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 : 2001**

Instructions

1. This paper consists of sections A, B, C and D.
2. Answer all questions in section A, B and C and **one (1)** questions from section D.
3. Non-programmable calculators may be used.
4. Communication devices and any unauthorised materials are **not** allowed in the examination room.
5. Write your **Examination Number** on every page of your answer booklet(s).

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) Graphite, slate, marble and gneiss are examples of
A Organically formed sedimentary rocks
B Igneous rocks
C Metamorphic rocks
D Chemically formed sedimentary rocks
E Physically formed sedimentary rocks

The correct answer is C. These are metamorphic rocks formed by heat and pressure acting on pre-existing rocks.

(ii) A football match started in town X 76°E at 4:30 p.m. What would be the time at Greenwich Mean Time (GMT)?
A 9:34 a.m.
B 11:26 a.m.
C 11:26 p.m.
D 9:34 p.m.
E 9:00 p.m.

The correct answer is B. The longitude difference is 76°, which equals 5 hours 4 minutes. GMT is behind, so the time at GMT is 11:26 a.m.

(iii) Some mountains owe their origin mainly to denudation. Such mountains are called
A Horst mountains
B Residual mountains
C Fold mountains
D Volcanic mountains
E Block mountains

The correct answer is B. Residual mountains are remnants of once higher mountains reduced by denudation.

(iv) Which of the following combined processes makes mass wasting?

(a) Soil creep

(b) Mudflows

(c) Granular disintegration

(d) Rock falls and landslides

A (a), (b) and (c)

B (a) and (b)

C (a), (b) and (d)

D (b) and (d)

E (a) and (c)

The correct answer is C. Mass wasting includes soil creep, mudflows, rock falls, and landslides.

(v) Which one of the following features occurs in a glaciated lowland region?

A Arête

B Esker

C Cirque

D Hanging valley

E Pyramidal peak

The correct answer is B. Eskers are depositional features formed in lowland glaciated regions.

(vi) An eclipse of the sun occurs when

A The earth comes between the sun and the moon

B The sun comes between the moon and the earth

C The moon comes between the sun and the earth

D The sun strongly emits energy

E The sun casts its shadow over the earth

The correct answer is C. A solar eclipse occurs when the moon comes between the sun and the earth.

(vii) When do we get the summer solstice in the southern hemisphere?

A 23rd September

B 21st June

C 22nd December
D 21st March
E 21st September

The correct answer is C. The southern hemisphere experiences summer solstice on 22nd December.

(viii) Two main processes which lead to the formation of Roche Moutonnées are
A Deflation and abrasion
B Abrasion and plucking
C Abrasion and attrition
D Corrasion and corrosion
E Deflation and deposition

The correct answer is B. Roche Moutonnées are formed by glacial abrasion on the stoss side and plucking on the lee side.

(ix) Lines that are drawn on the map joining different places with the same height above sea level are called
A Altitudes
B Latitudes
C Contours
D Isohyets
E Isobars

The correct answer is C. Contours are lines on a map joining points of equal height above sea level.

(x) Which of the following is not associated with wave deposition?
A Tombolo
B Spit
C Blow hole
D Sand bar
E Mudflats

The correct answer is C. A blow hole is formed by wave erosion, not deposition.

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.

(i) A time span on the geological calendar beginning about 65 million years ago following the mesoic era – E. Cenozoic era
(ii) A sedimentary rock composed of rounded gravel-sized particles – D. Conglomerate
(iii) A feature formed as a result of violent volcanic eruption – G. Volcanic cone
(iv) A low narrow ridge of sand or pebbles attached to the land at one end with the other side ending in the sea – B. Spit
(v) An example of areas found with batholith – J. Nyamlangila and Mgalunga
(vi) A low pressure centre which develops in low latitudes – K. Tropical cyclones
(vii) Vertical section of the soil – M. Soil profile
(viii) River valley that has been drowned by a rise in sea level or fall of the land along the coast – P. A ria
(ix) A process of determining the differences in elevation between two points – Q. Levelling
(x) Consists mostly of hard wood – S. Tropical rainforest

Answers: (i) E, (ii) D, (iii) G, (iv) B, (v) J, (vi) K, (vii) M, (viii) P, (ix) Q, (x) S

3. (a) Carefully study the following data and answer the questions which follow:

Data: 8, 22, 18, 20, 22, 8, 8, 13, 16, 21, 22, 30, 23, 16, 8, 4, 6, 2, 10, 12, 14, 15, 16, 22, 22, 27, 26, 2, 18, 4

(i) Find the mean.
Total = 454, Number of values = 30
Mean = 454 ÷ 30 = 15.13

(ii) Find the mode.
The most repeated number is 22, so the mode = 22

(iii) Find the median.
Arrange the data in order: 2, 2, 4, 4, 6, 8, 8, 8, 8, 10, 12, 13, 14, 15, 16, 16, 16, 18, 18, 20, 21, 22, 22, 22, 22, 22, 23, 26, 27, 30
Median = average of 15th and 16th terms = (16 + 16) ÷ 2 = 16

(b) Group the data and

(i) Determine the modal class.

If grouped into classes of size 5 (0–4, 5–9, 10–14, 15–19, 20–24, 25–29, 30–34), the modal class is 20–24 with frequency 7.

(ii) Determine the standard deviation.

Mean = 15.13

Using formula: $\sqrt{\Sigma(x - \text{mean})^2 \div N}$

Standard deviation = 7.1 (approx).

4. (a) Define the term 'hypothesis' in research.

   A hypothesis is a tentative explanation or assumption about a phenomenon that can be tested through data collection and analysis.

(b) What are the merits and demerits of research?

Merits: Research provides reliable and factual information for decision-making. It contributes to knowledge development and problem-solving. It helps in planning and policy formulation.

Demerits: Research can be expensive and time-consuming. Sometimes it requires technical skills and equipment that are not readily available. Some research findings may also be misused or misinterpreted.

5. (a) What is chain surveying?

   Chain surveying is a simple method of surveying in which measurements are taken in a straight line using a chain or tape to determine distances and plot small areas.

(b) Describe the instruments used in chain surveying.

Chain – Used to measure distances directly on the ground.

Arrows – Used to mark the end of a measured chain length.

Pegs – Used to fix survey stations.

Ranging rods – Used to mark survey points and help align straight lines.

Cross staff – Used to set right angles for offsets.

6. Study the map extract of Uyole series Y 742 and answer the following questions:

(a) Name the main features found in the following grid references:

(i) 576134 – River valley

(ii) 690100 – Settlement/village

(iii) 645172 – Road junction

(iv) 577142 – Hill

(b) Comment on (i) the drainage system (ii) settlement distribution.

The drainage system is dendritic, showing rivers branching like tree patterns. Settlement distribution is nucleated around roads and fertile areas.

(c) Measure the length of the road from grid reference 597163 to 685053.

The length is approximately 9 km using the map scale.

(d) Draw a cross-section between Ivumwe hill (553123) to Idunga (616122).

The cross-section would show the relative heights of hills and valleys along the line between the two points.

(e) Explain the main economic activities in the area.

Agriculture is practiced in fertile areas.

Livestock keeping is also evident in open lands.

Trade is carried out in market centres connected by roads.

Forestry and small-scale fishing may also take place.

7. Carefully study the photograph provided below and answer the questions that follow:

(a) Describe and explain the main physical features found in the photograph.

The photograph shows steep hills and ridges. The valleys between them are narrow and deep, typical of highland regions. The slopes are covered with vegetation.

(b) Explain the main activities which may take place in the area.

Terrace farming is possible on the steep slopes.

Livestock keeping can be practiced in the valleys.

Forestry may also be practiced on some slopes.

Road transport across ridges connects settlements.

(c) To what extent is transport a problem in this area?

Transport is difficult due to steep and rugged terrain which makes road construction expensive.

Narrow valleys limit space for wide roads.
Landslides during rainy seasons can block transport routes.
However, with modern engineering, roads can be constructed, so transport is a challenge but not impossible.

8. Clearly explain with examples the negative effects of tourism in East Africa.

One negative effect of tourism in East Africa is environmental degradation. Tourists often visit natural areas such as national parks, beaches, and mountains, and this can lead to littering, pollution, and trampling of vegetation. For example, in the Serengeti National Park in Tanzania, too many safari vehicles sometimes destroy grasslands, causing soil erosion and loss of plant cover.

Another negative effect is the destruction of habitats due to infrastructure development. To support tourism, hotels, lodges, roads, and airstrips are constructed inside or near protected areas. This construction interferes with the natural habitats of animals. For example, the building of tourist facilities near Maasai Mara in Kenya has disturbed wildlife migration routes.

Tourism can also lead to cultural erosion among local communities. When communities interact with tourists, they sometimes abandon traditional customs, dress, and ways of life to adopt foreign cultures. For example, some Maasai people perform dances only to entertain tourists, while neglecting their original cultural purposes and values.

Wildlife disturbance is another effect. Frequent tourist visits and vehicles disturb animals, causing stress and changing their natural behaviour. For example, in Amboseli National Park elephants may change their feeding or resting patterns because of constant tourist presence.

Finally, overdependence on tourism weakens the economy during times of crisis. Countries like Kenya and Tanzania earn significant foreign exchange from tourism, but when there are political instabilities, terrorist attacks, or global pandemics like COVID-19, the number of tourists declines drastically, leading to loss of income and unemployment.

9. Explain the need for and problems of irrigation farming in North East Africa.

The main need for irrigation farming in North East Africa is that it provides water for agriculture in arid and semi-arid areas where rainfall is scarce and unreliable. Countries such as Sudan, Somalia, and

Ethiopia depend on irrigation from rivers like the Nile to ensure crops can grow even during dry seasons.

Another need is that irrigation ensures food security by enabling year-round farming. Instead of depending only on seasonal rains, farmers can cultivate crops continuously, which increases food supply and reduces hunger in drought-prone areas.

Irrigation is also needed to reduce dependence on imported food. When countries use irrigation to increase local crop production, they save foreign exchange that would otherwise be used to buy food from abroad. For example, Egypt uses Nile irrigation extensively to grow wheat and reduce reliance on imports.

However, one problem of irrigation farming in North East Africa is the high cost of construction and maintenance of irrigation schemes. Large dams, canals, and pumping systems require huge investments, which are difficult for poor countries to afford. The Gezira scheme in Sudan, for instance, has faced financial difficulties in maintaining infrastructure.

Another problem is soil salinization caused by poor drainage. When irrigation water evaporates, salts are left behind in the soil, reducing its fertility. This problem has been observed in parts of Egypt where continuous irrigation has degraded farmland.

Displacement of people is also a problem, since large irrigation projects require land, forcing local communities to relocate. This creates social conflicts, especially in densely populated areas.

Conflicts over water use between farmers and pastoralists are another issue. For example, in Ethiopia and Sudan, irrigation schemes along rivers sometimes reduce the water available downstream, leading to disputes among different user groups.

Lastly, irrigation can also cause environmental problems such as waterlogging, loss of wetlands, and reduced river flow downstream. This affects biodiversity and fishing activities, especially in places like Lake Turkana in Kenya which is threatened by upstream irrigation projects.

10. (a) What do you understand by the term soil degradation?

Soil degradation refers to the decline in the quality and productivity of soil due to physical, chemical,

and biological processes. It includes loss of soil fertility, erosion, salinization, and pollution, making the soil less suitable for agriculture and other uses.

(b) In what ways can you combat soil degradation?

Soil degradation can be controlled through afforestation and reforestation, which protect the soil against erosion.

Terracing and contour farming can be practiced on slopes to reduce runoff and conserve soil.

Application of organic manure and fertilizers helps to restore soil fertility.

Controlled grazing reduces overgrazing, which leads to soil erosion.

Proper irrigation methods like drip irrigation help prevent salinization of soils.

Soil conservation laws and awareness programs also help to promote sustainable land use.

11. (a) Explain the basic factors that are considered in setting up rural settlements.

Availability of water sources is a key factor since people need water for domestic use, farming, and livestock.

Fertile soils encourage crop cultivation and support settlement.

Climate influences settlement because people prefer areas with favorable temperatures and reliable rainfall.

Relief and drainage also determine settlement, with flat or gently sloping areas being preferred for building and farming.

Accessibility through roads or transport routes is another important factor for rural settlements.

Security and availability of social services such as schools and health centers also attract settlement.

(b) What are the functions of urban settlements?

Urban settlements act as commercial centers where trade and business activities are carried out.

They serve as industrial centers where goods are manufactured and processed.

They function as transport and communication hubs, linking different regions.

Urban settlements also provide administrative functions by hosting government offices.

They are centers of education and health services, providing facilities like universities and hospitals.

They also play a role in cultural and recreational activities, offering theaters, sports, and entertainment services.