THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

FORM TWO SECONDARY EDUCATION EXAMINATION, 2013

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.

1. (i) Branches of Geography include:
A. human, economic and regional
B. physical, regional and practical
C. practical, human and regional
D. practical, environmental and regional
B
Reason: Geography is typically divided into branches such as physical (study of natural features), human (study of human activities), regional (study of specific areas), and practical (application of geographical skills). Option B aligns best with standard classifications.

(ii) The arrangement of planets and solid objects in the space in relation to the position from the sun is referred to as solar:
A. energy
B. panels
C. power
D. system
D
Reason: The solar system refers to the arrangement of planets and other celestial bodies orbiting the sun, including their positions relative to it.

(iii) The farthest position of the earth from the sun is known as:
A. aphelion
B. equinox
C. perihelion
D. solstice
A
Reason: Aphelion is the point in the Earth's orbit where it is farthest from the sun (around July 4). Perihelion is the closest point, equinoxes are when day and night are equal, and solstices mark the longest and shortest days.

(iv) If the time at place X (45°E) is 10.00 a.m, what will be the time of a place Y (45°W)?
A. 10.00 p.m.
B. 10.00 a.m.
C. 04.00 p.m.
D. 04.00 a.m.
D
Reason: Time difference: 15° = 1 hour. Difference = 45°E + 45°W = 90°. Time difference = 90/15 = 6 hours (Y is behind X). 10:00 a.m. - 6 hours = 4:00 a.m.

(v) Which of the following gives a proof that the earth is spherical in shape?
A. circumnavigation of the earth, solar eclipse and lunar eclipse
B. Great circles, longitudes and small circles
C. Lunar eclipse, the planets and the earths orbit
D. Ships visibility, lunar eclipse and aerial photograph

D
Reason: Proofs of the Earth's spherical shape include ships disappearing bottom-first over the horizon (ships visibility), the curved shadow during a lunar eclipse, and aerial photographs showing the Earth's curvature. Option D includes these.

(vi) The features resulting from eruption of molten rocks are:
A. Block Mountains
B. fold Mountains
C. residual mountains
D. volcanic mountains
D
Reason: Volcanic mountains, like Kilimanjaro, form from the eruption of molten rocks (magma). Block mountains form from faulting, fold mountains from compression, and residual mountains from erosion.

(vii) The major features rising above the surface of ocean water and important for tourism are called:
A. continental shelf
B. continental slope
C. ocean island
D. ocean plain
C
Reason: Ocean islands, such as Zanzibar, rise above the ocean surface and are significant for tourism due to their beaches and biodiversity. The other features are underwater or less relevant for tourism.

(viii) The condition of the atmosphere recorded over a long period of time is:
A. climate
B. pressure
C. temperature
D. weather
A
Reason: Climate is the long-term average of atmospheric conditions (e.g., temperature, rainfall) over decades, while weather is short-term (daily/hourly). Pressure and temperature are elements of weather/climate.

(ix) A representative scale of 1:250,000 can be represented by a statement scale of:
A. 2 cm to 2.5km
B. 2 cm to 25km
C. 1 cm to 2.5km
D. 1 cm to 250,000km
C
Reason: 1:250,000 means 1 cm = 250,000 cm. Convert: 250,000 cm = 2,500 m = 2.5 km. So, 1 cm to 2.5 km.

(x) The grid reference of point B is 361585. What are the numbers of the Eastings and Northings?
A. 585 are Eastings and 361 are Northings

B. 361 are Eastings and 585 are Northings
C. 36.1 are Eastings and 58.5 are Northings
D. 36 are Eastings and 58 are Northings
B
Reason: In a six-digit grid reference, the first three digits are Eastings (361) and the last three are Northings (585), following the convention "along the corridor (Eastings), up the stairs (Northings)."

2. Match the items in Column A with those in Column B by writing the letter of the correct answer below its corresponding item number in Column A in the table provided.

LIST A	**LIST B**
(i) A negative effect of mining in Tanzania	F. Water pollution
(ii) The study of crop production and livestock rearing	B. Agriculture
(iii) A method of soil conservation	A. Afforestation
(iv) Formed when moist air rises over a mountain	E. Orographic rainfall
(v) Used to measure temperature in a weather station	N. Thermometer
(vi) The closest position of the Earth to the sun	C. Perihelion
(vii) A type of agriculture practiced in Tanzania	G. Plantation agriculture
(viii) Lines joining places with the same rainfall	H. Isohyets
(ix) A feature of the ocean floor	J. Ocean trench
(x) Shelter for weather instruments	O. Stevenson Screen

Answers

LIST A	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
LIST B	F	B	A	E	N	C	G	H	J	O

3. The following statements are either correct or not correct. Write TRUE if the statement is correct or FALSE if the statement is not correct.
(i) Solstices occur when the sun is overhead at the Equator.
FALSE (Solstices occur when the sun is overhead at the Tropic of Cancer or Capricorn; equinoxes occur when the sun is overhead at the Equator.)
(ii) Sustainable farming practices can improve agriculture in Tanzania.
TRUE (Practices like crop rotation and irrigation can enhance soil fertility and productivity.)
(iii) Volcanic mountains are formed by faulting.
FALSE (Volcanic mountains form from magma eruptions; faulting forms block mountains.)
(iv) Underground water can be tapped in arid regions.
TRUE (Arid regions can have aquifers, e.g., oases in the Sahara, allowing water to be tapped.)
(v) Lake Tanganyika is a Rift Valley lake.
TRUE (Lake Tanganyika lies in the East African Rift Valley, formed by tectonic activity.)
(vi) The sun generates its own light, while planets reflect light.
TRUE (The sun produces light through nuclear fusion; planets reflect sunlight.)
(vii) Gold is a major mineral mined in Kenya.
FALSE (Gold is a major mineral in Tanzania, e.g., in Geita; Kenya is more known for soda ash and fluorspar.)
(viii) Ocean ridges and trenches are the same feature.
FALSE (Ridges are elevated parts of the ocean floor; trenches are the deepest parts.)
(ix) All latitudes are great circles.
FALSE (Only the Equator is a great circle among latitudes; others are small circles.)
(x) Use of wind energy reduces environmental pollution.
TRUE (Wind energy is clean and reduces reliance on fossil fuels, minimizing pollution.)

4. (a) Study the diagram below carefully then label features A - F.

A stands for **Sun** (center of the solar system)
B stands for **Earth** (third planet from the Sun)
C stands for **Orbit of Earth** (path around the Sun)
D stands for **Mercury** (closest planet to the Sun)
E stands for **Venus** (second planet from the Sun)
F stands for **Mars** (fourth planet from the Sun)

(b) Define the following geographical terms:
(i) **Solar system**: The collection of planets, moons, asteroids, and other celestial bodies that orbit the Sun, held together by gravity.

(ii) **Map scale**: The ratio of a distance on a map to the corresponding distance on the ground, e.g., 1:50,000 means 1 cm on the map equals 50,000 cm on the ground.

(iii) **Rift Valley**: A lowland region formed by the divergence of tectonic plates, often with steep sides, e.g., the East African Rift Valley.

(iv) **Non-renewable resources**: Resources that cannot be replenished on a human timescale, such as fossil fuels (coal, oil) and minerals (gold).

(v) **Agriculture**: The practice of cultivating crops and rearing livestock for food, fiber, and other products.

(vi) **Weather**: The short-term condition of the atmosphere at a specific place and time, including temperature, rainfall, and wind.

(c) Identify four factors that influence agriculture in Tanzania.
(i) **Climate**: Rainfall patterns and temperature affect crop growth, e.g., unreliable rains cause droughts.
(ii) **Soil fertility**: Fertile soils, like volcanic soils in Kilimanjaro, support better crop yields.
(iii) **Access to markets**: Proximity to markets influences what farmers grow and sell, e.g., perishable goods need quick transport.
(iv) **Technology**: Use of modern tools and irrigation improves productivity; lack of technology limits small-scale farmers.

5. (a) Study carefully the climatic data given for station Y, then answer the questions that follow:

Month: J F M A M J J A S O N D
Temperature (°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 annual total rainfall.
Answer: 200 + 180 + 150 + 100 + 50 + 20 + 10 + 15 + 30 + 80 + 120 + 170 = 1125 mm
Answer: 1125 mm

(iii) State 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 for the station.
Tropical savanna climate

Reason: High temperatures (23–27°C) year-round with a distinct wet season (e.g., January: 200 mm) and dry season (e.g., July: 10 mm) are typical of a tropical savanna climate.

(v) The economic activities taking place in the station are **subsistence farming** and **pastoralism**.
Reason: The climate supports rain-fed agriculture (e.g., maize, millet) during the wet season and livestock rearing during the dry season, common in savanna regions.

(b) Explain the following terms as used in Geography:
(i) **Tourism**: The activity of traveling to places for leisure, recreation, or cultural exploration, e.g., visiting Serengeti National Park.
(ii) **Subsistence farming**: Farming to produce food mainly for family use, with little surplus for sale, common among small-scale farmers in Tanzania.
(iii) **Convectional rainfall**: Rainfall caused by the heating of the Earth's surface, leading to the rise of warm air, cooling, condensation, and precipitation, typical in equatorial regions.
(iv) **Soil erosion**: The removal of topsoil by agents like wind, water, or human activity, often due to deforestation or overgrazing.
(v) **Plantation agriculture**: Large-scale farming of a single crop for commercial purposes, e.g., tea plantations in Mufindi, Tanzania.

(c) A map may not be useful if it lacks the following:
(i) **Scale** (to measure distances accurately)
(ii) **Key/Legend** (to understand symbols and features)
(iii) **Title** (to know what the map represents)
(iv) **North direction** (for orientation)
(v) **Grid system** (to locate specific points)

(d) Write down five problems facing small-scale farming in Tanzania.
(i) **Unreliable rainfall**: Dependence on rain-fed agriculture leads to crop failure during droughts.
(ii) **Poor infrastructure**: Lack of roads and storage facilities causes post-harvest losses.
(iii) **Limited technology**: Use of traditional tools reduces productivity and efficiency.
(iv) **Soil degradation**: Overuse of land and poor farming practices lead to reduced fertility.
(v) **Lack of capital**: Farmers struggle to afford inputs like fertilizers and seeds.

6. Describe the Advantages of Hydroelectric Power in Tanzania

One major advantage of hydroelectric power in Tanzania is that it provides a **clean and renewable source of energy**. Unlike fossil fuels, hydroelectricity does not emit harmful gases into the atmosphere, making it environmentally friendly and sustainable for long-term use.

Another advantage is that hydroelectric power helps in **reducing energy costs**. Once a dam is constructed, the cost of generating electricity is relatively low compared to other sources like diesel generators, making it affordable for both industries and households.

Hydroelectric power stations also contribute to **controlling floods**. By storing large amounts of water in reservoirs, these dams help manage excess water during heavy rains, protecting downstream communities from flood-related disasters.

In addition, hydroelectric projects create **employment opportunities**. During the construction and maintenance phases of dams and power stations, many Tanzanians gain job opportunities, boosting local economies.

Lastly, hydroelectric dams often provide **additional benefits such as irrigation and fishing opportunities**. The stored water can be used for irrigation farming, while the reservoirs offer fishing grounds for local communities.

7. Explain the Factors Affecting the Climate of a Place

One key factor is **latitude**, which determines the amount of solar energy received at a location. Areas near the equator are generally warmer because they receive direct sunlight throughout the year, while regions further from the equator experience cooler temperatures.

Altitude is another factor, as higher places tend to be cooler than lowland areas. This is because temperature decreases with increasing elevation due to the thinning atmosphere and reduced ability to hold heat.

Distance from large water bodies like lakes and oceans also affects climate. Areas close to these water bodies usually have moderate temperatures and higher rainfall because water heats up and cools down more slowly than land.

Ocean currents play a role by transferring heat across different parts of the world. Warm ocean currents raise temperatures and bring rainfall to coastal areas, while cold currents tend to reduce temperatures and decrease humidity.

Lastly, **prevailing winds and air masses** influence the climate by carrying moisture or dry air from one region to another. For example, winds from the Indian Ocean bring rain to Tanzania, while winds from dry inland areas cause arid conditions.

8. Forests Play a Great Role in Preventing Desertification. Do You Agree? Why?

Yes, I agree, because forests are essential in **protecting the soil from erosion**. The roots of trees hold the soil firmly in place, preventing it from being blown away by wind or washed away by rain, which are key causes of desertification.

Forests also help in **retaining soil moisture**. Tree canopies reduce the direct impact of sunlight on the soil and slow down the rate of evaporation, keeping the ground moist and preventing the formation of dry, barren areas.

Additionally, forests contribute to **improving local rainfall patterns**. Through a process called transpiration, trees release moisture into the atmosphere, which later condenses to form clouds and rain, essential for maintaining vegetation cover.

Forests provide **habitats for diverse plant species** that enrich the soil with organic matter through leaf litter and decomposition, improving soil fertility and making it less vulnerable to degradation.

Lastly, forests act as **natural windbreaks**. They reduce the speed and force of wind across the land surface, which helps to protect loose, dry soils from being blown away and turning into desert.

9. Suggest Ways to Improve the Tourism Industry in Tanzania

One effective way is to **improve transport and communication infrastructure**. Better roads, airports, and communication networks make it easier and more comfortable for tourists to access attractions across the country.

Diversifying tourism attractions beyond traditional wildlife safaris can boost the industry. Promoting cultural tourism, historical sites, coastal beaches, and adventure tourism can attract a wider variety of tourists.

The government should also **invest in marketing and promotion campaigns**. Participating in international travel fairs and using digital platforms to showcase Tanzania's beauty can attract tourists from different parts of the world.

Improving security and safety for tourists is another important step. Ensuring tourists feel safe from crime and health risks encourages more visitors and improves the country's reputation internationally.

Lastly, the tourism sector needs **skilled manpower and good hospitality services**. Training staff in tour guiding, hotel management, and customer service can enhance visitor experiences, encouraging repeat visits and positive reviews.

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10. What Are the Problems Facing the Mining Industry in Tanzania?

A major problem is **the use of outdated mining technology**. Many mining operations, especially small-scale ones, still use traditional tools and methods, which limit productivity and increase risks for workers.

Environmental degradation is a serious issue associated with mining activities. The industry often leads to deforestation, soil erosion, and water pollution, affecting ecosystems and communities around mining areas.

Another challenge is **poor infrastructure in mining regions**. Many mines are located in remote areas with inadequate roads, electricity, and water supply, making it difficult to transport materials and provide for workers' needs.

Limited capital and investment hinder the growth of the mining industry. Many local miners lack the financial resources to purchase modern equipment or expand their operations, keeping them in small, less profitable ventures.

Lastly, the mining sector often faces **conflicts between mining companies and local communities**. Disputes over land rights, environmental concerns, and compensation issues can disrupt mining activities and create tension.