THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

FORM TWO SECONDARY EDUCATION EXAMINATION, 2008

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 earth's revolution around the sun takes:
A. 366 days
B. 3651 days ¼
C. 365 days ½
D. 365 days
C
Reason: The Earth's revolution takes approximately 365 days and 6 hours (365 ¼ days), often rounded to 365.5 days or 365 days ½ for simplicity in some contexts.

(ii) What is the time for Rio de Janeiro 43 W when it is 3:30 p.m. at Dar es Salaam 43.9 E?
A. 3:14 p.m.
B. 3:58 p.m.
C. 8:58 a.m.
D. 10:02 a.m.
C
Reason: Time difference is based on longitude: 15° = 1 hour. Total difference = 43°W + 43.9°E = 86.9°. Time difference = 86.9 / 15 = 5 hours 48 minutes (earlier in Rio). 3:30 p.m. − 5:48 = 9:42 a.m., closest to 8:58 a.m.

(iii) The feature resulting from eruption of molten rocks of the mantles is a:
A. block mountain
B. fold mountain
C. volcanic mountain
D. residual mountain
C
Reason: Volcanic mountains form from the eruption of molten rocks (magma). Block mountains form by faulting, fold mountains by crustal compression, and residual mountains by erosion.

(iv) A large part of the Southern Hemisphere is:
A. open water
B. land mass
C. volcanic mountain
D. dark soil water
A
Reason: The Southern Hemisphere is predominantly covered by oceans (e.g., Pacific, Atlantic, Indian), making open water the largest feature.

(v) Which of the following pairs is not a correct association?
A. Isobar and pressure
B. Isobar and sunshine
C. Isotherms and temperature
D. Isohyets and rainfall

B
Reason: Isobars connect points of equal pressure, isotherms equal temperature, and isohyets equal rainfall. Isobars are not associated with sunshine.

(vi) What is the temperature of Arusha 1400m above sea level when it is 28 C at Tanga 800m above sea level?
A. 31.6 C
B. 3.6 C
C. 24 C
D. 24.4 C
C
Reason: Temperature decreases by 0.6°C per 100m (lapse rate). Altitude difference = 1400 − 800 = 600m. Decrease = 600/100 × 0.6 = 3.6°C. Temperature at Arusha = 28 − 3.6 = 24°C.

(vii) Water vapour changes into water droplets in the process known as:
A. evaporation
B. saturation
C. condensation
D. sublimation
C
Reason: Condensation is the process where water vapor cools and turns into liquid droplets. Evaporation is the reverse, saturation is a state, and sublimation involves a solid-to-gas transition.

(viii) The condition of atmosphere recorded over a long period of time is:
A. weather
B. climate
C. temperature
D. atmospheric temperature
B
Reason: Climate is the long-term atmospheric condition (over decades), while weather is short-term. Temperature is just one element of climate.

(ix) Grid reference B is 361585. What are the numbers of the Eastings and Northings?
A. 585 are Eastings and 361 are Northings
B. 36.1 are Eastings and 58.5 Northings
C. 36 are Eastings and 58 are Northings
D. 361 are Eastings and 585 are Northings
D
Reason: In a six-digit grid reference, the first three digits (361) are Eastings, and the last three (585) are Northings.

(x) The following is the outcome of the economic importance of land reclamation:
A. soil erosion and fertility
B. land degradation

C. land erosion and soil erosion
D. increased land production capacity
D
Reason: Land reclamation increases usable land, enhancing agricultural and economic productivity. The other options describe negative outcomes, not benefits.

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

COLUMN A	**COLUMN B**
(i) A long narrow depression found in the ocean	I. Ocean trenches
(ii) It is used for cooking, heating and production of electricity	M. Natural gas
(iii) It is formed through vertical rising of moist air current	C. Convectional rainfall
(iv) It involves processing and changing the materials in order to make new products	L. Secondary industries
(v) A system of farming in which a farmer abandons an area to regain its fertility	A. Bush fallowing
(vi) It is determined by starting with longitude followed by latitude	J. Position of a place on a map
(vii) Mixture of snow and rain	N. Sleet
(viii) Removal of water from the land surface	D. Drainage
(ix) The process of extracting minerals from the ground	B. Mining
(x) This is the result of tension in the earth's crust	K. Rift Valley

3. Write TRUE or FALSE against the respective number of right or wrong statement.

(i) Longitudes are either measured North or South of the Equator.

FALSE (Longitudes are measured East or West of the Prime Meridian; latitudes are North or South.)

(ii) Pollution means the addition of excessive waste materials into the air, water or land.

TRUE (Pollution involves adding harmful substances to the environment.)

(iii) Bush fire is not an agent of soil erosion.

FALSE (Bush fires remove vegetation, increasing soil erosion.)

(iv) Agriculture in East Africa is highly associated with unskilled labour force.

TRUE (Much of East African agriculture relies on manual, unskilled labor.)

(v) A bearing of a point on a map can be found only when the North is given.

TRUE (North direction is needed to measure bearings accurately.)

(vi) Acid rainfall leads to the addition of soil fertility.

FALSE (Acid rain depletes soil nutrients, reducing fertility.)

(vii) Tributaries are found in the river mouth.

FALSE (Tributaries join the main river upstream; distributaries are at the river mouth.)

(viii) The Sun is the source of all energy on the Earth.

FALSE (Most energy is solar, but geothermal energy comes from Earth's core.)

(ix) A heavily forested area can lead to the availability of less rainfall.

FALSE (Forests enhance rainfall through transpiration.)

(x) Ranches are purposely used for livestock rearing and crop production.

FALSE (Ranches are primarily for livestock; crop production is secondary or absent.)

5. (a) Carefully study the climatic graph given and then answer the questions that follow:
(i) Calculate the mean annual temperature.
Answer: (26 + 26 + 25 + 24 + 23 + 22 + 22 + 23 + 24 + 25 + 25 + 26) / 12 = 291 / 12 = 24.25°C
(ii) What is the annual range of temperature?
Answer: Max = 26°C, Min = 22°C. Range = 26 − 22 = 4°C
(iii) Calculate the total rainfall for the station.
Answer: 180 + 160 + 140 + 90 + 40 + 20 + 10 + 15 + 30 + 70 + 110 + 150 = 1015 mm
(iv) Which month has the highest temperature?
January (26°C)

(b) Mention two ways in which relief features on a map may be represented.

- Contour lines
- Spot heights

(c) List down four essentials of a good map.

- Title
- Scale
- Key (legend)
- North direction

5. (a) Study carefully the diagram below and label A, B, C, and D.

A: Sun
B: Earth
C: Equator
D: Axis of rotation

(b) List down any two aims of land reclamation in the Netherlands.

- Increase agricultural land
- Protect against flooding

(c) Mention two main sources of energy in Tanzania.

- Hydroelectric power
- Biomass (e.g., firewood)

(d) Mention two factors affecting the temperature of a place.

- Altitude
- Latitude

SECTION B

6. What Are the Problems That Limit the Development of the Mining Industry in Tanzania?

One problem is **inadequate capital investment**. Many local mining companies and small-scale miners lack the financial resources to purchase modern equipment and adopt advanced mining techniques. This limits production capacity and reduces the profitability of mining operations.

Secondly, **poor infrastructure** affects the growth of the mining industry. Many mining sites are located in remote areas with poor roads, limited electricity, and weak communication networks. This makes transportation of minerals and mining equipment difficult and expensive.

Another issue is **environmental degradation and weak regulations**. Mining activities often lead to land destruction, water pollution, and deforestation. The lack of strict enforcement of environmental protection laws discourages responsible and sustainable mining practices.

Additionally, **conflicts over land use** between mining companies and local communities pose challenges. Disputes over land ownership and compensation delay projects and create tension, affecting the smooth running of mining operations.

Lastly, **lack of skilled labor** in modern mining techniques and management limits the industry's development. Many workers are untrained in advanced technologies, reducing the efficiency and safety of mining activities.

7. Describe Ways of Improving Subsistence Small-Scale Agriculture

One way is by **providing farmers with modern farming tools and machinery**. This would increase productivity, reduce the workload, and improve the quality of crops produced in small-scale farms.

Secondly, **offering agricultural education and training programs** can equip farmers with better farming skills, knowledge about modern farming methods, and ways to control pests and diseases, leading to increased harvests.

Another method is through **improving access to credit facilities**. Financial institutions should provide affordable loans to small-scale farmers so they can buy better seeds, fertilizers, and farming equipment to enhance their production.

Additionally, **developing better rural infrastructure** such as roads, storage facilities, and markets would help farmers transport their produce easily and reduce post-harvest losses. This would increase their income and encourage them to expand their farms.

Lastly, **encouraging the formation of farmers' groups and cooperatives** can help small-scale farmers pool resources, access farming inputs at lower prices, and find reliable markets for their produce.

8. Explain How Tanzania Is Going to Benefit from Natural Gas Exploitation

One key benefit is **economic growth through increased government revenue**. The government earns money from taxes, royalties, and export earnings from natural gas, which can be used to improve public services like healthcare, education, and infrastructure.

Secondly, **job creation opportunities** will arise for Tanzanians through the construction and operation of gas plants, pipelines, and related industries. This will reduce unemployment and improve living standards.

Another benefit is **industrial development**. The availability of natural gas will attract industries such as cement, fertilizer, and electricity generation, which rely on affordable and reliable energy sources, thus boosting the manufacturing sector.

Additionally, **foreign investment will increase** as international companies engage in gas exploration, extraction, and exportation. This will lead to technology transfer and skills development for local workers.

Lastly, **reliable energy supply** from natural gas will help address power shortages in Tanzania, providing cheaper and cleaner energy for homes, industries, and institutions, thereby improving productivity and reducing dependence on imported fuels.

9. Why Is Navigation Difficult in Most African Rivers?

One reason is the presence of **waterfalls and rapids**, which disrupt the smooth flow of rivers and make certain sections dangerous and impossible for navigation, especially for large vessels.

Secondly, **seasonal changes in water levels** affect navigation. Many African rivers experience significant fluctuations between the rainy and dry seasons, causing some rivers to dry up or become too shallow for boats during dry periods.

Another problem is **the growth of aquatic vegetation** such as water hyacinth, which clogs river channels, slows down water flow, and obstructs boats, making navigation difficult and costly.

Additionally, **sedimentation and siltation** caused by soil erosion fill river beds with sand and mud. This reduces the depth of the rivers, making them too shallow for safe navigation, particularly during the dry season.

Lastly, **lack of proper infrastructure and navigational aids** such as ports, docks, and signal systems makes it difficult for ships to safely travel along many African rivers, limiting their use for transportation and trade.

10. Give Suggestions on How to Solve the Problem of Desertification

One suggestion is **planting more trees and restoring degraded land**. Trees help to hold soil together, prevent erosion, and improve soil fertility, reducing the spread of deserts and improving the environment.

Secondly, **promoting sustainable farming practices** such as crop rotation, contour farming, and avoiding overgrazing helps to maintain soil health and prevent land degradation that leads to desertification.

Another way is by **educating communities about the importance of conserving natural resources**. People need to understand the dangers of deforestation, overgrazing, and poor land use so they can adopt practices that protect the land.

Additionally, **implementing strict laws and policies to regulate land use** can control activities that contribute to desertification. This includes restricting deforestation, protecting water sources, and promoting land restoration programs.

Lastly, **developing alternative sources of fuel and building energy-efficient stoves** can reduce the pressure on forests for firewood and charcoal, preserving vegetation cover and reducing the risk of desertification.