**THE UNITED REPUBLIC OF TANZANIA**

**NATIONAL EXAMINATION COUNCIL OF TANZANIA**

**FORM TWO SECONDARY EDUCATION EXAMINATION, 2002**

**0013 GEOGRAPHY**

**Time: 2:30 Hours** **ANSWERS** .

**Instructions**

1. This paper consists of sections A and B.
2. Answer **all** questions in section A and two questions from section B.
3. All writings must be in **blue** or **black** ink.
4. Communication devices and any unauthorized materials are **not** allowed in the assessment room.
5. Write your **Assessment Number** at the top right hand corner of every page.

## Section A

1. (i) The study of Geography is important because it helps us to:
A. Understand the movement of stars
B. Learn about human and environmental interactions
C. Study the history of ancient people
D. Measure the size of the moon
**B**
**Reason:** Geography focuses on the relationship between humans and their environment, including how people adapt to and modify their surroundings. The other options are unrelated to the core purpose of Geography.
(ii) The second planet from the sun is:
A. Mercury
B. Earth
C. Venus
D. Mars
**C**
**Reason:** The order of planets from the sun is Mercury (1st), Venus (2nd), Earth (3rd), and Mars (4th). Venus is the second planet.
(iii) A map scale of 1:50,000 means that 1 cm on the map represents:
A. 50 km on the ground
B. 5 km on the ground
C. 0.5 km on the ground
D. 500 km on the ground
**C**
**Reason:** Scale 1:50,000 means 1 cm = 50,000 cm. Convert: 50,000 cm = 500 m = 0.5 km. So, 1 cm on the map represents 0.5 km on the ground.
(iv) The type of rainfall caused by air rising over mountains is called:
A. Convectional rainfall
B. Orographic rainfall
C. Cyclonic rainfall
D. Frontal rainfall
**B**
**Reason:** Orographic rainfall occurs when moist air rises over mountains, cools, and condenses, causing rain on the windward side. Convectional rainfall is due to solar heating, cyclonic rainfall involves low-pressure systems, and frontal rainfall occurs at weather fronts.
(v) The spinning of the Earth on its axis causes:
A. Seasons
B. Day and night
C. Tides
D. Winds
**B**
**Reason:** The Earth's rotation on its axis every 24 hours causes the cycle of day and night. Seasons result

from revolution and axial tilt, tides are influenced by the moon, and winds are driven by pressure differences.

(vi) The main type of agriculture practiced by most Tanzanians is:

A. Commercial farming

B. Subsistence farming

C. Plantation agriculture

D. Mixed farming

**B**

**Reason:** Most Tanzanians practice subsistence farming, growing crops like maize and beans for family use. Commercial farming and plantation agriculture are less common, and mixed farming is not the dominant type.

(vii) If it is 12:00 noon at Greenwich (0°), what time is it at Dar es Salaam (39°E)?

A. 9:00 a.m.

B. 2:36 p.m.

C. 3:00 p.m.

D. 10:00 a.m.

**B**

**Reason:** Time difference: 15° = 1 hour. Difference = 39°E − 0° = 39°. Time difference = 39/15 = 2 hours 36 minutes (Dar es Salaam is ahead). 12:00 noon + 2:36 = 2:36 p.m.

(viii) Which of the following is a non-renewable resource?

A. Forest

B. Water

C. Coal

D. Solar energy

**C**

**Reason:** Coal is a non-renewable resource as it takes millions of years to form and is finite. Forests, water, and solar energy are renewable as they can be replenished naturally over shorter periods.

(ix) The bearing of North-East on a compass is:

A. 45°

B. 90°

C. 180°

D. 270°

**A**

**Reason:** North-East (NE) is 45° east of North (0°). Bearing = 045°.

(x) The main problem facing tourism in Tanzania is:

A. Too many tourists

B. Poor infrastructure

C. High foreign exchange earnings

D. Good accommodation facilities

**B**

**Reason:** Poor infrastructure, such as inadequate roads and transport to tourist sites like Serengeti, is a major challenge for tourism in Tanzania. The other options are either positive or not the primary issue.

2. Match the items in COLUMN A with the corresponding items in COLUMN B by writing the letter of the correct item in COLUMN B against its corresponding number in COLUMN A.

| **COLUMN A** | **COLUMN B** |
|---|---|
| (i) Weather | B. Condition of the atmosphere at a specific time |
| (ii) Contours | A. Lines joining places with the same height |
| (iii) Subsistence farming | C. Growing crops mainly for family use |
| (iv) Solar system | D. Sun and its orbiting planets |
| (v) Deforestation | E. Removal of trees from an area |

3. Write TRUE or FALSE against the statement given:

(i) The Equator divides the Earth into Eastern and Western Hemispheres.

**FALSE** (The Equator divides the Earth into Northern and Southern Hemispheres; the Prime Meridian divides it into Eastern and Western Hemispheres.)

(ii) Small-scale farming in Tanzania is mainly for subsistence.

**TRUE** (Most small-scale farmers in Tanzania grow crops like maize and cassava for family use, not for sale.)

(iii) The Earth takes 24 hours to complete one revolution around the sun.

**FALSE** (The Earth takes 24 hours to rotate on its axis; one revolution around the sun takes approximately 365 days.)

(iv) Overgrazing can lead to soil erosion.

**TRUE** (Overgrazing removes vegetation cover, exposing soil to erosion by wind and water.)

(v) A wind vane is used to measure the speed of wind.

**FALSE** (A wind vane shows wind direction; an anemometer measures wind speed.)

(vi) Mount Kilimanjaro is a volcanic mountain.

**TRUE** (Mount Kilimanjaro was formed by volcanic activity, making it a volcanic mountain.)

(vii) All longitudes are great circles.

**TRUE** (Longitudes are great circles as they pass through the poles, dividing the Earth into equal halves.)

(viii) Mining does not cause environmental pollution.

**FALSE** (Mining causes pollution through dust, chemical spills, and water contamination, e.g., in gold mining areas like Geita.)

(ix) The sun rises in the east and sets in the west.

**TRUE** (Due to the Earth's rotation from west to east, the sun appears to rise in the east and set in the west.)

(x) Tourism in Tanzania only has positive effects.

**FALSE** (Tourism can have negative effects like environmental degradation, cultural erosion, and pressure on resources, alongside positive effects like job creation.)

4. (a) Study the map provided then answer the questions that follow:
Scale: 1:50,000
A simple map with points M and N, where M is at grid reference 180130 and N is at 200150. The forest is assumed to be a rectangular feature on the map.

(i) Calculate the area of the forest shown on the map.
Answer: Assume the forest is a rectangle on the map, 3 cm × 2 cm. Scale 1:50,000 means 1 cm = 0.5 km (50,000 cm = 500 m = 0.5 km). Area on map = 3 × 2 = 6 cm². 1 cm² = 0.5 × 0.5 = 0.25 km². Area = 6 × 0.25 = 1.5 km².
**Answer:** 1.5 km²

(ii) Find the bearing of point M from point N.
Answer: M (180130), N (200150). Eastings difference = 180 − 200 = -20 (west). Northings difference = 130 − 150 = -20 (south). Direction is southwest. Bearing = 180 + 45 = 225°.
**Answer:** 225°

(iii) Give the direction of point N from point M.
Answer: If M to N is 225° (southwest), N to M is the opposite: 225 − 180 = 045° (northeast).
**Answer:** Northeast

(iv) State the grid reference of point M and point N.
Answer: Based on assumption: M = 180130, N = 200150.
**Answer:** M: 180130, N: 200150

(b) Carefully study the climatic data for Station S and answer the questions that follow:

| **MONTH** | J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Temp. (°C)** | 27 | 27 | 26 | 25 | 24 | 23 | 23 | 24 | 25 | 26 | 26 | 27 |
| **Rainfall (mm)** | 200 | 180 | 150 | 100 | 50 | 20 | 10 | 15 | 30 | 80 | 120 | 170 |

(i) Calculate the mean annual temperature.
Answer: (27 + 27 + 26 + 25 + 24 + 23 + 23 + 24 + 25 + 26 + 26 + 27) / 12 = 293 / 12 ≈ 24.42°C
**Answer:** 24.42°C
(ii) Calculate the total annual rainfall.
Answer: 200 + 180 + 150 + 100 + 50 + 20 + 10 + 15 + 30 + 80 + 120 + 170 = 1125 mm
**Answer:** 1125 mm
(iii) Determine the annual range of temperature.
Answer: Max = 27°C (January, February, December), Min = 23°C (June, July). Range = 27 − 23 = 4°C
**Answer:** 4°C

(iv) Suggest the type of climate at Station S.
Tropical savanna climate
**Reason:** High temperatures year-round (23–27°C) and a distinct wet season (e.g., January: 200 mm) and dry season (e.g., July: 10 mm) are characteristic of a tropical savanna climate.

(v) Mention two crops that can be grown in the area.
- Maize (thrives in warm climates with seasonal rainfall)
- Groundnuts (suitable for savanna regions with well-drained soils)

(c) Give three proofs that the Earth is spherical.
- Ships disappear bottom-first when sailing away due to the curve of the Earth.
- The Earth's shadow during a lunar eclipse is curved, indicating a spherical shape.
- Photographs from space show the Earth as a round globe.

(d) Mention three types of agriculture practiced in Tanzania.
- Subsistence farming (growing crops for family use)
- Commercial farming (growing cash crops like coffee for sale)
- Plantation agriculture (large-scale farming, e.g., tea estates in Iringa)

(e) List three sources of renewable energy.
- Solar energy
- Wind energy
- Hydroelectric power

(f) List three ways to locate a position on a map.
- Grid references (using Eastings and Northings)
- Latitude and longitude coordinates
- Bearings and distances from a known point

(g) Name three effects of deforestation in Tanzania.
- Soil erosion due to loss of vegetation cover
- Reduced rainfall as trees contribute to the water cycle
- Loss of biodiversity as habitats are destroyed

## SECTON B

5. Explain Benefits of Studying Geography to Students

One important benefit of studying geography is that it helps students understand their physical environment. By learning about landforms, weather, climate, and natural resources, students gain knowledge on how natural systems work and how human activities interact with the environment.

Secondly, geography enhances map reading and interpretation skills. Students learn to read various types of maps, atlases, and diagrams, which are essential tools in modern fields like urban planning, transportation, and disaster management.

Another benefit is that it promotes environmental awareness and conservation. Geography teaches students about environmental problems like deforestation, desertification, and pollution, and equips them with ideas on how to protect natural resources and live sustainably.

Additionally, studying geography provides career opportunities in various fields such as cartography, meteorology, environmental management, urban planning, and tourism. It opens doors to professions that involve working with land, climate, and human settlements.

Lastly, geography fosters global awareness and cultural understanding. Students learn about different regions, peoples, and cultures of the world, which encourages tolerance, cooperation, and appreciation of cultural diversity.

6. Describe Problems Facing Agriculture in Tanzania

One of the major problems is unreliable rainfall. Tanzanian farmers largely depend on rainfall for crop cultivation, but the rain patterns have become increasingly unpredictable due to climate change, resulting in droughts or floods that affect crop yields.

Secondly, there is a shortage of modern farming equipment and technology. Most farmers use traditional tools like hoes and pangas, which limit their productivity and efficiency. Limited access to irrigation systems and tractors also affects the modernization of the sector.

Another problem is pests and crop diseases. Common issues like armyworms, locust invasions, and plant diseases reduce crop output and increase the cost of farming, especially for small-scale farmers who may lack resources to buy pesticides.

Additionally, poor infrastructure and market access hinder the development of agriculture. Many farming areas have poor roads, making it difficult for farmers to transport their produce to markets, causing post-harvest losses and reducing profitability.

Lastly, land degradation and soil exhaustion are major concerns. Continuous farming without proper soil management leads to loss of soil fertility, erosion, and decreased crop production, which threatens food security.

7. Mention Ways to Conserve Forest Resources

One effective way to conserve forests is through afforestation and reforestation programs. Planting new trees in deforested areas and degraded lands helps restore forest cover and protect the environment.

Secondly, controlling illegal logging activities is crucial. Governments and local authorities should enforce strict laws and regulations to prevent unauthorized tree cutting and timber trade, ensuring sustainable forest use.

Another method is promoting alternative energy sources. Encouraging the use of solar energy, biogas, and improved cooking stoves can reduce dependency on firewood and charcoal, which are major causes of deforestation.

Additionally, establishing forest reserves and protected areas helps conserve biodiversity and natural habitats. These areas restrict human activities like farming and settlement, preserving forests for future generations.

Lastly, educating communities on the importance of forest conservation is vital. Public awareness campaigns and school programs can teach people about the benefits of forests and how to use them responsibly.

8. Outline Effects of the Earth’s Rotation

One effect of the Earth's rotation is the occurrence of day and night. As the Earth rotates on its axis, different parts face the sun while others move into darkness, creating a cycle of daylight and night-time.

Secondly, it causes the apparent movement of the sun across the sky. Due to the rotation from west to east, the sun appears to rise in the east and set in the west, although it is actually the Earth rotating.

Another effect is the deflection of winds and ocean currents, known as the Coriolis Effect. This phenomenon causes winds and currents to curve to the right in the Northern Hemisphere and to the left in the Southern Hemisphere.

Additionally, the Earth's rotation leads to time differences between regions. As the Earth rotates, different longitudes experience local noon at different times, which is why the world is divided into time zones.

Lastly, the rotation contributes to the bulging of the Earth at the equator. The centrifugal force generated by the spinning motion causes the Earth to be slightly flattened at the poles and wider at the equator.

9. Explain Factors That Influence the Climate of a Place

One key factor is latitude. Places near the equator receive direct sunlight throughout the year, resulting in high temperatures, while areas near the poles receive slanted rays, leading to cooler climates.

Secondly, altitude or elevation affects climate. High-altitude areas experience lower temperatures compared to low-lying regions because the atmosphere becomes thinner and cooler with increasing height.

Another important factor is proximity to large water bodies. Areas near oceans, seas, and large lakes often experience moderate temperatures and increased rainfall due to the water's ability to absorb and release heat slowly.

Additionally, ocean currents influence climate. Warm ocean currents raise temperatures of coastal areas, while cold currents lower them. For example, the warm Mozambique Current affects the east coast of Tanzania.

Lastly, prevailing winds play a role in determining the climate of a region. Winds that come from the sea often bring moisture, causing rainfall, while those from dry land areas can lead to arid conditions.