THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATION COUNCIL OF TANZANIA

DIPLOMA IN SECONDARY EDUCATION EXAMINATION

713 **GEOGRAPHY**

Time: 3 Hours. **ANSWER** **Year: 2008 p.m.**

Instructions

1. This paper consists of sections A, B and C.
2. Answer **all** questions in sections A and **two (2)** questions from each of section B and C.
3. Section A carries **40** marks, section B and section C carries 30 marks each.
4. Cellular phones and unauthorized materials are **not allowed** in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

SECTION A (40 Marks)

Answer all questions in this section.

1. Outline three purposes of teaching Geography according to a lesson plan.

The first purpose of teaching Geography according to a lesson plan is to develop spatial awareness and environmental understanding. A structured lesson plan guides students to analyze spatial relationships, such as the distribution of Tanzania's Ngorongoro Crater or urban settlements like Dar es Salaam. Through activities like map reading or studying physical features, students learn how geographical elements influence human activities, equipping them with skills to interpret landscapes and make informed decisions about environmental management.

The second purpose is to foster critical thinking and problem-solving skills. Lesson plans include activities like case studies on deforestation in Morogoro or urbanization in Dodoma, encouraging students to evaluate causes and propose solutions. This approach helps students tackle real-world issues, such as climate change or resource depletion, by understanding the interplay between human and physical systems, preparing them for practical applications.

The third purpose is to promote sustainable development and global citizenship. Geography lesson plans emphasize environmental conservation, such as protecting Tanzania's coral reefs or managing water resources in semi-arid regions. By focusing on global issues like population growth or biodiversity loss, teachers instill a sense of responsibility, encouraging students to contribute to sustainable practices locally and globally.

2. Explain four effects of earthquakes on the environment in Tanzania.

Earthquakes in Tanzania alter landforms and topography, particularly along the East African Rift Valley. In regions like Manyara, seismic activity causes ground displacement, forming faults, cracks, or landslides. These changes disrupt ecosystems, redirect drainage patterns, and affect water availability for vegetation and wildlife, leading to long-term environmental degradation in affected areas.

Soil liquefaction impacts agricultural land, especially in coastal regions like Dar es Salaam. During earthquakes, saturated soils lose stability, behaving like a liquid, which causes crop failure and renders

farmland unusable. This reduces agricultural productivity, threatens food security, and requires costly restoration efforts to rehabilitate affected areas.

Earthquakes trigger secondary hazards like tsunamis or flooding along Tanzania's coast. Seismic activity in the Indian Ocean could generate tsunamis, inundating areas like Zanzibar and damaging mangroves, coral reefs, and marine habitats. These events disrupt fishing communities and coastal ecosystems, critical to Tanzania's economy and biodiversity.

Vegetation and habitats face destruction from earthquake-induced landslides. In highland areas like Kilimanjaro, landslides bury forests or grasslands, displacing wildlife and disrupting biodiversity. For example, national parks like Serengeti may lose critical habitats for species like elephants, altering ecological balance and affecting tourism.

3. (a) Define a survey in the geographical context.
   (b) Mention three types of surveys used in Geography.

(a) A survey in the geographical context is the systematic process of collecting, measuring, and analyzing data about the Earth's surface to study spatial patterns and features. It involves techniques like mapping, measuring land, or assessing human activities to understand phenomena like topography, population distribution, or resource use in regions such as Tanzania.

(b) The first type is a topographic survey, which measures land elevation, contours, and physical features like rivers or hills. It is used to create detailed maps, such as those of Tanzania's Usambara Mountains. The second is a cadastral survey, which determines land boundaries and ownership, essential for urban planning in cities like Arusha. The third is a geodetic survey, which measures large areas of the Earth's surface with high precision, often used for national mapping projects in Tanzania.

4. Describe three cultural beliefs contributing to rapid population growth in African societies.

One cultural belief is the high value placed on large families as a symbol of social status. In many African societies, including Tanzania, having many children signifies wealth and prestige. Families in rural areas like Rukwa believe larger households enhance community standing and ensure economic support, encouraging higher birth rates despite resource limitations.

Another belief is that children provide labor and security for parents. In agricultural regions like Mbeya, children are seen as essential for tasks like farming or herding. Additionally, parents rely on children for care in old age, leading to higher fertility rates as families seek to secure future support in the absence of formal social security systems.

Traditional gender roles promoting early marriage and motherhood also contribute. In some Tanzanian communities, cultural norms encourage women to marry young and bear children soon after, often limiting access to education or family planning. This practice, prevalent in areas like Shinyanga, extends reproductive years, significantly increasing population growth.

5. Show three ways a Geography teacher can avoid the halo effect in student assessment.

One way to avoid the halo effect is by using objective assessment criteria. Clear rubrics focusing on specific skills, such as map interpretation or essay analysis, ensure evaluations are based on performance. For example, grading a student's project on Tanzania's climate patterns should depend solely on the accuracy and depth of their work, not their overall behavior.

Another method is anonymous grading. By assigning codes or numbers to student submissions, teachers minimize bias from familiarity or perceptions of a student's personality. This ensures fairness when assessing tasks like fieldwork reports on soil erosion in Lushoto, focusing only on the quality of the submission.

Using multiple assessment methods also helps. Combining tests, projects, and class participation provides a comprehensive view of student performance, reducing the influence of a single impression. For instance, assessing a student's understanding of population dynamics through a written exam, group presentation, and mapping exercise ensures a balanced evaluation.

6. List four environmental challenges caused by overpopulation in East Africa.

Deforestation is a major challenge due to overpopulation. In East Africa, including Tanzania, high population growth increases demand for farmland and fuelwood, leading to the clearing of forests like those in the Eastern Arc Mountains. This reduces biodiversity and disrupts ecosystems critical for species like colobus monkeys.

Soil erosion results from intensive farming on marginal lands. In areas like Uganda's highlands or Tanzania's Dodoma region, overpopulation leads to overuse of land, causing topsoil loss. This degrades soil fertility, reduces agricultural productivity, and threatens food security.

Water scarcity is exacerbated by population pressure. Growing urban populations in cities like Nairobi or Dar es Salaam over-extract water from sources like Lake Victoria, depleting supplies. This affects ecosystems and limits access to clean water for both human and environmental needs.

Air pollution increases in overpopulated urban centers. In Dar es Salaam, higher vehicle emissions and industrial activities degrade air quality, contributing to health issues and environmental problems like acid rain. This impacts vegetation and water bodies, further straining the environment.

7. With the aid of a diagram, illustrate dendritic and radial drainage patterns.

A dendritic drainage pattern resembles tree branches, with tributaries joining the main river at acute angles. It forms in areas with uniform geology, like Tanzania's coastal plains, where water follows the path of least resistance. The Pangani River system exemplifies this, creating a branching network across sedimentary landscapes.

A radial drainage pattern occurs when rivers flow outward from a central high point, such as a volcano. Around Mount Kilimanjaro in Tanzania, streams radiate from the peak in all directions due to the conical shape, forming a spoke-like pattern across the surrounding slopes.

8. Explain three benefits of using a Geography syllabus in teaching.

A Geography syllabus provides a structured framework, ensuring all essential topics are covered systematically. In Tanzania, it outlines topics like climate, population, and map work, helping teachers plan lessons that align with national educational goals and prepare students for examinations like the DSEE.

It ensures consistency in content delivery across schools. By adhering to a standardized syllabus, teachers in regions like Mwanza or Arusha teach the same core concepts, such as urbanization or soil conservation, ensuring equitable education and fair assessment nationwide.

The syllabus guides the selection of teaching methods and resources. For example, it may recommend fieldwork for studying landforms or maps for spatial analysis, enabling teachers to choose effective strategies that enhance student understanding of topics like Tanzania's rift valleys or coastal ecosystems.

9. Explain three factors causing population explosion in urban areas of Tanzania.

Rural-urban migration driven by economic opportunities is a key factor. People move to cities like Dar es Salaam seeking jobs in industries, trade, or services, as urban areas offer better employment prospects than rural farming regions like Rukwa, leading to rapid urban population growth.

Improved healthcare reduces mortality rates in urban areas. Cities like Dodoma have better access to hospitals and clinics, lowering infant and adult mortality compared to rural areas. This increases population as more people survive and live longer, contributing to urban growth.

High birth rates due to cultural preferences also play a role. In urban areas, some communities, particularly in peri-urban zones of Morogoro, maintain traditional values favoring large families. Limited access to family planning services further drives the population explosion in these areas.

10. (a) What is underpopulation?
    (b) Differentiate underpopulation from overpopulation with one example each.

(a) Underpopulation is a condition where a region has fewer people than its resources can support, leading to underutilized economic potential. The population is insufficient to fully exploit available resources, such as land, water, or infrastructure, limiting development.

(b) Underpopulation occurs when resources exceed the needs of a small population, as seen in Tanzania's Rukwa region, where fertile land remains underfarmed due to low population density, hindering agricultural development. Overpopulation, in contrast, happens when the population exceeds resource capacity, causing strain, as in Dar es Salaam, where overcrowding leads to housing shortages, water scarcity, and environmental degradation.

SECTION B (30 Marks)

Answer two (02) questions from this section.

11. Analyse six ways to combat soil erosion in Tanzania's highlands.

Afforestation stabilizes soil in Tanzania's highlands, such as the Usambara Mountains. Planting trees strengthens soil with roots, reduces surface runoff, and protects against wind erosion. Community initiatives, like those by the Tanzania Forest Conservation Group, restore degraded slopes, improving soil retention and ecosystem health.

Terracing reduces erosion on steep slopes. In regions like Kilimanjaro, farmers construct terraces to slow water flow, preventing topsoil loss during heavy rains. Combined with contour plowing, this practice retains soil nutrients, supporting sustainable agriculture in highland areas.

Crop rotation enhances soil structure. By alternating crops like maize and legumes in Arusha, farmers improve soil fertility and cover, reducing exposure to erosive forces. Legumes fix nitrogen, strengthening soil stability and maintaining productivity.

Mulching protects soil from raindrop impact. In Mbeya's coffee farms, farmers use crop residues or grass to cover soil, absorbing rainfall energy and reducing runoff. This maintains soil moisture and prevents erosion, supporting sustainable farming practices.

Building check dams controls gully erosion. In eroded highland areas like Dodoma, small stone or wood dams slow runoff, trapping sediment and preventing further soil loss. Community projects implement this cost-effective method to restore degraded landscapes.

Agroforestry integrates trees with crops to combat erosion. In Lushoto, farmers plant nitrogen-fixing trees alongside crops, stabilizing soil and enhancing fertility. This reduces erosion while providing additional income from tree products like timber or fruit, supporting livelihoods.

12. Explain three advantages and three disadvantages of using nuclear energy in developing countries.

One advantage of nuclear energy is its high energy output. Nuclear power plants produce large amounts of electricity from small amounts of fuel, offering a reliable energy source for developing countries like Tanzania, where energy demand is growing due to urbanization and industrialization.

Another advantage is low greenhouse gas emissions. Unlike coal or oil, nuclear energy generates minimal carbon dioxide during operation, helping countries combat climate change. This aligns with Tanzania's goals to reduce environmental impact while meeting energy needs.

A third advantage is energy independence. Developing countries can reduce reliance on imported fossil fuels by investing in nuclear energy. For example, a nuclear plant could provide stable power for Tanzania's cities, reducing costs associated with fuel imports.

One disadvantage is the high initial cost. Building nuclear power plants requires significant investment in infrastructure and expertise, which may strain budgets in developing countries like Tanzania, diverting funds from other priorities like education or healthcare.

Another disadvantage is the risk of accidents. Nuclear disasters, though rare, can have catastrophic consequences, as seen in historical cases like Chernobyl. In Tanzania, inadequate safety infrastructure could pose risks to populations near a nuclear facility.

A third disadvantage is radioactive waste management. Nuclear energy produces hazardous waste that remains dangerous for thousands of years, requiring secure storage. Developing countries may lack the technology or resources to manage this safely, posing environmental risks.

13. Discuss six uses of underground water in rural Tanzania.

Underground water is used for domestic purposes in rural Tanzania. Communities in regions like Singida rely on boreholes and wells for drinking, cooking, and washing, providing a reliable water source where surface water like rivers may be scarce or contaminated.

It supports small-scale irrigation for agriculture. In semi-arid areas like Dodoma, farmers use groundwater to irrigate crops like maize or vegetables, ensuring food production during dry seasons and improving food security for rural households.

Underground water sustains livestock farming. Pastoralists in regions like Manyara access wells to provide water for cattle and goats, maintaining livestock health and supporting livelihoods dependent on animal husbandry in arid environments.

It facilitates small-scale industries. In rural Tanzania, groundwater is used in activities like brick-making or food processing, as seen in villages in Morogoro. This supports local economies by enabling income-generating activities.

Underground water supports community health initiatives. Wells provide clean water for schools and health centers in rural areas like Rukwa, reducing waterborne diseases like cholera and improving overall community well-being.

It contributes to environmental conservation. By reducing reliance on surface water, groundwater use helps preserve rivers and wetlands, such as those in the Selous Game Reserve. This supports ecosystems and biodiversity in rural Tanzania.

14. Elaborate five principles embedded in eco-tourism and their relevance to Tanzania.

Sustainability is a core principle of eco-tourism, emphasizing minimal environmental impact. In Tanzania, eco-tourism in areas like Serengeti National Park promotes conservation of wildlife habitats, ensuring natural resources are preserved for future generations while supporting tourism revenue.

Community involvement ensures local populations benefit from tourism. In Tanzania, eco-tourism projects near Ngorongoro involve Maasai communities in guiding or cultural tours, providing income and fostering local ownership of conservation efforts.

Environmental education is another principle, raising awareness among tourists and locals. Eco-tourism in Zanzibar's Jozani Forest educates visitors about mangrove conservation, encouraging sustainable behaviors and supporting environmental protection initiatives.

Respect for local cultures preserves cultural heritage. In Tanzania, eco-tourism programs integrate cultural experiences, like visiting Hadzabe communities, ensuring traditions are respected and shared, which enhances cultural pride and tourist appreciation.

Biodiversity conservation prioritizes protecting ecosystems. Tanzania's eco-tourism in areas like the Eastern Arc Mountains focuses on preserving endemic species, such as the Usambara eagle, balancing tourism with habitat protection to maintain ecological diversity.

SECTION C (30 Marks)

Answer two (02) questions from this section.

15. Describe six stages involved in establishing a weather station in a school setting.

Site selection is the first stage. An open, unobstructed area, like a school courtyard in Arusha, is chosen to avoid interference from buildings or trees. The site must be secure and representative of local weather conditions to ensure accurate data collection.

The second stage is acquiring instruments. Essential tools, including thermometers, rain gauges, anemometers, barometers, hygrometers, and a Stevenson screen, are procured. Schools in Tanzania can source these from meteorological departments or educational suppliers for affordability.

Instrument installation follows. The Stevenson screen is placed 1.2–1.5 meters above ground to house thermometers and hygrometers, shielding them from sunlight. Rain gauges and anemometers are installed in open areas, following Tanzania Meteorological Authority guidelines for precision.

Training staff and students is the fourth stage. Teachers and students learn to use and maintain instruments, such as reading barometers or emptying rain gauges daily. Workshops by local meteorologists ensure proper data collection skills in schools like those in Morogoro.

Establishing a data collection routine is the fifth stage. A schedule is set for students to record parameters like temperature or rainfall at fixed times. This fosters discipline and provides consistent data for analyzing patterns, such as seasonal changes in Dodoma.

The sixth stage is data analysis and application. Students use collected data in Geography lessons to study local climate trends, like rainfall variations in Mbeya. Graphing and interpreting data connect to topics like agriculture, enhancing practical learning.

16. Explain five ways sustainable agriculture can enhance food security in Tanzania.

Sustainable agriculture improves soil fertility, ensuring consistent food production. Practices like crop rotation and organic fertilizers in Mbeya maintain soil nutrients, supporting high yields of crops like maize and reducing the risk of food shortages in rural areas.

It promotes water conservation, vital in semi-arid regions. Drip irrigation in Dodoma optimizes water use, enabling farmers to grow crops during dry seasons. This ensures a steady food supply, reducing hunger in drought-prone areas.

Crop diversification reduces dependency on single staples. In Morogoro, farmers grow sorghum, beans, and vegetables, mitigating risks from crop failure due to pests or climate variability. This stabilizes food availability for communities.

Sustainable agriculture enhances resilience to climate change. Drought-resistant crops like millet in Shinyanga maintain production despite erratic rainfall, ensuring food security by reducing the impact of environmental shocks on harvests.

It empowers communities through training. NGO programs in Arusha teach farmers conservation techniques like agroforestry, increasing productivity. Empowered farmers improve local food access, reducing hunger and supporting economic stability.

17. Analyse four types of evaluation in Geography teaching and one use of each type.

Formative evaluation occurs during the learning process to monitor progress. For example, quizzes on Tanzania's population dynamics help teachers identify gaps in understanding, allowing adjustments in teaching methods to improve student comprehension before final assessments.

Summative evaluation assesses overall achievement at the end of a unit. A final exam on climate patterns in Tanzania evaluates students' mastery of the topic, determining their readiness to progress to advanced concepts or national examinations.

Diagnostic evaluation identifies students' strengths and weaknesses before teaching. A pre-test on map skills in a Morogoro school helps teachers tailor lessons to address specific needs, ensuring effective instruction for diverse learners.

Ipsative evaluation compares a student's current performance to their past performance. Tracking a student's improvement in analyzing soil erosion data over a term in Dodoma encourages personal growth, motivating them to refine their geographical skills.

18. Elaborate five strengths of using the inquiry method in teaching Geography.

The inquiry method encourages active learning, engaging students in exploring geographical concepts. In studying Tanzania's rift valleys, students investigate causes and effects through research or fieldwork, fostering curiosity and deeper understanding of spatial relationships.

It develops critical thinking skills. By analyzing data, such as rainfall patterns in Arusha, students learn to question assumptions, evaluate evidence, and draw conclusions, preparing them to address real-world issues like climate change or urbanization.

The method promotes independent learning. Students researching topics like eco-tourism in Zanzibar take ownership of their learning, developing skills to find and interpret information, which enhances their ability to study Geography autonomously.

It enhances problem-solving abilities. Through inquiry-based projects, like proposing solutions to deforestation in Morogoro, students apply geographical knowledge to practical challenges, building skills applicable beyond the classroom.

The inquiry method fosters collaboration. Group inquiries, such as studying soil conservation in Lushoto, encourage students to share ideas and data, improving communication and teamwork skills, which are valuable in Geography and other disciplines.