the item number in the answer booklet(s) provided.

List A
(i) A state in which an area experiences prolonged dry period.
(ii) Addition of unwanted substances into the environment.
(iii) Deterioration of the quality of the land through loss of soil fertility.
(iv) Gradual changes of rainfall and temperature in a place.
(v) Processes that lead to the perish of plant and animal species in an area.
(vi) Process through which fertile land become dry, waterless and without vegetation.

List B

A Desertification
B Deforestation
C Loss of biodiversity
D Drought
E Soil erosion
F Land degradation
G Climate change
H Pollution

Answers:
(i) D
(ii) H
(iii) F
(iv) G
(v) C
(vi) A

3. Carefully study the map extract of Liwale (sheet 280/4) and answer the questions that follow:
(a) Giving a reason, identify the dominant type of rock in the mapped area.

The dominant type of rock is granite because the area shows highland features like tors and dome-shaped hills, which are typical of granite landscapes.

(b) Describe three characteristics of the rock mentioned in (a).

Granite is a hard and resistant rock, which makes it durable against weathering.
It forms distinctive landforms such as exfoliation domes and inselbergs.
It consists of coarse grains of quartz, feldspar, and mica, giving it a speckled appearance.

(c) Briefly describe two possible reasons for the growth of Liwale town.

Availability of transport routes such as roads facilitates movement of people and goods.
Presence of social services like schools, hospitals, and administrative offices attracts population growth.

(d) By using RF scale, measure the distance of a road in kilometers from grid reference 814218 to 809165.

This would require a map and the RF scale (e.g., 1:50,000). Measure the distance in cm and convert using the RF formula:
Distance on map (cm) × RF = Distance on ground. Then convert to kilometers.

4. The school head prefect was assigned to select representatives for a research on waste management in their school.
(a) How is the process used to select the representatives for the research called?

The process is called sampling.

(b) Identify two techniques that will be used to select the representatives named in (a).

Random sampling
Systematic sampling

(c) Explain three advantages of the process named in (a).

It saves time since data is collected from a small group instead of the whole population.
It is cost-effective because fewer resources are used.
It provides reliable results if the sample is well chosen and represents the population accurately.

5. You have been assigned to measure a linear distance between lines of traverse in measuring a new plot for a school playing ground.
(a) Suggest a suitable survey method for the activity.

The suitable method is chain survey.

(b) Mention the first and the last steps that you will use to accomplish the activity.

First step: Reconnaissance survey (scouting the area).
Last step: Recording and plotting data on a map or field book.

(c) Briefly explain three survey equipments you will use in the field.

Chain or tape: Used to measure distances between points.
Arrows: Mark the endpoints of measured lines.
Ranging poles: Used for aligning survey lines over long distances.

6. Study carefully the given photograph and answer the questions that follow:
(a) With two reasons, suggest the type of photograph.

It is an oblique ground photograph.
Reason 1: It is taken from a raised angle showing both the foreground and background.
Reason 2: It captures the landscape and features at an angle, not from directly above.

(b) Mention the depositional, erosional and man-made features seen on the photograph. Give two features for each.

Depositional: Beach, sandbars.
Erosional: Cliffs, wave-cut platforms.

Man-made: Huts, walking paths or footbridges.

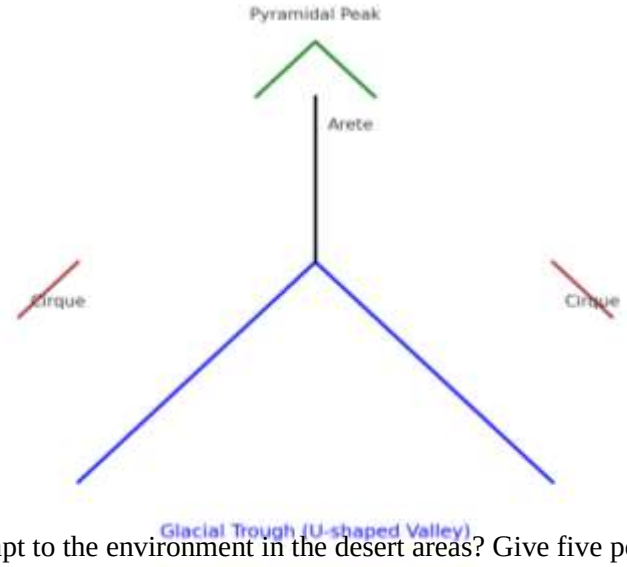
(c) Describe three stages of formation of the main marine erosion feature seen at the South Eastern part of the foreground.

Stage 1: Hydraulic action and abrasion attack the base of a cliff, forming a notch.
Stage 2: Continued erosion enlarges the notch into a cave.
Stage 3: Further erosion breaks through the cave to form an arch, and with time, the arch collapses leaving a sea stack.

7. The Form Four students watched a video showing a landscape of Switzerland and observed several features developed by ice action.
(a) Briefly describe four highland erosional features observed by the students.

Cirque (corrie): A bowl-shaped hollow formed by glacial erosion at the head of a valley.
Arete: A sharp ridge formed between two adjacent cirques.
Pyramidal peak: A sharp mountain peak formed when several cirques erode a mountain from different sides.
Glacial trough (U-shaped valley): A wide valley with a flat floor formed by glacier movement.

(b) Draw a well labeled diagram showing features described in (a).



8. (a) How do vegetation adapt to the environment in the desert areas? Give five points.

Vegetation develops long taproots to reach underground water sources.
Some plants store water in thick stems or leaves (succulents like cacti).
Leaves are reduced to spines to minimize water loss through transpiration.
Plants grow far apart to reduce competition for limited moisture.
Many desert plants remain dormant during dry seasons and grow quickly when rain falls.

(b) Explain four characteristics of vegetation found in desert areas.

Plants are usually short with wide-spreading roots.
They often have thick, waxy surfaces to prevent water loss.
Spiny or hairy surfaces help to reduce water evaporation.
Many plants are perennial but remain inactive for long periods.

9. Juma was travelling from Iringa to Dar es Salaam. On his way, he experienced gradual increase in temperature. In six points, analyse the causes of such a situation.

Iringa is located at a higher altitude compared to Dar es Salaam. As one descends from a highland to a lowland area, the temperature increases due to the decrease in elevation. This is because air is denser and warmer at lower altitudes.

Dar es Salaam is situated near the coast, where the temperature tends to be higher due to the influence of the warm Indian Ocean. Coastal areas generally experience higher humidity and heat, especially during the day.

The vegetation cover reduces as one moves from Iringa to Dar es Salaam. Forested highlands like Iringa tend to be cooler due to shade and transpiration from plants, while urban and less vegetated areas like Dar are hotter due to concrete structures and limited greenery.

Urbanization and human activities in Dar es Salaam contribute to the urban heat island effect. Buildings, roads, and industries absorb and retain heat, raising the overall temperature in the area.

Cloud cover tends to reduce near coastal areas, allowing more sunlight to directly heat the surface. This leads to a gradual rise in temperature as one approaches the coast.

Air pressure and wind patterns also differ between highlands and coastal plains. Warm moist air from the ocean can move inland, contributing to a gradual increase in temperature as one travels towards the coastal regions.

10. Environmental degradation is a serious problem caused by human activities. Examine six measures to be taken to prevent the situation.

Afforestation and reforestation should be encouraged to restore lost vegetation. Trees help in reducing soil erosion, regulating temperature, and maintaining ecological balance.

Promoting the use of renewable energy sources such as solar and wind instead of firewood and charcoal reduces deforestation and air pollution.

Proper waste management practices, including recycling and safe disposal, can reduce land and water pollution, which contributes to environmental degradation.

Implementing environmental education programs in schools and communities raises awareness on the importance of protecting the environment and promotes responsible behavior.

Enforcing environmental laws and regulations helps to control activities like illegal logging, mining, and poaching which degrade the environment.

Promoting sustainable agricultural practices such as crop rotation, organic farming, and use of compost preserves soil fertility and minimizes chemical pollution.

11. Describe six sources of the renewable energy found in Tanzania.

Solar energy is abundant in Tanzania due to its location near the equator. It is harnessed using solar panels to provide electricity for homes, schools, and rural health centers.

Wind energy is available in regions like Singida and Makambako where wind speeds are strong. Wind turbines convert this kinetic energy into electricity for local use.

Hydropower is a major source of renewable energy in Tanzania, generated from rivers such as the Rufiji and Pangani. Dams and turbines are used to produce electricity.

Biomass energy is obtained from organic materials like wood, crop residues, and animal dung. It is commonly used for cooking and heating in rural areas.

Geothermal energy is found in regions with volcanic activity such as Lake Natron and Mbeya. Hot underground steam is tapped to generate electricity.

Tidal energy, though not yet fully exploited in Tanzania, has potential along the Indian Ocean coast where tidal movements can be converted into usable power.