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: 2021**

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 among the given alternatives and write its letter in the answer booklet(s) provided.

(i) The solar system is made up of the sun, planets and other heavenly bodies which revolve around the sun. Which planet has the shortest orbit?
A Pluto
B Mercury
C Mars
D Earth
E Venus

Answer: B Mercury
Reason: Mercury is the closest planet to the sun and therefore completes its orbit in the shortest time (88 days).

(ii) Asha was observing the uniform removal of top thin layer of the soil by running water in the rainy day. What type of soil removal was she observing?
A Splash erosion
B Gully erosion
C Sheet erosion
D Rill erosion
E Wind erosion

Answer: C Sheet erosion
Reason: Sheet erosion is characterized by uniform removal of a thin topsoil layer over a large surface area due to runoff.

(iii) Tanzanian population structure is concave in shape. What is the implication of this shape?
A Birth rate is high, low life expectancy and high death rate
B Low birth rate, high life expectancy and stable growth rate
C Birth rate is high, high infant mortality and high death rate
D Birth rate is low, low infant mortality and high death rate
E Birth rate is high, high life expectancy and stable growth rate

Answer: E Birth rate is high, high life expectancy and stable growth rate
Reason: A concave shape suggests improved health services and reduced mortality, resulting in balanced population growth.

(iv) Form One students were watching a Television program on various human activities in Maisha village. Which among the observed activities is not the cause of environmental destruction in that Village?
A Afforestation
B Charcoal burning

C Lumbering
D Fire wood cutting
E Construction activities

Answer: A Afforestation
Reason: Afforestation helps in environmental conservation by planting more trees, not destruction.

(v) Maneno's village has rainfall throughout the year and is surrounded by dense forest. Which type of forest do you think could be found in his village?
A Mangrove forest
B Coniferous forest
C Tropical forest
D Temperate forest
E Semi-arid forest

Answer: C Tropical forest
Reason: High rainfall and dense vegetation are characteristics of tropical rainforests.

(vi) What is the main cause of time variation between Lamu 40°E and Tunis 10°E?
A Rotation of the earth
B Differences in longitudes
C Revolution of the earth
D Rotation and revolution
E Differences in latitudes

Answer: B Differences in longitudes
Reason: Time varies with longitude, increasing by 4 minutes for every degree east or west.

(vii) Form Three students were taught that, the Southern Tourist Circuit in Tanzania promotes ecotourism. Which of the following is not encouraged in the promotion of ecotourism in the area?
A Afforestation
B Protecting endangered species
C Coastal attraction
D Environmental conservation
E Discouraging forest fire

Answer: C Coastal attraction
Reason: Coastal attraction is part of mass tourism, not necessarily aligned with the principles of ecotourism.

(viii) Which one is a factor that affects temperature between Tanzania and Netherlands?
A Altitude
B Solar system

C The sun
D Solar energy
E Heavenly bodies

Answer: A Altitude
Reason: Tanzania has varying altitudes; highlands are cooler. The Netherlands is largely lowland, contributing to temperature differences.

(ix) It is observed that, there is mineral exhaustion in Kahama district and the production is very minimal. Which one is the best alternative economic activity that can be adopted by the people living in the area so as to improve the standard of their life?
A Improving methods of extraction
B Reducing population
C Reclaiming the affected areas for agriculture
D Developing other sources of energy
E Establishing industries

Answer: C Reclaiming the affected areas for agriculture
Reason: This allows sustainable use of land and provides an alternative livelihood to mining.

(x) The owner of a plastic industry ordered the management to use environmental friendly energy sources in production. Which energy source could be used in that industry?
A Petroleum
B Nuclear
C Fuel wood
D Coal
E Solar

Answer: E Solar
Reason: Solar energy is renewable, clean, and environmentally friendly.

2. Match the intrusive volcanic features in List A with their corresponding relevant names in List B.

List A
(i) Horizontal intrusion between rock layers
(ii) Dome-shaped underground intrusion
(iii) Large underground magma chamber
(iv) Vertical intrusion cutting across layers
(v) Magma escaping to the surface

List B
A Laccolith
B Batholith

C Vent
D Dyke
E Magma
F Sill
G Volcano

Answers:
(i) F Sill
(ii) A Laccolith
(iii) B Batholith
(iv) D Dyke
(v) C Vent

3. Study carefully the map extract of Mbeya (Sheet 244/4) and answer the following questions:
(a) With supporting evidence from the map, describe two methods used to represent relief on the mapped area.

Contour lines are used, as seen by the numerous brown lines indicating elevation and shape of the land. Spot heights are also used; these are small numbers such as 1705 and 1722 shown at specific points to indicate exact height in meters.

(b) By giving evidence from the map, name four social economic activities carried out in the area.

Farming – the presence of scattered cultivation and tree plantations in the southern part shows agricultural activity.
Trading – symbols of markets and road networks around Mbeya town suggest active commercial trade.
Transportation – all-weather roads and railways indicate movement of goods and people.
Communication – the presence of telephone lines running along roads shows infrastructure for information exchange.

(c) Calculate the area covered by the forest using the square method. Give your answer in Km^2.

[Using the square method involves estimating full squares of forest coverage. If about 4 full squares are covered, and each square is 1 km^2 (1 km × 1 km based on grid squares), then the total area = 4 km^2.]

(d) By giving evidence from the map, describe three main types of transport found in the mapped area.

Road transport – all-weather roads and footpaths are shown throughout the map.
Railway transport – a railway line is clearly marked passing through Mbeya town.
Air transport – presence of an airstrip south of Mbeya shows provision for air transport.

4. Form One students carried a study tour to Hale Hydroelectric Power Station where they observed falling water in a river course disturbed by a steep flow of water which causes the water wheel to rotate.
(a) Name the feature with steep gradient the students observed.

The feature is a waterfall.

(b) Describe the feature named in (a).

A waterfall is a sudden vertical or near-vertical drop of a river or stream over a cliff or steep slope. Water flows down with great force, often forming a plunge pool at the base.

(c) With the aid of a diagram, describe how the feature named in (a) can be formed where a layer of resistant rock lies horizontally across a river channel.

[The waterfall forms where a resistant rock layer overlays a softer layer. The softer layer erodes faster, creating a notch under the hard rock. Eventually, the hard rock collapses, and the process continues, retreating upstream.]

5. Juma decided to carry out a research on the performance of students in his school using few students who represented the others.
(a) How is the process used by Juma to select the representatives called?

The process is called sampling.

(b) Briefly describe the process named in (a).

Sampling is the selection of a small group from a larger population to represent the entire group in a study. It saves time and resources and is often used in surveys.

(c) Explain two main types of the process named in (a).

Random sampling – every student has an equal chance of being selected, reducing bias.
Systematic sampling – students are selected at regular intervals (e.g., every 5th student) from a list.

(d) Mention four categories of one type of the process explained in (c).

For random sampling:
Simple random sampling
Stratified random sampling
Cluster sampling
Multi-stage sampling

6. Assume you are a chain survey expert in one of the village and you have been assigned a task of measuring a distance of a river from point A to point B.
(a) Which seven steps will you follow to carry out such a task?

Conduct reconnaissance to understand the area and mark points A and B.
Clear the line of obstacles like bushes or trees for visibility.
Mark intermediate points using ranging rods.
Measure the baseline using chain or tape measure.
Insert arrows at every full chain length recorded.
Record readings in a field book accurately.
Repeat or double-check for errors and calculate total distance.

(b) How would you ensure the correctness of measurement as you carry out a task?

Use standardized measuring tools like a verified chain or tape.
Ensure proper alignment by using ranging rods for straight lines.
Measure on level ground or adjust measurements on slopes.
Repeat measurements for accuracy and take averages if necessary.
Avoid chain sagging by keeping it taut during measurement.

7. Study the following photograph carefully and then answer the questions that follow:
(a) State the position of a photographer when taking the photograph.

The photographer stood at an elevated or high ground, capturing a ground-level view, indicating a ground-level oblique photograph.

(b) Describe the settlement pattern in the middle ground of the photograph.

The settlement pattern is nucleated – houses are grouped closely together, especially near roads or a market center.

(c) With evidence, give three functions of the area in the foreground.

Trading – presence of market stalls and people buying/selling goods.
Transport – visible roads and vehicles suggest the area is a transport hub.
Residential – some permanent structures indicate people live near the trading zone.

(d) Giving four points, describe the functions of vegetation shown in the area.

It helps reduce soil erosion by covering the ground.
Provides shade and cooling to settlements nearby.
Acts as a source of timber and fuelwood.
Improves air quality by absorbing carbon dioxide.

(e) Suggest two types of economic activities taking place in the area.

Retail trade – people are seen engaging in buying and selling in the market.
Transport services – presence of vehicles and motorcycles transporting goods and people.

8. The Form Four students had a field study to the National Bureau of Statistics. In the site, the statistician explained to them about different concepts of statistics and their benefits to users. Describe five benefits of statistics that might have been explained by the statistician.

Statistics help in planning and decision-making by providing data for future projections in sectors like education and health.
They assist in budgeting and resource allocation based on population and regional needs.
They enable monitoring of development progress and effectiveness of government projects.
They provide reliable information for researchers and policy makers.
They guide investors by showing trends in population, income, and resources.

9. Mdariani is a village surrounded by different types of rocks. Suppose you have been invited by the villagers to educate them about the sedimentary rocks and their characteristics, what six features would you give them as a guide?

Sedimentary rocks are formed from the accumulation and compaction of sediments.
They often occur in layers or strata that are clearly visible.
They may contain fossils of plants or animals preserved during formation.
These rocks are generally softer compared to igneous and metamorphic rocks.
They are formed in areas with water such as lakes, rivers, or oceans.
They may include types like sandstone, limestone, and shale.

10. “River basin development project is essential to economic development of various countries of the world.” In six points, explain the importances of the project to the economy of Tanzania.

River basin development projects improve irrigation for agriculture, especially in dry regions like central Tanzania. This ensures food security and promotes commercial farming by enabling year-round cultivation.

They generate hydroelectric power (HEP), which is vital for industrial growth and household electricity. Major projects like the Rufiji River basin support national electrification and reduce dependency on fossil fuels.

River basins provide water for domestic and industrial use. Towns and industries established along river basins benefit from reliable water supply for daily and production needs.

Fisheries are promoted in river basins where dams and reservoirs create favorable conditions for aquaculture, providing protein sources and employment to local communities.

Development of river basins encourages tourism activities through features like dams, waterfalls, and scenic landscapes, contributing to foreign exchange and local economic stimulation.

River basin development leads to improved infrastructure such as roads, bridges, and settlements around the basin, opening up rural areas and linking them to national and regional markets.