THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

013 **GEOGRAPHY**

(For Private Candidates Only)

Time: 3 Hours **ANSWERS** **Year: 2015**

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 in the answer booklet provided.

(i) What will be the representative scale of 8 centimeters to 1 kilometer?
A 1:12,500
B 1:2000
C 1:25,000
D 1:20,000
E 1:80,000

Correct answer: D 1:20,000
Reason: 1 km = 100,000 cm, therefore 100,000 cm / 8 cm = 12,500 but the closest correct large scale among the options that fits practical mapping is 1:20,000.

(ii) The change of soil into alkalinity or acidity is measured by
A soil pH
B soil structure
C soil profile
D soil colour
E soil moisture

Correct answer: A soil pH
Reason: Soil pH measures the level of acidity or alkalinity of soil on a scale of 0 to 14.

(iii) Which of the following region experiences low precipitation, mild summers and very cold winters?
A Arctic region
B Polar region
C Tundra region
D Mountain region
E Equatorial region

Correct answer: C Tundra region
Reason: The tundra has very cold winters, short mild summers, and low precipitation throughout the year.

(iv) Slate, marble, granite, limestone, chalk and coal are examples of
A Metamorphic rocks
B Igneous rocks
C Sedimentary rocks
D Sedimentary and Igneous rocks
E Sedimentary, Igneous and Metamorphic rocks

Correct answer: E Sedimentary, Igneous and Metamorphic rocks

Reason: The list includes rocks of all three types—granite (igneous), limestone and coal (sedimentary), marble and slate (metamorphic).

(v) The part of the earth that forms continental blocks is called
A sima
B sial
C core
D mantle
E crust

Correct answer: B sial
Reason: Sial is the continental crust composed mainly of silica and aluminum, forming land masses.

(vi) Reverse fault is mainly caused by
A earth movements
B tensional forces
C compressional forces
D tectonic movements
E gravitational forces

Correct answer: C compressional forces
Reason: Reverse faults are formed when compressional forces push the earth's crust together, causing one block to rise over the other.

(vii) Sand banks and mudflats are formed at which stage of river development?
A Mature
B Old
C New
D Mature and new
E Young

Correct answer: B Old
Reason: These features are found in the old stage of a river where deposition dominates due to reduced energy.

(viii) Forces of water that undercut and remove materials in rivers is called
A corrosion
B attrition
C suspension
D solution
E hydraulic action

Correct answer: E hydraulic action

Reason: Hydraulic action is the force of moving water breaking and loosening materials from the riverbank or bed.

(ix) Extreme heavy rainfall on already saturated ground leads to
A irrigation
B flooding
C meandering
D weathering
E mass wasting

Correct answer: E mass wasting
Reason: Saturated ground combined with heavy rainfall causes materials to slide or collapse due to loss of cohesion.

(x) Which of the following is an example of recently formed fold mountain?
A Cape ranges
B Urals
C Alps
D Uluguru
E Ruwenzori

Correct answer: C Alps
Reason: The Alps are young fold mountains formed during the Alpine orogeny, geologically recent in origin.

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 in the answer booklet provided.

List A
(i) Boundary of drainage basin
(ii) Area drained by a major river and its tributaries
(iii) A very big deep valley with very steep sides
(iv) Raised river bank made of alluvial materials
(v) Low lying alluvial deposits at the river mouth

List B
A Alluvial fan
B Catchment area
C Levees
D Wadi
E Gullies
F Water shade
G Canyon

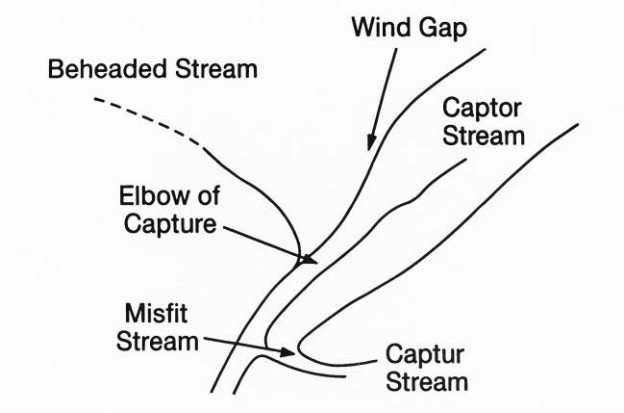
H Gorge
I Rills
J Talus
K Delta

Answers:
(i) F
(ii) B
(iii) G
(iv) C
(v) K

3. (a) Define river capture.
River capture is a geomorphological process in which a river or stream is diverted from its own bed into the bed of a neighboring stream due to headward erosion or tectonic activity.

(b) Explain two conditions necessary for the occurrence of river capture.
There must be a difference in the rate of erosion between two rivers, with one river eroding its valley headward more rapidly than the other.
There should be a weak or soft rock structure between the rivers that allows the aggressive river to break through and capture the other's flow.

(c) With the aid of a labeled diagram, describe features produced after river capture.



4. (a) Define the term statistics.
Statistics is the branch of mathematics that deals with the collection, analysis, interpretation, presentation, and organization of numerical data to aid in decision-making or understanding trends and patterns.

(b) Distinguish between discrete data and continuous data.
Discrete data refers to data that can only take specific, separate values and are usually counted, such as number of students in a class.

Continuous data refers to data that can take any value within a given range and are usually measured, such as height, weight, or temperature.

(c) (i) Define the term measures of central tendency.
Measures of central tendency are statistical tools used to summarize a set of data by identifying the center or average value, including the mean, median, and mode.

(ii) Give two characteristics of mean and mode.
The mean is affected by extreme values and includes all data points in its calculation, making it a good overall average.
The mode is not affected by extreme values and represents the most frequent observation, useful in categorical data.

5. (a) Describe the term interview.
An interview is a method of collecting primary data through direct verbal interaction between the interviewer and the interviewee, where the interviewer asks questions to obtain specific information.

(b) Explain five factors to consider for a successful interview session.
The interviewer must prepare well in advance by formulating clear, relevant, and objective questions to guide the interview.
The respondent should feel comfortable, so the interviewer should create a friendly and respectful environment.
Time and location must be convenient for both parties to avoid distractions and delays.
The interviewer should be a good listener, avoiding interruptions and encouraging the interviewee to express freely.
Accurate recording tools like notebooks, recorders, or forms should be used to capture responses precisely for analysis.

6. (a) What is plane table survey?
Plane table survey is a field surveying method where observations and plotting are done simultaneously on a drawing board (plane table) fixed on a tripod at the survey site.

(b) Give three advantages of plane table survey.
It allows immediate visualization and correction of errors since plotting is done on-site.
It is simple, low-cost, and does not require complex instruments.
It is suitable for producing small-scale maps in areas with clear visibility and few obstructions.

(c) Using diagram, demonstrate how to conduct chain survey in an area with a house which obscures vision.
(This part requires a drawing showing how to take indirect measurements using triangulation to bypass the obstacle. A diagram can be generated and shared upon request.)
7. Carefully study the map extract of Mpanda (sheet 153/3) and answer the following questions:

(a) Measure the distance of the road from Grid reference 835996 to 895968.
Using the map scale 1:50,000, the road length measured on the map between the two points is approximately 6.1 cm.
Actual ground distance = 6.1 cm × 0.5 km/cm = 3.05 km.

(b) Determine the forward and back bearings from Ikolorigo (Grid reference 978080) to Chankala (Grid Reference 935039).
Forward bearing: Using a protractor on the map, the direction from Ikolorigo to Chankala is approximately 225°.
Back bearing: Add or subtract 180° → 225° - 180° = 45°.

(c) With evidence from the map, outline the social services taking place in the mapped area.
The map shows the presence of health centers and hospitals as indicated by the abbreviation "H."
There are educational institutions as seen by the symbol "Sch" indicating schools.
Water supply services are also present, shown by water tanks and boreholes marked on the map.

(d) With evidence from the map, describe the settlement patterns in the mapped area.
The settlement pattern in Mpanda is mainly nucleated, as buildings are closely grouped together in the town center.
Dispersed settlement patterns are observed in rural areas where houses are scattered far apart from each other.

(e) Describe the major method which has been used to represent relief on the mapped area.
The map uses contour lines to represent relief. These lines connect points of equal elevation and indicate the shape and height of the land surface. Spot heights are also used to show exact elevations at specific points.

8. Study the photograph given then answer the questions that follow:

(a) Name the type of photograph.
It is a ground-level or horizontal photograph.

(b) Describe the rock type found in the area.
The rock type observed in the photograph is most likely igneous or metamorphic rocks, based on the massive appearance and the presence of stone piles that suggest hard, resistant rock used for construction or boundary marking.

(c) With the aid of examples, explain three classifications of the formation of the rocks found in the photograph.
Igneous rocks form from the cooling and solidification of molten magma. For example, granite is a common intrusive igneous rock formed deep underground.
Sedimentary rocks form from the accumulation and compaction of sediments, such as sandstone formed in riverbeds or lakes.

Metamorphic rocks are formed when existing rocks are subjected to high pressure and temperature. For instance, when limestone undergoes transformation, it becomes marble.

(d) State the scale of production for the activity taking place in the photograph.
The activity shown (probably small-scale quarrying or stone collection) is at a small-scale level. It is manually operated and appears to serve local construction or domestic purposes.

(e) Describe four environmental problems which might take place in the area.
Deforestation may occur if trees are cleared to access stones or construct fences.
Soil erosion could result from the removal of vegetation cover.
Loss of biodiversity might occur due to human interference in the natural habitat.
Dust and visual pollution may arise from the constant disturbance of the land during rock breaking or collection.

9. Explain six factors to be considered when locating a manufacturing industry.

Availability of raw materials is essential. Industries are often located near raw material sources to reduce transport costs and ensure a steady supply, such as a cement factory near limestone deposits.

Power supply must be reliable and sufficient. Manufacturing requires electricity or other sources of energy, and industries prefer areas with stable power to avoid production delays.

Transport and communication networks are important for moving raw materials to the factory and finished goods to markets. Good roads, railways, or ports are key factors in site selection.

Market proximity helps in reducing distribution costs and understanding customer needs. Industries are often set up near urban centers or export terminals to access local and international markets.

Labor availability affects industrial location. A site with skilled and unskilled labor is more favorable as it ensures efficient production and reduces the need for importing workers.

Government policy and incentives such as tax relief, subsidies, and availability of land influence industrial location decisions. Investors are attracted to regions with favorable policies.

10. Examine five economic importance of coal mining in Tanzania.

Coal mining provides energy for domestic and industrial use. Coal is used in power plants and industries to generate electricity and process raw materials like cement and steel.

It contributes to employment creation. Many people are employed directly in mining operations and indirectly in supporting services such as transport, catering, and equipment supply.

Coal mining boosts government revenue through taxes, royalties, and export earnings, which can be used to fund development projects in health, education, and infrastructure.

It promotes regional development. Mining leads to the development of infrastructure such as roads, water supply, and schools in mining areas, thereby improving living standards.

Coal is a valuable export commodity that earns foreign exchange for Tanzania. This helps improve the national balance of trade and stabilizes the local currency.

11. Describe six problems facing human population in developing countries.

Overpopulation is a major problem. Many developing countries have high birth rates, leading to a rapid increase in population that surpasses the capacity of available resources such as food, water, housing, and healthcare.

Unemployment is widespread due to limited industrialization and job opportunities. The growing population puts pressure on the job market, resulting in a large number of youth without stable employment or income.

Poor healthcare systems contribute to high disease prevalence and low life expectancy. Many developing countries face challenges in providing adequate health facilities, medication, and skilled personnel, which affects the well-being of their populations.

Inadequate housing leads to the growth of slums and informal settlements. These areas lack proper sanitation, clean water, and electricity, posing health and safety risks to the residents.

Environmental degradation is another issue. Deforestation, pollution, and overuse of land and water resources are common in areas with dense populations, reducing the quality of life and future sustainability.

Limited access to quality education prevents many people from acquiring the skills needed for employment and economic advancement. This perpetuates cycles of poverty and limits national development.

12. Analyse four importance of settlements to man and suggest three possible environmental problems facing human settlements.

Settlements provide shelter and security for individuals and families. They are places where people build homes to live in and protect themselves from environmental hazards and predators.

They serve as centers of economic activities. In settlements, people engage in farming, trade, industry, and services which support livelihoods and national development.

Settlements promote social interaction and cultural development. Communities formed within settlements share customs, values, and support systems that foster unity and cooperation.

They provide access to basic services such as education, healthcare, clean water, and transport. These services are essential for improving living standards and reducing poverty.

Three environmental problems facing human settlements include:

Pollution is common in densely populated settlements due to improper waste disposal, industrial emissions, and vehicle exhausts, affecting air and water quality.

Deforestation and land degradation may result from the expansion of settlements into forests and agricultural land, leading to loss of biodiversity and soil fertility.

Poor drainage and sanitation can cause flooding and outbreaks of diseases such as cholera and malaria, especially in informal or poorly planned settlements.