

**THE UNITED REPUBLIC OF TANZANIA**  
**NATIONAL EXAMINATIONS COUNCIL OF TANZANIA**  
**ADVANCED CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**113/2**

**GEOGRAPHY 2**

(For Both School and Private Candidates)

**Time: 3 Hours**

**ANSWERS**

**Year: 2004**

**Instructions**

1. This paper consists of seven questions.
2. Answer a total of five questions, question number 1 is compulsory.

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1. Give an account of the factors favoring the production of Hydroelectric Power in Tropical Africa. What shortcomings face full utilization of rivers for power production in the continent?

The production of hydroelectric power in Tropical Africa is favored by abundant water resources. Many rivers, such as the Congo River, Nile River, and Zambezi River, provide large volumes of flowing water necessary for hydroelectric dams. These water bodies ensure a continuous supply of energy throughout the year.

Favorable topography also contributes to hydroelectric power production. Many parts of Africa have highlands and waterfalls, such as Victoria Falls and Inga Falls, which create the natural conditions needed for efficient hydroelectric power generation. The steep gradients increase the velocity of water, enhancing turbine movement in dams.

Increasing energy demand in Africa drives the need for hydroelectric projects. As urbanization and industrialization expand, more electricity is required to support manufacturing, services, and households. Countries like Ethiopia, through the Grand Ethiopian Renaissance Dam (GERD), are investing heavily in hydroelectric projects to meet future energy needs.

Government policies and international investment support hydroelectric development. Many African governments have introduced energy policies to attract foreign investors and development partners, such as the World Bank, to fund dam construction. Countries like Uganda and Ghana have received financial and technical support to expand their hydroelectric power capacities.

Renewable and environmentally friendly energy makes hydroelectric power a preferred choice. Unlike fossil fuels, hydroelectric power does not produce greenhouse gas emissions, making it a sustainable energy source that aligns with global environmental conservation efforts.

However, several challenges hinder the full utilization of rivers for hydroelectric power production. High initial costs make dam construction expensive, requiring large investments that many African nations struggle to afford. Countries with weak economies find it difficult to implement large-scale hydroelectric projects.

Seasonal variations in water availability affect power generation. Some rivers experience reduced flow during dry seasons, leading to power shortages and unreliable electricity supply, especially in arid and semi-arid regions.

Environmental and social impacts of hydroelectric projects create challenges. Large dams flood vast areas, displacing communities and destroying ecosystems. The displacement of people near the Akosombo Dam in Ghana is an example of the social costs associated with hydroelectric projects.

Poor maintenance and technical challenges also affect hydroelectric power plants. Many African countries lack the expertise and financial resources to maintain and upgrade aging dams, leading to inefficiencies in power generation.

Political and cross-border disputes over shared rivers create conflicts that delay hydroelectric projects. Countries that share rivers, such as Egypt and Ethiopia over the Nile, often face diplomatic tensions that affect the implementation of large-scale hydroelectric projects.

2. The Tennessee Valley Authority is a model in solving the social and economic problems facing Africa. Discuss.

The Tennessee Valley Authority (TVA) in the United States serves as a successful example of regional development through multi-purpose resource management, and Africa can learn from this model to address its social and economic challenges.

One major lesson is regional electrification and industrialization. The TVA successfully provided electricity to rural communities, boosting industries and improving livelihoods. African countries can adopt similar strategies to electrify rural areas and promote industrial growth, reducing reliance on expensive and polluting energy sources.

Flood control and water management were key components of the TVA. By constructing dams and reservoirs, the TVA reduced flooding and improved irrigation for agriculture. In Africa, where seasonal floods and droughts affect food security, similar programs can be implemented to regulate water supply and promote year-round farming.

Infrastructure development was a significant achievement of the TVA. The project built roads, bridges, and transportation networks, facilitating trade and economic activities. Africa faces major infrastructure gaps, and adopting TVA's approach can help connect remote areas to economic hubs, reducing poverty and enhancing economic growth.

Employment creation and poverty reduction were major social benefits of the TVA. The construction and operation of hydroelectric projects, irrigation systems, and industrial facilities provided thousands of jobs, lifting many people out of poverty. Africa can replicate this model by investing in large-scale energy and water management projects to generate employment.

Environmental conservation and sustainable resource management were prioritized in the TVA. Soil erosion control, afforestation, and river conservation ensured long-term sustainability. African governments can apply similar strategies to protect ecosystems while utilizing natural resources efficiently.

By adopting a TVA-style development approach, Africa can address major challenges in energy, water management, infrastructure, and economic development, improving the quality of life for millions of people.

3. (a) Describe the necessary conditions for growing cocoa.

Cocoa cultivation requires hot and humid climates, typically found in tropical regions. Cocoa trees grow best in temperatures between 21°C and 32°C with high humidity levels. Countries like Ghana, Ivory Coast, and Nigeria have ideal climatic conditions for cocoa production.

Well-distributed rainfall is essential for cocoa farming. Cocoa trees need between 1,500mm and 2,500mm of annual rainfall, with no prolonged dry seasons. Inconsistent rainfall can affect flowering and reduce yields.

Fertile and well-drained soils are necessary for healthy cocoa growth. Cocoa thrives in deep, loamy soils rich in organic matter and with good drainage. Waterlogged soils lead to root rot, reducing productivity. Shade and wind protection improve cocoa yields. Young cocoa trees require shade from direct sunlight, which is why cocoa is often intercropped with banana or plantain trees. Windbreaks are also important to protect delicate cocoa flowers and pods from strong winds.

Skilled labor and proper farm management are required for successful cocoa farming. Cocoa cultivation involves pruning, pest control, and careful harvesting, all of which require experienced labor. Ghana and Ivory Coast provide training programs for farmers to improve productivity.

(b) Write down the setbacks which face cocoa production in Ghana.

Despite being a leading cocoa producer, Ghana faces several challenges in cocoa farming. Pests and diseases such as black pod disease and swollen shoot virus destroy cocoa trees and reduce yields. Farmers struggle to manage these outbreaks due to limited access to pesticides and disease-resistant varieties.

Fluctuating world prices affect the income of cocoa farmers. The global price of cocoa is influenced by market demand, speculation, and competition from other countries. When prices fall, farmers in Ghana face financial difficulties.

Climate change and unpredictable weather patterns negatively impact cocoa farming. Rising temperatures, erratic rainfall, and prolonged droughts reduce crop productivity and increase the risk of pest infestations.

Aging cocoa trees and declining soil fertility lower yields. Many cocoa plantations in Ghana were established decades ago, and without replanting efforts, the trees produce lower-quality beans. Soil depletion due to continuous cultivation also affects productivity.

Child labor and poor working conditions remain concerns in the cocoa industry. Some farmers rely on child labor due to financial constraints, leading to ethical and legal challenges that affect Ghana's cocoa exports to international markets.

#### 4. Outline the factors that have led to successful fishing in Norway and Russia.

Norway and Russia have developed successful fishing industries due to several key factors.

Rich fish stocks and favorable marine conditions provide abundant fishing resources. The North Atlantic Ocean and the Barents Sea offer large populations of cod, herring, and mackerel, supporting large-scale fishing operations.

Advanced fishing technology and modern fleets have boosted production. Both Norway and Russia use sophisticated fishing vessels, sonar technology, and refrigeration facilities to enhance efficiency and maintain fish quality.

Strong government policies and regulations promote sustainable fishing. Norway enforces strict fishing quotas and conservation measures to prevent overfishing and ensure long-term industry viability. Russia also implements resource management policies to protect its fisheries.

Well-developed fish processing industries add value to the catch. Norway and Russia have seafood processing plants that produce frozen fish, canned seafood, and fish oil, increasing export earnings.

Efficient transportation and export networks enable global trade. Norway, for example, exports seafood to Europe, Asia, and North America, benefiting from its modern port facilities and global market connections.

By maintaining strong policies, advanced technology, and sustainable fishing practices, Norway and Russia have secured their positions as global leaders in the fishing industry.

#### 5. Give a detailed account on the development of the dairy industry in Holland.

The dairy industry in Holland (Netherlands) is one of the most advanced and productive in the world. Several factors have contributed to its success and continuous growth over the years.

Favorable climate and geography provide ideal conditions for dairy farming. The Netherlands has a temperate maritime climate with abundant rainfall, which ensures the continuous growth of lush green pastures needed to feed dairy cattle throughout the year. The flat terrain also facilitates large-scale dairy farming and mechanized operations.

High-quality dairy breeds have contributed significantly to the success of the industry. Dutch farmers rear high-yield dairy cattle breeds such as Holstein-Friesian, which produce large quantities of milk per cow. Selective breeding programs have improved the genetic quality of cattle, increasing productivity and efficiency.

Advanced dairy technology and mechanization have enhanced production. The Netherlands has invested in modern milking equipment, automated feeding systems, and digital farm management tools that increase efficiency and reduce labor costs. Dairy farmers use robotic milking systems, ensuring higher milk yields with less human intervention.

Strong government support and policies have facilitated the growth of the dairy industry. The Dutch government provides subsidies, research funding, and training programs to help dairy farmers improve their production techniques. Strict quality control regulations ensure that Dutch dairy products meet international safety and hygiene standards.

Well-developed dairy processing industries add value to raw milk. The Netherlands is home to world-renowned dairy companies such as FrieslandCampina, which produce cheese, butter, yogurt, and powdered milk for both domestic and international markets. Cheese production, in particular, is a major part of the Dutch dairy industry, with popular varieties such as Gouda and Edam being exported worldwide.

Efficient marketing and export networks ensure that Dutch dairy products reach global markets. The Netherlands is one of the largest exporters of dairy products in the world, supplying milk and dairy goods to Europe, Asia, and the Middle East. The country benefits from excellent transport infrastructure, including ports, railways, and highways that facilitate easy distribution.

The success of the Dutch dairy industry is a result of a combination of natural advantages, technological advancements, government support, and strong global trade networks. These factors have positioned Holland as a leader in the global dairy sector.

6. (a) Write short notes on the following concepts:

(i) Optimal Population

Optimal population refers to the ideal number of people in a country or region that allows for the best use of available resources to achieve the highest possible standard of living. If a population exceeds this level, overpopulation occurs, leading to resource depletion and unemployment. If the population is too low, underpopulation results in a lack of workforce and inefficient resource utilization.

(ii) Life Expectancy

Life expectancy is the average number of years a person is expected to live based on current health conditions, medical advancements, and lifestyle factors. Countries with high life expectancy, such as Japan and Switzerland, have better healthcare systems, good nutrition, and lower disease prevalence. In contrast, regions with high poverty and disease outbreaks, such as some parts of Sub-Saharan Africa, tend to have lower life expectancy.

(iii) Crude Birth Rate (CBR)

Crude Birth Rate refers to the number of live births per 1,000 people in a population per year. It is an important indicator of population growth. Countries with high CBRs, such as Niger and Uganda, experience

rapid population growth, while those with low birth rates, such as Japan and Germany, face population decline and aging challenges.

(b) What are the impacts of rural-urban migration in Africa?

Rural-urban migration in Africa has both positive and negative impacts on society and the economy.

One major impact is urban population growth and congestion. Many African cities, such as Lagos, Nairobi, and Dar es Salaam, are experiencing rapid population increases due to migration from rural areas. This has led to overcrowding, housing shortages, and the expansion of informal settlements (slums).

Pressure on urban infrastructure and services is another challenge. Public services such as healthcare, education, water supply, and sanitation struggle to keep up with the increasing urban population. This results in inadequate housing, poor waste management, and traffic congestion in major cities.

Decline in agricultural production occurs as young people leave rural areas in search of better opportunities in cities. The loss of labor in agriculture reduces food production and contributes to rural poverty and food insecurity. Many farmlands remain underutilized due to labor shortages.

Increased unemployment and informal sector growth are common in urban centers. Many rural migrants lack the skills required for formal employment, forcing them to work in low-paying, informal jobs such as street vending, domestic work, and manual labor. This increases the risk of exploitation and poor working conditions.

Improved access to education and healthcare is a positive impact of rural-urban migration. Migrants often seek better living standards, which include access to quality education, hospitals, and social services. Urban areas generally offer better healthcare and schooling opportunities than rural regions.

Rural-urban migration in Africa continues to shape economic and social dynamics, requiring better urban planning and rural development strategies to balance population distribution and resource allocation.

7. (a) Describe the causes of high mortality rate in East Africa.

Several factors contribute to high mortality rates in East Africa, affecting both infants and adults.

Infectious diseases such as malaria, HIV/AIDS, and tuberculosis are leading causes of death in East Africa. Poor healthcare infrastructure, lack of medical access, and low vaccination coverage increase the spread of deadly diseases. Malaria, in particular, remains a major health threat in tropical regions.

Malnutrition and food insecurity contribute to high mortality, especially among children. Inadequate access to nutritious food leads to stunted growth, weakened immune systems, and increased vulnerability to diseases. Droughts and crop failures worsen food shortages, leading to famine and starvation.

Poor maternal and child healthcare services result in high infant and maternal mortality rates. Many women give birth without skilled medical assistance, increasing risks of complications such as hemorrhage and infections. Neonatal care is often inadequate, leading to high rates of infant deaths.

Limited access to clean water and sanitation leads to waterborne diseases such as cholera and typhoid. Many communities in East Africa lack proper sewage systems and clean drinking water, increasing the risk of disease outbreaks.

Political instability and conflicts in some East African countries contribute to high mortality rates. Wars, ethnic violence, and refugee crises result in mass displacement, lack of healthcare, and increased death rates due to violence and poor living conditions.

(b) How can high mortality rate in East Africa be reduced?

Reducing mortality rates in East Africa requires multi-sectoral efforts and investments in healthcare and social services.

Expanding access to healthcare services is crucial. Governments should invest in building hospitals, training healthcare workers, and increasing vaccination programs to combat preventable diseases. Improved maternity services can significantly reduce maternal and infant deaths.

Improving food security and nutrition programs will help prevent malnutrition-related deaths. Governments and organizations should promote agricultural productivity, food distribution programs, and nutritional education to improve overall health.

Enhancing water and sanitation infrastructure can reduce waterborne diseases. Investments in clean drinking water supply, proper sewage systems, and hygiene education will lower the spread of infections.

Strengthening disease prevention and control through malaria eradication programs, HIV/AIDS treatment, and tuberculosis management will reduce mortality from infectious diseases. Free or subsidized medical treatments can help affected communities access necessary care.

Promoting peace and stability is essential to reducing mortality linked to conflicts. Governments and international organizations should focus on conflict resolution, refugee assistance, and rebuilding healthcare infrastructure in war-torn regions.

By addressing these challenges, East African nations can improve life expectancy and overall population health, ensuring sustainable development for future generations.



#### 8. What is the rationale of forming 'Regional Economic Integration'?

Regional economic integration is formed to strengthen trade, economic growth, and political cooperation among member states. One of the main rationales is to promote free trade by eliminating tariffs, import duties, and other trade barriers. This encourages the smooth movement of goods and services among member states, boosting economic productivity. The East African Community (EAC) has benefited from such agreements, allowing trade among Kenya, Tanzania, Uganda, Rwanda, and Burundi.

Market expansion and industrial growth is another reason for regional integration. When countries come together, they create a larger consumer market, attracting foreign investors and promoting local industries. For example, the Southern African Development Community (SADC) provides an economic platform for manufacturing and service industries across southern Africa.

Infrastructure development is facilitated through regional integration. Member states can collaborate on large-scale projects such as highways, railways, and energy production, reducing costs and improving connectivity. The Trans-African Highway, supported by various economic communities, aims to connect major cities across the continent.

Political and economic stability is another key factor. Regional economic integration promotes diplomatic cooperation, reducing conflicts and enhancing security. The Economic Community of West African States (ECOWAS) has played a role in peacekeeping and conflict resolution in West Africa.

Increased labor mobility and employment opportunities are achieved through economic integration. Citizens of member states can seek jobs and business opportunities in different countries without facing work permit restrictions. The European Union (EU) allows free movement of labor, which Africa can learn from to improve employment prospects.

While regional economic integration offers numerous benefits, challenges such as policy differences, weak infrastructure, and economic disparities among member states need to be addressed for successful implementation.

#### 9. Discuss the objectives of the European Union and the benefits Tanzania gains from the union.

The European Union (EU) was established to promote economic cooperation, political stability, and social development among its member states. One of its key objectives is to create a single market where goods, services, capital, and labor move freely without restrictions. This boosts economic efficiency and strengthens Europe's global trade position.

Monetary and financial stability is another major goal of the EU. The introduction of the Euro as a common currency has reduced exchange rate fluctuations and transaction costs, facilitating easier trade and investment among member states.

The EU also aims to promote peace and security by ensuring cooperation among European nations. Through institutions like the European Parliament and the European Council, member states work together to resolve political and economic challenges peacefully.

Research, innovation, and technological development are encouraged within the EU. The region invests heavily in scientific research, digital technologies, and education to maintain global competitiveness. Programs like Erasmus+ promote student exchanges and professional training.

Environmental conservation and climate change action are key priorities for the EU. Policies on sustainable energy, pollution control, and green technology have been developed to reduce carbon emissions and combat global warming.

Tanzania benefits from the EU through trade agreements and development aid. The EU is one of Tanzania's major trading partners, importing agricultural products such as coffee, tea, and fish. The Economic Partnership Agreements (EPAs) allow Tanzanian goods to access European markets with reduced tariffs.

Financial and technical assistance from the EU helps Tanzania in sectors such as healthcare, education, and infrastructure. The EU has funded road construction, water supply projects, and rural electrification programs in Tanzania.

The EU also supports tourism development in Tanzania. Many European tourists visit Serengeti, Zanzibar, and Mount Kilimanjaro, contributing to the country's economy. The EU has helped promote Tanzania as a major tourist destination through international partnerships.

Through diplomatic relations, Tanzania also gains from scholarship programs and capacity-building initiatives, allowing students and professionals to study and train in Europe, improving the country's human capital.

While Tanzania benefits from the EU, challenges such as trade imbalances, stringent European regulations, and dependency on aid require careful negotiation to ensure mutual economic growth.

10. Define the concept "Greenhouse Effect" and explain its main causes and effects.

The Greenhouse Effect refers to the process by which certain gases trap heat in the Earth's atmosphere, leading to a gradual increase in global temperatures. These gases, known as greenhouse gases, include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and water vapor.

Causes of the Greenhouse Effect:

Burning fossil fuels such as coal, oil, and natural gas releases large amounts of CO<sub>2</sub> into the atmosphere. Industrial activities, power plants, and vehicle emissions significantly contribute to greenhouse gas buildup.

Deforestation reduces the number of trees that absorb CO<sub>2</sub>. As forests are cleared for agriculture, urban development, and logging, carbon dioxide levels in the atmosphere increase, worsening the greenhouse effect.

Agricultural practices, including livestock farming and excessive use of fertilizers, release methane and nitrous oxide. Cattle produce methane through digestion, while nitrogen-based fertilizers contribute to nitrous oxide emissions.

Industrial processes and waste management generate greenhouse gases. Improper disposal of waste and landfills release methane, while manufacturing industries emit large amounts of CO<sub>2</sub> and other pollutants.

Effects of the Greenhouse Effect:

Global warming is the most significant impact. Rising temperatures lead to heatwaves, melting glaciers, and rising sea levels, threatening coastal cities and island nations.

Changes in weather patterns cause extreme climatic events such as hurricanes, droughts, and heavy rainfall, leading to destruction of property, loss of life, and food shortages.

Loss of biodiversity occurs as ecosystems become unstable. Species that cannot adapt to changing temperatures and habitats face extinction, affecting global ecological balance.

Threats to agriculture and food security emerge due to shifting rainfall patterns and extreme temperatures. Crop failures, soil degradation, and increased pests reduce agricultural productivity, worsening hunger and malnutrition.

Health problems such as respiratory diseases, heat strokes, and the spread of infectious diseases increase due to air pollution and rising temperatures.

To mitigate the greenhouse effect, nations must invest in renewable energy, adopt reforestation programs, reduce industrial emissions, and promote sustainable farming practices.

11. "Fossil fuels are both energy resources for economic development and instruments of environmental destruction." Justify.

Fossil fuels such as coal, oil, and natural gas play a crucial role in economic development, but they also contribute to environmental degradation.

Economic Contributions of Fossil Fuels:

Industrial development relies on fossil fuels as a primary energy source. Factories, power plants, and manufacturing industries depend on coal and oil to run machines and produce goods, driving economic growth.

Job creation in the fossil fuel sector supports millions of workers. Oil drilling, coal mining, transportation, and refinery industries provide employment opportunities, particularly in energy-producing nations like Nigeria and South Africa.

Energy security and stability are ensured by fossil fuels, as they provide a reliable and efficient source of power. Many countries, including China and the United States, use fossil fuels to maintain energy supply for homes, businesses, and public services.

Revenue generation and foreign exchange earnings from fossil fuel exports benefit oil-rich nations. Countries like Saudi Arabia, Russia, and Venezuela depend on oil sales for economic stability and infrastructure development.

Transportation and globalization are powered by fossil fuels. Most vehicles, ships, and airplanes run on petroleum-based fuels, facilitating trade, tourism, and international connectivity.

However, fossil fuels also cause serious environmental destruction:

Air pollution and respiratory diseases result from burning coal and oil. The release of toxic gases like sulfur dioxide and nitrogen oxides leads to smog, acid rain, and health problems such as asthma and lung infections.

Climate change and global warming are driven by carbon emissions from fossil fuels. The accumulation of greenhouse gases traps heat in the atmosphere, leading to rising global temperatures and severe weather patterns.

Deforestation and land degradation occur during coal mining and oil extraction. Large areas of land are cleared, affecting biodiversity and contributing to soil erosion.

Water pollution and marine ecosystem damage result from oil spills and chemical waste. Oil spills in oceans, such as the Deepwater Horizon disaster, have destroyed marine life and affected coastal economies.

To balance economic development with environmental protection, nations must invest in cleaner energy alternatives such as solar, wind, and hydropower, while improving energy efficiency and pollution control measures.