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: 2005**

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) The earth's shape is a flattened sphere which is called
A ekman spiral
B geoid
C globe
D galtax
E spherical.
Answer: B
Reason: The earth is not a perfect sphere; it is slightly flattened at the poles and bulged at the equator. This shape is known as a geoid.

(ii) _____ occurs when three heavenly bodies are in one line and one of them being the source of light.
A Solar system
B Equinox
C Eclipse
D Solstice
E Solar radiation.
Answer: C
Reason: An eclipse occurs when the sun, moon, and earth align in a straight line, causing one body to block light from another.

(iii) The Secretary General of the UN addressed the world from New York (75°W 42°N) at 7:30 p.m. Tuesday. At what time and day will people in Dar Es Salaam (45°E 6°S) hear the same speech?
A 3:30 a.m. Wednesday
B 12:30 p.m. Tuesday
C 11:30 p.m. Wednesday
D 3:30 p.m. Wednesday
E 8:30 p.m. Tuesday.
Answer: A
Reason: There is a time difference of 8 hours ahead between New York and Dar Es Salaam. Therefore, 7:30 p.m. Tuesday in New York is 3:30 a.m. Wednesday in Dar Es Salaam.

(iv) The temperature at Moshi 950 metres is 24°C. What will the temperature be at Uhuru Peak 5,895 metres above sea level?
A 32°C
B –8°C
C –24°C
D 18°C
E 0°C
Answer: B

Reason: Temperature decreases at a rate of 6.5°C per 1000m.
Difference in altitude = 5895 – 950 = 4945m
Drop in temperature = 6.5°C x 4.945 = 32.14°C
New temperature = 24°C – 32.14°C ≈ –8°C

(v) When two forces act away from each laterally, they are called
A lateral forces
B orogenic forces
C vertical forces
D compressional forces
E tensional forces.
Answer: E
Reason: Tensional forces act outward, pulling the crust apart and causing features like rift valleys.

(vi) A delta which is found in a lake is called _____ delta.
A marine
B lacustrine
C alluvial
D arcuate
E bird's foot
Answer: B
Reason: Lacustrine deltas are formed at the mouths of rivers entering lakes, where sediments accumulate to form deltaic landforms.

(vii) A natural outflow of water from the surface rock is known as
A brook
B stream
C artesian well
D spring
E aquifer.
Answer: D
Reason: A spring occurs when water flows naturally from the ground due to underground pressure or a water table reaching the surface.

(viii) When several rivers drain into a depression they form a drainage system called
A radial
B superimposed
C dendritic
D centripetal
E trellised.
Answer: D
Reason: A centripetal drainage pattern is one where rivers flow inward from all directions toward a central depression or basin.

(ix) A soluble rock with jointed structure resembling a wall is called
A granite
B grike
C basalt
D limestone
E clint.
Answer: E
Reason: Clint is a block of limestone left standing between grikes in a limestone pavement, forming a jointed wall-like structure.

(x) The Barysphere of the earth is made up of
A silica and magnesia
B silica and alumina
C iron and nickel
D iron and zinc
E iron and alumina.
Answer: C
Reason: The barysphere, or core of the earth, is primarily composed of heavy metals, especially iron and nickel.

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

List A
(i) Natural embankments built up by a stream along the edges of its channel.
(ii) It is the group of soils which occurs mostly in the moist cool temperate climate.
(iii) The direction of a place in degrees from another place.
(iv) A shallow depression in a karst region.
(v) A detailed study on a small scale of weather elements within a natural or man-made environment.

List B
A Bearing
B Delta
C Alignment
D Levees
E Dolines
F Bore hole
G Micro climate
H Macro climate
I Podzol
J Mable

Answers:
(i) D
(ii) I
(iii) A
(iv) E
(v) G

3. State three (3) mechanisms developed by plants to adapt themselves to drought conditions.

Some plants develop long roots that penetrate deep into the soil to reach underground water. These tap roots enable them to survive long dry periods by accessing moisture that is not available at the surface.

Other plants adapt by reducing their leaf size or turning their leaves into spines. This adaptation reduces water loss through transpiration, especially in areas with intense sunlight and high temperatures.

Some plants have thick, fleshy stems or leaves which store water. Such plants, known as succulents (e.g., cacti), can survive in deserts by relying on the stored water during dry periods.

4. (a) What is a line graph?

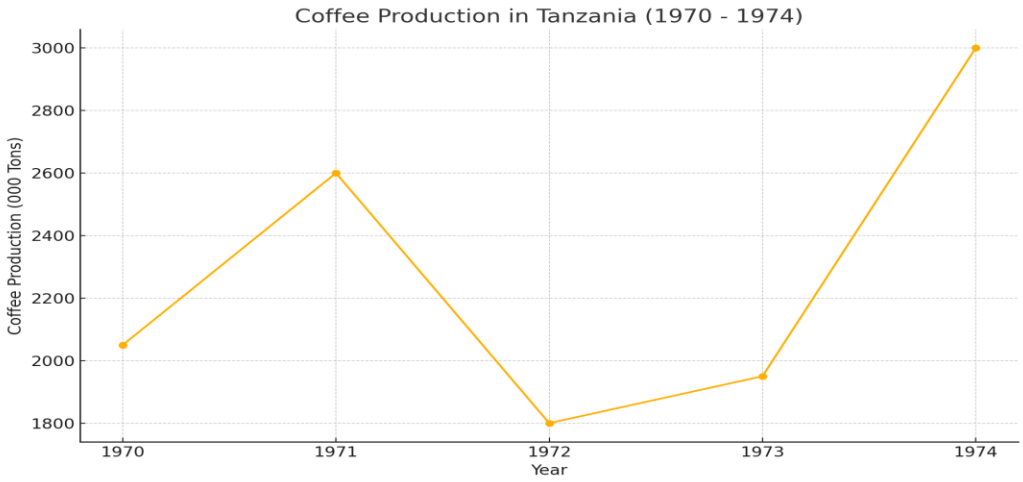
A line graph is a type of statistical diagram that represents data points connected by straight lines. It is commonly used to show trends or changes over time. In geography and other fields, line graphs help visualize how variables such as temperature, rainfall, or population vary over years or months.

(b) List down the main types of line graphs.

The main types of line graphs are:
- Simple line graph, which displays one set of data.
- Multiple line graph, which compares two or more sets of data on the same graph.
- Compound line graph, which shows stacked lines to represent cumulative totals or layered information.

(c) Construct a line graph to show the trend of coffee production in Tanzania from 1970 - 1974 as shown in the table below:

YEAR	COFFEE PRODUCTION (000 TONS)
1970	2050
1971	2600
1972	1800
1973	1950
1974	3000



5. (a) Define the term sampling as used in field research.

Sampling in field research refers to the process of selecting a small portion or subset of a larger population or area for the purpose of studying and making general conclusions about the whole. It allows researchers to collect data more efficiently and cost-effectively without having to investigate the entire population or area.

(b) Outline the main types of sampling as used in field research.

The main types of sampling used in field research include random sampling, where every individual or unit has an equal chance of being selected; systematic sampling, where samples are chosen at regular intervals; stratified sampling, which involves dividing the population into sub-groups and sampling each group; and purposive sampling, where specific units are chosen based on the purpose of the study.

(c) What problems are likely to be encountered in field research?

Field research may face challenges such as inaccessibility of some areas due to rough terrain, poor weather, or lack of transport. Language barriers and uncooperative respondents can also limit the accuracy of information collected. Limited time and resources may reduce the sample size and scope of the study. Additionally, data may be affected by researcher bias or incorrect responses from informants.

6. (a) What is levelling?

Levelling is a surveying technique used to determine the relative height of different points on the Earth's surface. It helps in establishing a horizontal plane and measuring vertical distances (elevation) between points. Levelling is essential in construction, road design, and mapping to ensure structures are built on even ground.

(b) What would you do when preparing a chain survey?

When preparing a chain survey, I would start by studying the area and identifying the boundaries. Then, I would gather the required tools such as chains, arrows, ranging rods, and field books. I would mark the base line and main survey lines, identify reference points and stations, and draw a rough sketch of the area. I would also assign roles to the team members such as leader, follower, and note taker before starting measurements.

(c) What would you do to overcome obstacles such as a pond in a chain survey?

To overcome obstacles like a pond during a chain survey, I would use indirect methods such as forming triangles to bypass the obstruction. For example, I would measure the distances around the obstacle using offsets and take angular readings if necessary to determine the dimensions indirectly. Alternatively, I could fix points on either side of the pond and connect them through calculations without physically crossing the obstacle.

7. Study the map extract of Tabora sheet 118/2 and answer the following questions:

(a) List down physical and man-made features found in the following grid references:
(i) 885465
At this grid, a physical feature is a seasonal river, and a man-made feature is a minor road.

(ii) 866475
A physical feature is a contour line indicating gentle slopes, and a man-made feature is a railway line crossing the area.

(iii) 815393
A physical feature is scattered vegetation cover, and a man-made feature is a settlement area or village.

(iv) 796430
A physical feature is a forested area, and a man-made feature is a footpath crossing through the woodland.

(v) 832430
A physical feature is a swamp or seasonal marshland, and a man-made feature is a track or path used by locals.

(b) Measure the distance of the railway line from grid reference 740447 to 833360.
Using a thread or a piece of string along the curved railway line and converting using the map scale (1:50,000), the total railway distance measures approximately 14.2 kilometers.

(c) List down the main factors that have influenced vegetation distribution in the area.
The main factors include climate, especially rainfall distribution, which determines the type and density of vegetation. Soil type also influences vegetation; fertile soils support dense growth while poor soils limit it. Human activities such as cultivation, settlement, and logging reduce natural vegetation.

Topography plays a role as well, where valleys may have thicker vegetation compared to ridges. Lastly, availability of water sources like rivers and swamps supports vegetation growth.

(d) What are the main functions of Tabora town?
Tabora town functions as an administrative center with offices and governance institutions. It is a transportation hub due to the presence of major roads and railways. It also acts as a commercial center with markets and shops for trade. Educational and health services are also provided, making it a service center for the surrounding rural areas.

(e) Giving examples, account for the main activities found in the area.
The main activities include farming, as evidenced by scattered settlements and cultivated land. Transport and communication activities are evident from the network of roads, railway lines, and airstrips. Trading occurs in market centers like Tabora town. Logging and timber harvesting are possible in the forested areas. Livestock keeping may also be practiced in the open plains, and local paths suggest movement of people and goods within rural villages.

9. Explain the factors that influence the exploitation of mineral resources.

One major factor is the accessibility of the mineral deposits. Minerals that are located near the surface and close to transport routes are easier and more cost-effective to exploit compared to those located in remote or rugged terrains that require heavy investment in infrastructure.

The market demand for a particular mineral plays a significant role. If a mineral has high demand locally or internationally, it encourages investment in its extraction and processing. Conversely, if demand is low, companies may hesitate to exploit it due to low profitability.

Availability of capital is another key factor. Mineral exploitation requires heavy machinery, skilled labor, and modern technology. Therefore, the presence of both local and foreign investors who can inject sufficient capital is crucial in determining whether mining activities are undertaken.

Government policies and regulations greatly influence the mining industry. Supportive policies, tax incentives, and streamlined licensing procedures can encourage exploitation, while restrictive laws, high royalties, or unclear regulations can hinder the development of the sector.

The availability of skilled labor and technical expertise also influences mineral exploitation. A workforce with the necessary skills for exploration, mining, and processing ensures efficient and profitable extraction of resources.

Environmental concerns and the need for sustainability impact the level and method of mineral exploitation. Areas with fragile ecosystems or where mining may cause pollution and displacement of communities may face restrictions or protests that delay or prevent exploitation.

10. (a) State the problems of beef cattle production in Tanzania.

One major problem is the occurrence of diseases such as East Coast fever, foot and mouth disease, and tick-borne illnesses. These diseases reduce productivity, increase mortality rates, and raise the cost of animal healthcare.

Lack of reliable water supply in many pastoral areas limits the growth of beef cattle. During dry seasons, water scarcity affects animal health, reduces pasture availability, and forces herders to migrate long distances.

Inadequate and poor-quality pasture also affects beef cattle production. Overgrazing due to large herds in small areas results in land degradation and low productivity, especially during drought periods.

Poor breeding practices result in low-quality cattle with poor meat yields. The absence of modern breeding programs limits genetic improvement and the potential for higher meat production.

Limited access to markets and infrastructure discourages investment in cattle rearing. Poor road networks, lack of refrigerated transport, and absence of reliable buyers lead to low returns for cattle farmers.

(b) In what ways can beef production be improved?

Beef production can be improved through the establishment of modern veterinary services and vaccination programs. These help control diseases and improve the overall health and productivity of cattle.

Introducing improved pasture management practices such as rotational grazing and planting of fodder crops can ensure consistent food supply and reduce land degradation.

Adopting modern breeding techniques, including artificial insemination and crossbreeding with superior breeds, can enhance meat quality and increase productivity per animal.

Improving infrastructure such as roads, slaughterhouses, and refrigeration facilities can enhance market access and reduce post-slaughter losses. This makes the beef industry more efficient and profitable.

Education and training of cattle keepers on modern animal husbandry practices, record keeping, and market linkages can enhance productivity and sustainability in the sector.

11. Explain environmental hazards.

Environmental hazards are natural or human-induced events that have the potential to cause harm to people, property, and ecosystems. These hazards disrupt normal life and can lead to loss of life, destruction of infrastructure, and degradation of the environment.

Natural environmental hazards include floods, droughts, earthquakes, volcanic eruptions, and landslides. These are caused by natural earth processes and often occur with little warning, leading to massive damage, especially in poorly prepared areas.

Human-induced hazards include pollution, deforestation, industrial accidents, and nuclear radiation. These result from human activities and poor environmental management practices, such as illegal mining, improper waste disposal, and excessive use of chemicals.

Climate change has increased the frequency and intensity of many hazards. Rising temperatures, changing rainfall patterns, and extreme weather events like cyclones and hurricanes are becoming more common due to global warming.

Vulnerability to environmental hazards is often higher in developing countries due to inadequate planning, poverty, weak infrastructure, and lack of emergency response systems. This makes it harder for affected communities to recover and adapt.

12. (a) What are the aims of introducing family planning programmes?

The main aim of family planning programmes is to help individuals and couples control the number and spacing of their children. This promotes maternal and child health by allowing mothers enough time to recover between births.

Family planning helps to reduce unplanned pregnancies, which can lead to unsafe abortions, maternal mortality, and school dropouts, especially among teenage girls. It also empowers women to pursue education and employment opportunities.

Another aim is to reduce population growth, especially in areas where high birth rates strain economic resources, social services, and the environment. Slower population growth can support national development goals.

Family planning programmes also aim to promote responsible parenthood. Couples are encouraged to plan their families based on their financial ability and resources, which improves the quality of life for children and families.

(b) State the main problems facing family planning programmes.

One problem is the lack of awareness or education about family planning methods. Many people, especially in rural areas, do not fully understand the benefits and usage of contraceptives.

Cultural and religious beliefs sometimes discourage the use of family planning. In some communities, large families are valued, and using contraceptives may be seen as unacceptable or against religious teachings.

Limited access to family planning services, especially in remote and underserved areas, also hinders the success of the programmes. Clinics may be far, under-equipped, or poorly staffed.

Misconceptions and fear of side effects discourage people from using contraceptives. Rumors and lack of accurate information contribute to resistance, especially among men.

Lack of male involvement in family planning is another challenge. In many societies, reproductive health is seen as a woman's issue, yet men play a key role in decision-making regarding family size and contraceptive use.