THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

FORM TWO SECONDARY EDUCATION EXAMINATION, 2007

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 central body of the solar system is:
A. The planets
B. The sun
C. The moon
D. The earth
B
Reason: The sun is the central body of the solar system, with planets and other celestial bodies orbiting around it due to its gravitational pull.

(ii) The spinning of the earth on its own axis is known as:
A. Rotation
B. Revolution
C. Day and night
D. Distance
A
Reason: The Earth's spinning on its axis is called rotation, causing day and night. Revolution refers to orbiting the sun, day and night is an effect, and distance is unrelated.

(iii) If it is 3.00 p.m. at Bukoba 33 E in Tanzania what will be the time at Tehran 50 E in Iran?
A. 10.00 a.m.
B. 4.08 p.m.
C. 4.32 p.m.
D. 10.00 p.m.
B
Reason: Time difference: 15° = 1 hour. Difference = 50°E − 33°E = 17°. Time difference = 17/15 × 60 = 68 minutes. Tehran is ahead, so 3:00 p.m. + 68 minutes = 4:08 p.m.

(iv) Morogoro at 800m above sea level has a temperature reading of 28 C. Determine the temperature of Karatu which is located at 1400 metres above sea level.
A. 31.6 C
B. 3.6 C
C. 24 C
D. 24.4 C
C
Reason: Temperature decreases at 0.6°C per 100m (lapse rate). Altitude difference = 1400 − 800 = 600m. Decrease = 600/100 × 0.6 = 3.6°C. Temperature at Karatu = 28 − 3.6 = 24°C.

(v) The side of a mountain facing the direction of the wind is known as:
A. Leeward side
B. Fore side
C. Backward side
D. Windward side

D
Reason: The windward side faces the oncoming wind, receiving more precipitation. Leeward is the opposite side, while fore and backward are not geographical terms.

(vi) A ship moves to the West and crosses the International Date Line. What happens with regard to time gained or lost?
A. No time is gained or lost
B. One whole day is lost
C. One whole day is gained
D. One whole day is repeated
C
Reason: Crossing the International Date Line westward (from east to west) adds a day, so one whole day is gained (e.g., Monday becomes Tuesday).

(vii) The four seasons which occur on the earth's surface are the result of:
A. Rotation of the earth
B. Ferrell's Law
C. The tilting of the earth on its own axis
D. Revolution of the earth
D
Reason: Seasons result from the Earth's revolution around the sun combined with its axial tilt, causing varying solar angles. Rotation causes day/night, Ferrell's Law relates to wind deflection, and tilting alone isn't sufficient.

(viii) The big difference between the readings of a Wet Bulb Thermometer and Dry Bulb Thermometer indicates that:
A. Humidity is low
B. The air is saturated with water vapour
C. Humidity is high
D. There is low evaporation
A
Reason: A large difference means the wet bulb is much cooler due to evaporation, indicating low humidity (dry air allows more evaporation). Small differences indicate high humidity or saturation.

(ix) Which of the following give the proof that the earth is spherical in shape?
A. Circumnavigation of the earth, solar eclipse and lunar eclipse
B. Ship's visibility, lunar eclipse and aerial photograph
C. Great circles, longitudes and small circles
D. Lunar eclipse, the planets and the earth's orbit
B
Reason: Ship's visibility (disappearing bottom-first), lunar eclipse (Earth's curved shadow), and aerial photographs (showing curvature) are direct proofs of Earth's sphericity. Other options include less direct or incorrect evidence.

(x) What is the compass bearing of North North West (NNW)?
A. 337+
B. 048
C. 220
D. 315
A
Reason: NNW is 22.5° west of north (0°). Bearing = 360 − 22.5 = 337.5°, often written as 337+ (indicating slightly more than 337°). Other options correspond to different directions.

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) Empowering women	D. The process in which female gender is exposed to more human rights and responsibilities
(ii) Greenhouse effect	M. The capacity of certain gases in the atmosphere to trap heat emitted from the earth's surface
(iii) Global warming	G. Increase in the average temperature of the atmosphere, oceans and landmasses of the earth
(iv) Sedentary livestock keeping	J. Rearing animals in one permanent area
(v) Land reclamation	L. Turning waste and poor land into useful state
(vi) Vertical interval	C. The difference in vertical height between two successive contour lines
(vii) Oasis	N. Desert well
(viii) Desertification	E. The effect of human activities on environment
(ix) Water pollution	I. Unwanted substances mixed with water
(x) Altitude	A. One of the factors affecting temperature

3. Write "TRUE" against a correct statement or "FALSE" against an incorrect statement.

(i) Lines drawn on a map joining points with the same pressure are called isotherms.

FALSE (Isotherms join points of equal temperature; isobars join points of equal pressure.)

(ii) Merino is one of the types of sheep reared in Australia.

TRUE (Merino sheep are a major breed in Australia, known for wool production.)

(iii) The growing of fruits, vegetables and flowers is known as horticulture.

TRUE (Horticulture involves cultivating fruits, vegetables, and ornamental plants like flowers.)

(iv) A scale is a relationship between map distance and the actual ground distance.

TRUE (A map scale shows the ratio between map distance and real-world distance.)

(v) The moon generates light during the night.

FALSE (The moon reflects sunlight; it does not generate its own light.)

(vi) Over-exploitation of forest resources may lead to desertification.

TRUE (Deforestation can cause soil degradation and desertification.)

(vii) PUNJAB is the name given to the five rivers namely JALUM, CHANUB, RAVI, SUTLET and BIAS.

TRUE (Punjab, meaning "five rivers," refers to Jhelum, Chenab, Ravi, Sutlej, and Beas in India/Pakistan.)

(viii) Winds blow from areas of low pressure to areas of high pressure.

FALSE (Winds blow from high pressure to low pressure due to pressure gradients.)

(ix) Industrialization is an agent of environmental pollution.

TRUE (Industrial activities release pollutants into air, water, and soil.)

(x) TAZAMA is the railway line running from Dar es Salaam, Tanzania to Kapiri Mposhi, Zambia.

FALSE (TAZAMA is an oil pipeline; the railway is TAZARA.)

4. (a) Carefully study the climatic data given for Station Y and then answer the questions that follow.

MONTH	J	F	M	A	M	J	J	A	S	O	N	D
TEMP(C)	12	13	15	16	19	22	25	26	24	20	17	15
Rainfall (mm)	150	87	87	60	30	12	0	0	25	75	110	140

(i) What is the annual range of temperature?
Answer: Max = 26°C (August), Min = 12°C (January). Range = 26 − 12 = 14°C

(ii) Compute the mean annual temperature.
Answer: (12 + 13 + 15 + 16 + 19 + 22 + 25 + 26 + 24 + 20 + 17 + 15) / 12 = 224 / 12 ≈ 18.67°C

(iii) Calculate the total amount of rainfall for station Y.
Answer: 150 + 87 + 87 + 60 + 30 + 12 + 0 + 0 + 25 + 75 + 110 + 140 = 776 mm

(iv) What type of climate is found in station Y? (Give three reasons)
Mediterranean climate
Reasons:

- Warm, dry summers (e.g., July and August with 0 mm rainfall, 25–26°C).
- Cool, wet winters (e.g., January with 150 mm rainfall, 12°C).
- Moderate temperature range (14°C), typical of Mediterranean regions.

(b) Study carefully the map provided below, then answer the questions that follow.

(i) List two ways used by this map to express the scale.

- Representative fraction (e.g., 1:50,000)
- Linear scale (a line showing distance, e.g., 1 cm = 0.5 km)

(ii) Give the indicators from the map which shows lowland and highland.

- Contour lines (closely spaced for highlands, widely spaced for lowlands)
- Spot heights (higher values for highlands, lower for lowlands)

(iii) Why is the railway line not straight from grid reference 260144 to 200144?
The railway curves to avoid obstacles like hills or rivers, following the terrain's natural features.

(iv) Measure the length of the railway line from grid reference 260144 to 200120.

Grid difference in Eastings = 260 − 200 = 60 units. Northings difference = 144 − 120 = 24 units. Using the Pythagorean theorem for straight-line distance:
Distance = $\sqrt{(60^2 + 24^2)} = \sqrt{(3600 + 576)} = \sqrt{4176} \approx 64.62$ units. Scale 1:50,000 means 1 unit = 50,000 cm = 0.5 km. Distance ≈ 64.62 × 0.5 ≈ 32.31 km.
Answer: Approximately 32.3 km (curved path may slightly increase this).

(v) Calculate the area covered by the swamp. Give your answer in square kilometres.
Note: Assuming the swamp is a rectangle on the map with dimensions (e.g., 4 cm × 3 cm) and scale 1:50,000. Area on map = 4 × 3 = 12 cm². Scale: 1 cm = 0.5 km, so 1 cm² = 0.5 × 0.5 = 0.25 km². Area = 12 × 0.25 = 3 km².
Answer: 3 km²

5. (a) Name five sources of water.

- Rivers
- Lakes
- Rainfall
- Wells
- Springs

(b) List down three causes of deforestation.

- Agricultural expansion
- Logging for timber
- Fuelwood collection

(c) List down any four main Hydro Electric Power generating stations in Tanzania.

- Kidatu
- Mtera
- Kihansi
- Nyumba ya Mungu

(d) Mention four factors which influence industrial location.

- Availability of raw materials
- Access to transport (roads, railways)
- Availability of labor
- Proximity to markets

SECTION B

6. Explain the Negative Effects of the Tourism Industry in Tanzania

One negative effect of tourism is **environmental degradation**. Tourists sometimes cause damage to natural attractions like beaches, forests, and wildlife parks through littering, noise, and off-track driving, which harms fragile ecosystems.

Secondly, tourism can lead to **cultural erosion**. Exposure to foreign lifestyles, dressing styles, and behaviors may influence local communities, especially the youth, to abandon traditional customs and adopt foreign habits, leading to loss of cultural identity.

Another issue is **seasonal employment**. Most tourism jobs depend on the high tourist seasons, leaving many workers jobless during the off-peak months. This creates financial insecurity for people who depend on tourism for their livelihood.

Tourism can also result in **increased cost of living** in popular tourist areas. As demand for services and goods rises due to tourists, prices increase, making basic commodities expensive for local residents.

Lastly, there's the problem of **unequal development**. Tourist earnings are often concentrated in specific areas like Zanzibar and Arusha, while other regions remain underdeveloped, causing economic imbalance within the country.

7. Describe the Advantages of Developing Solar Energy Technology in Tanzania

One advantage is that **solar energy is renewable and sustainable**. Since sunlight is abundant in Tanzania, especially in rural areas, developing solar technology ensures a reliable, long-term source of energy without depleting natural resources.

Secondly, **solar energy reduces environmental pollution**. Unlike fossil fuels, solar panels generate electricity without producing harmful gases like carbon dioxide, which helps combat climate change and air pollution.

Another benefit is that **solar energy can reach remote areas**. Many villages in Tanzania are not connected to the national power grid, but solar panels can easily be installed in these regions to provide lighting and power for schools, hospitals, and homes.

Creating employment opportunities is also a key advantage. As the solar energy sector grows, it creates jobs in areas like solar panel installation, maintenance, and sales, which can help reduce unemployment in the country.

Lastly, solar energy **reduces dependency on imported fuels**. By harnessing locally available sunlight, Tanzania can lower its reliance on expensive oil and gas imports, improving energy security and saving foreign exchange.

8. What Are the Problems Facing the Fishing Industry in East Africa?

One major problem is **overfishing**. Unsustainable fishing practices, including the use of illegal nets and catching immature fish, have led to a decline in fish stocks in major water bodies like Lake Victoria.

Secondly, **water pollution** threatens the fishing industry. Industrial waste, sewage, and agricultural chemicals that flow into rivers and lakes affect the health of fish and reduce their numbers.

Another issue is **poor fishing equipment**. Many small-scale fishermen still rely on traditional tools like canoes and basic nets, which limit the size of their catch and increase the risk of accidents on water.

Limited cold storage and processing facilities also affect the fishing sector. Without modern storage systems, a significant amount of fish spoils before reaching the market, leading to economic losses for fishermen.

Lastly, **conflicts over fishing rights** occur in shared water bodies like Lake Victoria. Fishermen from different countries often clash over fishing zones, leading to arrests, fines, and strained relations between neighboring nations.

9. Suggest Ways Through Which Tanzania Can Improve the Situation of Water Supply and Sanitation

One way is to **invest in modern water infrastructure**. Building new dams, boreholes, and piped water systems can increase access to clean and safe drinking water, especially in rural areas.

Secondly, **rehabilitating existing water sources** like wells, taps, and storage tanks can improve water reliability. Regular maintenance helps prevent leaks and breakdowns, ensuring a constant water supply.

Another important measure is to **promote public education on hygiene and sanitation**. Teaching communities about the importance of handwashing, proper waste disposal, and using toilets can reduce the spread of diseases.

The government can also **enforce laws against water pollution**. Industries and households should be held accountable for properly treating wastewater before releasing it into rivers and lakes to protect water quality.

Lastly, Tanzania can **encourage rainwater harvesting**. By installing tanks and gutters in homes, schools, and public buildings, rainwater can be collected and used for household chores and irrigation, reducing pressure on main water sources.

10. Explain the Problems Facing Cotton Plantation Agriculture in Tanzania

One problem is **unreliable rainfall**. Cotton farming in Tanzania largely depends on seasonal rain, and droughts or delayed rains often lead to poor harvests and financial losses for farmers.

Secondly, **low prices in the international market** affect cotton growers. When global cotton prices drop, farmers receive lower earnings, discouraging them from continuing with cotton production.

Another challenge is **pest and disease attacks**. Cotton plants are vulnerable to pests like bollworms and diseases such as bacterial blight, which reduce both the quality and quantity of the harvest.

Limited access to modern farming inputs like quality seeds, fertilizers, and pesticides affects productivity. Many small-scale farmers cannot afford these essential inputs, leading to low yields and poor-quality cotton.

Lastly, **poor infrastructure and market access** hinder cotton marketing. Inadequate roads and lack of reliable storage facilities make it difficult for farmers to transport their produce to market centers, causing delays and sometimes spoilage.