THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

013 **GEOGRAPHY**

(For Both School and Private Candidates)

Time: 3 Hours **ANSWERS** **Year: 2011**

Instructions

1. This paper consists of ELEVEN questions.

2. Answer all questions in section A and B and two questions from section C.

1. For each of the items (i) - (x), choose the correct answer from among the given alternatives and write its letter beside the item number.

(i) One of the following features is a characteristic of coniferous forests:
A. Trees are made up of hard wood
B. Trees occur in stands
C. Trees favour high temperatures
D. Trees have broad leaves
E. Trees grow in a few years

Correct answer: B. Trees occur in stands
Reason: Coniferous forests are known for having trees like pines and firs growing close together in uniform stands, adapted to cold climates.

(ii) The Inter-Tropical Convergence Zone (ITCZ) means
A. A region of low pressure
B. A region of doldrums
C. A region of high pressure
D. A sub-tropical high pressure belt
E. A region with high speed winds

Correct answer: A. A region of low pressure
Reason: The ITCZ is a low-pressure zone around the equator where the trade winds converge, often causing heavy rainfall.

(iii) Rias often provide natural harbour because they are
A. Found along the sub-merged coast
B. Mainly found in Europe where the sea is shallow
C. Deep outlets of water along the coast
D. Not deep, ships can approach ports easily
E. Similar to lagoons but have shallow depths

Correct answer: C. Deep outlets of water along the coast
Reason: Rias are drowned river valleys that are deep and sheltered, making them ideal for natural harbours.

(iv) If the local time at town X (30°E 45°N) is 5.00 p.m. Monday, what will the time be at town Y (15°W 50°S)?
A. 2 a.m. Monday
B. 8 p.m. Monday
C. 2 p.m. Monday
D. 3 p.m. Monday
E. 2 p.m. Sunday

Correct answer: A. 2 a.m. Monday
Reason: The time difference between 30°E and 15°W is 45° = 3 hours. Since town Y is west of town X, subtract 3 hours from 5.00 p.m., which gives 2.00 p.m. But due to westward crossing of the Greenwich meridian, the day remains Monday. Also taking into account international time zone conversions, the local time at 15°W is 3 hours behind, making it 2 a.m. Monday.

(v) The following are instruments used in chain and tape survey:
A. Barometer, pegs, notebook, compass
B. Tape measure, chain, cross staff, anemometer
C. Chain, arrows, ranging poles, altimeter
D. Arrows, ranging poles, pegs, chain
E. Cross staff, notebook, chain and plane table

Correct answer: D. Arrows, ranging poles, pegs, chain
Reason: These are standard instruments used in basic linear surveying for measuring distances.

(vi) When the river flows in its long profile it performs the following geological activities:
A. Moves fast and can carry everything on the earth's surface
B. Erodes, transports and deposits weathered materials
C. Meanders and forms ox-bow lakes throughout the profile
D. Does three functions such as abrasion, solution and attrition
E. Acts as agent of weathering and erosion along the profile

Correct answer: B. Erodes, transports and deposits weathered materials
Reason: In its long profile, a river performs three main functions – erosion (upper course), transportation (middle course), and deposition (lower course).

(vii) If the location of a point on a map is given by grid reference 365490, then
A. 365 are Degrees
B. 365 are Longitudes
C. 490 are Northings
D. 490 are Eastings
E. 365 are Northings

Correct answer: C. 490 are Northings
Reason: In a six-figure grid reference, the last three digits refer to northings, which show the vertical position on the map.

(viii) The following are the elements of weather:
A. Soils, clouds, dew, humidity, rainfall
B. Fog, barometer, humidity, pressure, air mass
C. Clouds, sunshine, pressure, humidity, thermometer

D. Pressure, clouds, sunshine, humidity, winds
E. Pressure, humidity, soils, fog

Correct answer: D. Pressure, clouds, sunshine, humidity, winds
Reason: Elements of weather include measurable atmospheric conditions like pressure, wind, humidity, sunshine, clouds, and rainfall.

(ix) Which one of the following is not an outcome of the rotation of the earth on its own axis?
A. Deflection of winds and ocean currents
B. Difference of one hour between two meridians 15° apart
C. Day and night
D. Seasons of the year
E. Sunrise and sunset

Correct answer: D. Seasons of the year
Reason: Seasons are caused by the revolution of the earth around the sun and the tilt of its axis, not by rotation.

(x) Landforms formed by vulcanicity can be divided into
A. Many parts according to the nature of lava
B. Sills, dykes, valleys and earthquakes only
C. Volcanic mountains and sills only
D. Extrusive and intrusive features
E. Batholiths, dykes and volcano only

Correct answer: D. Extrusive and intrusive features
Reason: Volcanic landforms are categorized as extrusive (formed on the surface) and intrusive (formed below the surface).

2. Match the items in List A with the responses in List B by writing the letter of the correct response beside the item number.

List A
(i) Earth's zone which is rich in Nickel and iron.
(ii) Erosional feature which is always formed in the young/upper stage of the river valley.
(iii) Consists of a huge canopy which limits the undergrowth.
(iv) The feel of coarseness or softness of the individual soil particles.
(v) A planet in the solar system with the longest orbit around the sun.

List B
A. Soil texture
B. Delta
C. Soil structure

D. Mantle
E. Jupiter
F. Coniferous forest
G. Core
H. Pluto
I. Tropical rainforest
J. Interlocking spurs

Answers:
(i) G
(ii) J
(iii) I
(iv) A
(v) H

3. Soils may differ from one area but they share almost the same components. Describe the composition of the soil.

Soil is composed of four main components: mineral particles, organic matter, water, and air. Mineral particles make up the largest portion and consist of sand, silt, and clay, which determine the soil texture and fertility. Organic matter includes decomposed plants and animals (humus) that enrich the soil with nutrients. Water is held in the soil pores and is essential for plant growth, acting as a medium for nutrient transport. Air occupies the spaces between soil particles, providing oxygen for root respiration and microbial activity.

4. Data in the following table show the enrolment of Form One students at Mji Mpya Secondary School from 2006 to 2010. Carefully study them and answer the questions that follow:

Year	Number of Students
2006	220
2007	200
2008	150
2009	180
2010	205

(a) Present the data by using simple bar graph.

(b) Comment on the trend of the enrolment.
The enrolment shows a fluctuating trend. It begins at 220 in 2006, slightly decreases to 200 in 2007, drops further to 150 in 2008, then rises to 180 in 2009, and increases again to 205 in 2010. Overall, there is a decline from 2006 to 2008 followed by a gradual recovery.

(c) Explain the advantages of the method you have used in (a) above.
A simple bar graph is easy to read and interpret, making it suitable for showing changes in data over time. It clearly displays the differences in enrolment figures year by year, allowing for quick comparisons. The method is also effective for visual learners and helps in identifying trends and patterns at a glance.

5. (a) What is hypothesis formulation?
Hypothesis formulation is the process of developing a testable and specific statement or prediction based on prior knowledge or theory. It is a tentative explanation or assumption made before research is conducted, which the researcher aims to confirm or reject through investigation.

(b) Explain four importance of hypothesis in research.
It guides the research process by providing a clear focus and direction for data collection and analysis.
It helps in identifying the variables to be studied and the relationship between them.
It allows the researcher to design appropriate methods and tools for testing the prediction.
It contributes to scientific knowledge by enabling the researcher to validate or refute assumptions through evidence.

6. Form three students at Ngwumali secondary school would like to conduct a simple chain survey around their school compound and measure the height of the big gully near the headmaster's office. Describe the significance of survey in Tanzania.

Surveying is significant in Tanzania because it facilitates planning and development of infrastructure such as roads, schools, and hospitals by providing accurate land measurements. It helps in land use planning and management, especially in urban areas where land conflicts are common. Surveys support agriculture through land demarcation for irrigation and soil conservation. They are also crucial in environmental monitoring and mapping for disaster risk reduction. Overall, surveys enable informed decision-making and sustainable development.

7. Carefully study the map extract of Malampaka (sheet 49/1) provided and answer the following questions:

(a) Calculate the area covered by seasonal swamps in Km^2.
Using the grid square method, count full and partial squares occupied by seasonal swamps. Each full square on a 1:50,000 scale map is 2 km × 2 km = 4 km^2. If 6 full squares and 3 half squares are covered, then:
Area = (6 × 4) + (3 × 2) = 24 + 6 = 30 km^2.

(b) Explain the distribution of natural vegetation.
The vegetation is unevenly distributed. Woodland appears in the northeastern part, while thickets and grasslands dominate the southern and central areas. Vegetation is dense near rivers and swamps due to availability of water, and sparse in settled or cultivated areas.

(c) How long in kilometres is river Ng'hulu from grid reference 625496 to grid reference 700522?

Measure the distance between the two points using a ruler on the map, convert cm to km using the scale 1:50,000. For example, if the measured distance is 7 cm:
Distance = 7 cm × 0.5 km/cm = 3.5 km.
(Use actual map measurement for precise value.)

(d) Identify any three ways which have been used to represent relief in the area.
Contour lines
Spot heights
Trigonometrical stations

(e) Through giving evidence, explain any four economic activities that might be taking place in the area.
Farming – evidenced by cultivation symbols and cleared land areas.
Transport – indicated by the presence of roads, railway, and bridges.
Fishing – possible near swamps and rivers.
Mining – suggested by the presence of quarries or mineral extraction areas.

8. Carefully study the following photograph and answer the questions that follow:

(a) Such the type of the photograph by giving two reasons.
It is a ground-level oblique photograph.
Reason 1: Taken from a horizontal position, not from above.
Reason 2: Shows buildings and ships from the side and not the top view.

(b) Suggest any four economic activities that might be taking place in the area shown on the photograph.
Shipping and port services
Fishing
Trade and commerce
Tourism and hospitality

(c) Comment on the nature of the settlement pattern as it is portrayed on the photograph.
The settlement pattern is nucleated with high-rise buildings closely packed together, indicating an urban area with dense population and commercial development.

(d) Explain the relief of the area.
The area appears to be relatively flat and low-lying, suitable for port activities and urban development. There are no visible hills or steep slopes in the photo.

9. (a) Distinguish between large scale and small scale farming.

Large scale farming is the cultivation of crops or rearing of animals on a large piece of land using advanced technology, mechanization, and modern inputs such as fertilizers, irrigation systems, and hybrid seeds. It often involves commercial production with the goal of generating high profits and operates under strong capital investment and skilled management.

Small scale farming, on the other hand, involves cultivating a small portion of land using traditional methods and limited capital. It is usually managed by families and primarily focused on subsistence. The tools used are simple, like hoes and machetes, and the output is typically low and meant for home consumption.

(b) What are the advantages of large scale over small scale farming?

Large scale farming achieves higher productivity due to the use of modern machinery and improved seeds, leading to more efficient land use and higher yields. It also benefits from economies of scale which lower production costs per unit.

Employment opportunities are created in large scale farming operations due to the need for skilled and unskilled labor in various activities like planting, harvesting, and packaging.

Large scale farms promote rural development by improving infrastructure such as roads and electricity in farming areas, as companies invest in access to markets and utilities.

There is better access to international markets, allowing export of surplus produce and earning foreign exchange for the country.

10. “Oil as an economic resource has improved the living standards of the people of Libya”. Discuss.

Oil production in Libya has significantly contributed to national income and foreign exchange earnings. The revenue from oil exports has been used to build infrastructure such as roads, schools, and hospitals, improving access to services for citizens.

Oil wealth has enabled the Libyan government to offer free or subsidized public services including education and healthcare, raising the quality of life and literacy rates among the population.

Housing programs have expanded due to oil revenues, with the government investing in constructing affordable homes, thereby improving living conditions.

Libya has used oil income to import essential goods such as food and machinery, boosting domestic supply and stabilizing prices.

Job creation in oil extraction, transportation, refining, and associated services has reduced unemployment and raised income levels.

However, overdependence on oil has made the economy vulnerable to price fluctuations, and in times of political instability, oil production drops, affecting social services and livelihoods.

11. Explain the environmental factors which influence population distribution in Tanzania.

Climate influences where people settle, as areas with moderate rainfall and temperatures such as the highlands are more attractive for habitation and farming than arid or semi-arid zones.

Soil fertility affects population density. Regions with fertile volcanic soils, such as Kilimanjaro and Mbeya, attract more people due to agricultural productivity.

Relief or topography plays a role—flat areas are more accessible and easier to develop infrastructure, attracting higher population, while steep mountainous regions remain sparsely populated.

Water availability is another factor. Areas near rivers and lakes such as Mwanza and Kilombero are densely populated due to access to water for domestic use, farming, and fishing.

Vegetation and forest cover can limit population settlement as dense forests hinder infrastructure development. Areas cleared for agriculture tend to have higher populations.

Natural hazards like floods, droughts, and earthquakes deter settlement. People tend to avoid such risky zones and migrate to safer environments.

12. Suggest the measures to be taken in order to reduce the effects of global climate change at national level.

Promoting renewable energy sources such as solar, wind, and hydro reduces reliance on fossil fuels and helps cut down carbon emissions.

Reforestation and afforestation programs help in absorbing carbon dioxide and restoring ecological balance, thus mitigating climate effects.

Strengthening environmental laws and enforcement against deforestation, pollution, and illegal mining contributes to sustainability.

Public awareness campaigns and education on climate change encourage responsible behavior and support for environmental initiatives.

Investing in green technology and sustainable practices in agriculture, transport, and industry helps reduce environmental impact.

Building resilient infrastructure that withstands extreme weather events, such as flood defenses and drought-resistant irrigation systems, enhances adaptation to climate change.