

LAIKIPIA EAST TERM 2 2022 FORM 4 EVALUATION EXAM

Kenya Certificate of Secondary Education – K.C.S.E

AUG 2022

312/1

Paper 1

GEOGRAPHY

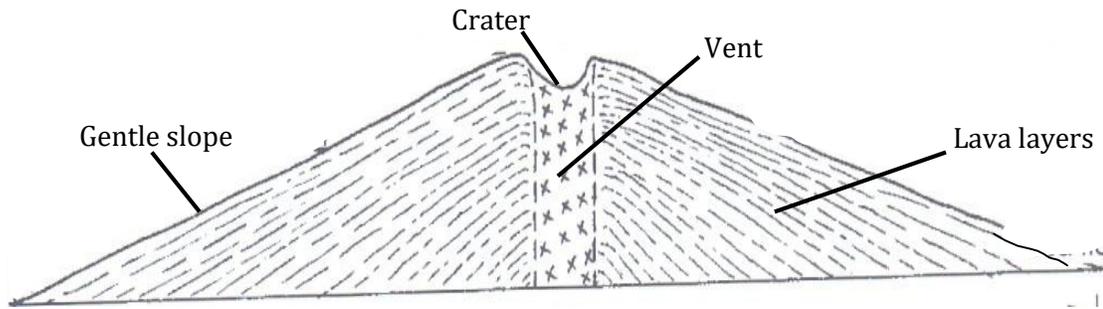
MARKING SCHEME

SECTION A

*Answer **all** the questions in this section.*

1. (a) Name and describe two types of environment (2 marks)
- Physical environment-includes the natural physical conditions of weather, soil, etc
 - Human environment-comprises human activities like mining
- (b) The diagram below shows a movement of the earth
- (i) Identify the movement (1 mark)
- Earth revolution
- (ii) State two effects of the above movement (2 marks)
- It causes the four seasons namely Summer, Autumn, winter and Spring
 - It causes varying lengths of day and night at different times of the year
 - It causes changes in the position of the midday sun at different times of the year.
 - It cause lunar eclipse
2. (a) State two effects of aridity and desertification (2 marks)
- Can lead to development of infertile soils thus low productivity
 - Reduced Agricultural practices that lowers food production
- (b) Give three indicators of climate change. (3 marks)
- Increased soil erosion
 - Migration of people to more productive areas in search of food and pasture
 - Strong winds
 - Low levels of development due to less economic productivity
3. (a) Give **two** examples of features resulting from fissure eruption. (2 marks)
- Lava plateau
 - Tuff plateau

(b) With aid of a diagram, describe how a basic lava dome is formed. (3 marks)



- Formed by basic lava that flows and spread for long distance.
- When this lava cools and solidifies, it builds up a broad gentle sloping volcanic dome.
- The low and wide volcano is called lava dome.

4. a) Types of Chemical Weathering

- Solution
- Carbonation
- Hydration
- Oxidation
- Hydrolysis

b) State three significance of weathering. (3mks)

- Weathering leads to breakdown of rock mass into smaller fragments leading to formation of soil.
- Weathering weakens rocks making it easier for exploitation by quarrying or mining
- Some weathered rocks like granitic tors are fascinating and act as tourist attraction earning the country foreign exchange
- Weathering produces natural resources like clay which is used in making bricks.

5. a) **Soil profile** is the vertical arrangement of various soils in layer showing the sequence of horizons from the surface to the parent materials - **Soil catena** is the sequence of different soils on a slope from the top of the hill to the valley Bottom

- b)
- Rainfall,
 - Surface runoff,
 - Floods,
 - Wind erosion,

- Tillage,
- Mass movements

SECTION B

Answer question 6 and any other TWO questions from this section.

6]a [i] Give two Districts covered by the map extract. 2mks.

Nyeri
Laikipia.

[ii] Give the magnetic variation as at January 1975. [2mks]

1 31

[iii] Give the longitudinal extent of area covered by the map 2mks

36 45 East to 37 00 East

b] i] Calculate the area of Nyeri Forest. 2mks

12kms²

ii) Identify two methods that have been used to represent relief 2mks

-contours

-trigonometric stations

(C) Describe the drainage of the area covered by the map 4mks

-The main rivers are river Chany and river Honi

=There are many permanent rivers

= The rivers form dendritic drainage pattern

-There is presence of a dam at 6051

-There is presence of a water hole 5962

--The rivers flow from west to east

(d) Citing evidence from the map, identify four economic activities carried out in the area covered by the map. (8mks)

-Farming-coffee factory 6861

-Fishing- samaki farm

-Trade- markets/shops

lumbering-sawmills, forest 6665

quarrying-quarry 7456

transport-airstrip, roads.

tourism-mountain national park 6992.

[e] State three functions of the area covered by the map. 3mks

-administrative centre-DC, PC, chiefs camp.

-Education centre-schs, police training sch.

-Health centre-Mweiga mission hospital.

Recreation centre-stadium, lodges, golf course, show ground.

Residential centre-settlements.

7. (a) (i) What is folding? (2 marks)

- The process where the crustal rocks are made to bend either upwards or downwards due to compressional forces.

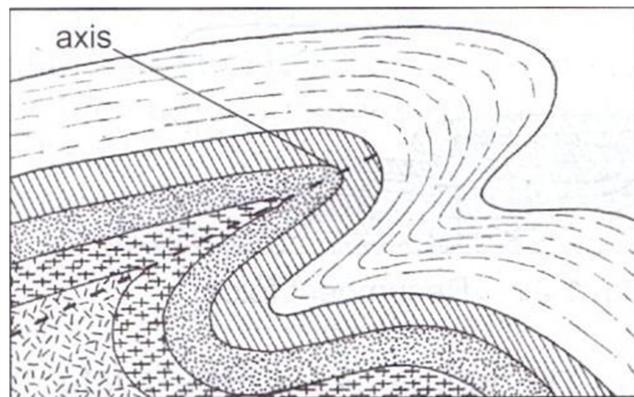
(ii) Name **three** fold mountains formed during the Alpine Orogeny. (3 marks)

- Atlas – Africa
- Alps – Europe
- Himalayas – Asia
- Rockies – North America
- Andes – South America

(b) State **four** characteristics of a folded landscape. (4 marks)

- Presence of rolling plains
- Presence of ridges and valley landscapes
- Synclines with water/inter-montane basins
- Anticlines/intermontane plateaus
- High fold mountains/snow capped

(c) The diagram below shows a type of fold.



(i) Name the type of fold. (1 mark)

- Overthrust fold

(ii) Describe how the above type of fold is formed. (7 marks)

- The layers of the crustal rocks are subjected to compressional forces.
- This leads to intense folding resulting to the formation of an over fold.
- Increased compressional forces from either side causes pressure on the over fold resulting to the formation of recumbent fold.
- When the compression is very great, a fracture/line of weakness along the line of axis in the recumbent fold leading to the formation of a thrust plane.
- The upper part of the recumbent fold slides forward over the lower part along the thrust plane leading to the formation of an over thrust fold.

- (d) Explain **four** effects of Fold Mountains on human activities. (8 marks)
- The windward slopes of Fold Mountains receive high and reliable rainfall encouraging agricultural activities and development of forestry.
 - Fold mountains may be sources of major rivers providing water for domestic, industrial and irrigation/hydro electric power production providing energy.
 - Fold mountains may be snow-capped/glaciated features attracting tourists.
 - Fold mountains are steep and rugged which may act as barriers to transport and communication/making the construction of transport and communication lines expensive/difficult.
 - Some fold mountains may have exposed valuable mineral deposits which are easily exploited.
 - Fold mountains have rugged landscapes which may discourage agriculture/human settlement.

8. (a) (i) What is vegetation? (2 marks)

- Refers to the plant life of a region/ground cover provided by plants.
- (ii) Describe the variation of vegetation types along a mountain slope from the bottom to the top. (5 marks)
- Grassland
 - Woodland
 - Forest
 - Bamboo
 - Heath and moorland

(b) Explain **two** ways in which relief influences the distribution of vegetation. (4 marks)

- At lower altitudes of mountains, broad leaved deciduous trees grow. At the high altitudes, coniferous trees dominate since it is cooler.
- The windward side of mountains receive very heavy rainfall which supports a luxuriant growth of vegetation.
- Gentle slopes are suitable for proper plant growth since they are well drained/on steep slopes soil development is hindered due to erosion leading to poor plant growth.
- Flat areas receive heavy rainfall is poorly drained (waterlogged) thus encouraging growth of swamp vegetation.
- Slope facing the sun and rain bearing winds are warmer hence favouring a wide variety of plants/luxuriant growth of forests.

(c) Study the world map below and answer the questions that follow:

- (i) Name the vegetation types labeled **W**, **X** and **Y**. (3 marks)
- | | | |
|---|---|---|
| W | - | Tropical forest |
| X | - | Coniferous forest |
| Y | - | Temperate grassland/mountain vegetation |

(ii) Explain **three** ways in which desert vegetation has adapted to the climatic conditions of the region it is found. (6 marks)

marks)

- Some plants have thick/fleshy succulent leaves/barks to enable them store water.
- Some plants have long roots to tap the underground water.
- Some have no leaves/have thin/spiky/waxy/needle like leaves to reduce transpiration.
- Some plant seeds remain dormant awaiting the short rains.
- Some plants have thick/hard barks to reduce transpiration.
- Some plants wilt in the absence of moisture but have quick recovery ability.
- Some plants have thorns to protect themselves from browsing animals.
- Some plants have underground bulbs to store water.
- Most plants are stunted/dwarf like due to the harsh conditions.
- Some plants are quick sprouting to take advantage of the short- lived desert rains.

(d) Students are planning to undertake a field study in a forest near their school. They are required to prepare a working schedule.

(i) What is a working schedule? (2 marks)

- It is the timetable to be followed on the day of the field study.

(ii) Why is it important for the students to prepare a working schedule?
(3 marks)

- To ensure proper time management and reduce tendency of wasting time.
- To ensure that all important areas are adequately covered.
- Ensures that the researcher remains on course.
- It is a pointer as to how much time will be required for the study.

9.(a) (i) Give **two** sources of mineral salts in Ocean water. (2 marks)

- Salty bed rock
- River flowing on salt bearing rocks deposit salt into the ocean.
- Volcanicity in the ocean/salt bearing magma.

(ii) Describe **three** processes involved in marine erosion. (6marks)

Abrasion/corrosion

- Rock fragments carried by the waves are used as a tool to grind against the cliff face as the waves break. Rock fragments carried by the back wash erodes the sea floor.

Solution/corrosion

- The solvent and chemical action of the sea water dissolves and removes the soluble minerals that are found in the cliff/sea floor especially where there are limestone rocks.

Hydraulic action

- The swash breaking waves hit against the cliffs shattering the rocks/The force of breaking waves compress air into the cracks/joint in the cliff face. This enlarges the cracks and parts of the rocks may break off.

(b) Using well labeled diagrams, describe how a stack is formed. (6 marks)

- Waves erode both sides of a headland at right angles.
- The waves erode through abrasion and hydraulic actions forming caves on both sides of the headland.
- Continued wave erosion and weathering leads to elongation of the caves into headlands.
- Eventually the caves merge leading to formation of an arch.
- The roof of the arch collapses leading to isolation of part of the headland on the seaward side.
- The isolated island is the stack.

(c) Describe **three** ways in which Islands are formed. (6 marks)

- As the coastline retreats due to marine erosion, resistant rocks are isolated as outcrops/islands.
- Deposition of materials across bays/river mouths and lagoons build up barriers/islands which project above the water level.
- Volcanic eruption within the sea builds up islands where the materials pile up above the sea level.
- Accumulation of coral into reefs becomes coral islands.
- Submergence of upland coasts due to isostatic or climatic changes lead to formation of islands.

(d) State **five** ways in which Kenya benefits from her coastal features. (5 marks)

- Coastal feature are tourist attractions e.g. beaches, coral which earns Kenya foreign exchange.
- Shallow continental shelf and submerged coasts form important fishing grounds.
- Coastal inlets are used as harbours e.g. Kilindini.
- Coastal habitat provides environment for research/education.
- Mangrove trees provide timber for building/fuel.
- Coral limestone is used as a raw material in the manufacture of cement.
- Coral rock/salt are used as building materials.
- Salt production/extraction of salts from the sea water

10. (a) **What is a rock?**

Any naturally occurring aggregate of mineral particles of the earth's crust. 2mks

(b) (i) **Classify rocks according to their mode of formation.**

- Igneous.
- Sedimentary.
- Metamorphic. 3mks

(ii) **Identify three examples of rocks mentioned in b (i) above that is formed from the already existing rock materials.**

- Limestone
- Coal
- Diatomite.
- Iron stone. Any 3 x 1 = 3mks

(iii) **List two characteristics of rock.**

- Colour.

- Stratification.
- Chemical composition.
- Crystalline.
- Resistance (hardness / softness.

Any 2 x 1 = 2mks

(c) (i) **List two main types of rocks dominant in Kenya.**

- Sedimentary.
- Volcanic. (2mks)

(ii) **Explain the importance of studying rocks.**

- Helps to tell the nature of surface relief
- Helps us to understand how soils are formed.
- Helps us to determine the availability of minerals in an area.
- Helps us to determine water resources in an area.

Any 3 x 2 = 6mks

(d) **Explain four benefits of rocks to the economy of a country.** 8mks

- Some rocks tourist - earning country foreign exchange.
- Rock weather down to form fertile soils which support agricultural activity.
- Some rocks contain minerals which are exploited and exported and bring huge income to the country's economy.
- Some rocks are used as raw materials in building and construction industry.
- Some rocks contain mineral salts (Nitrate etc) which are used for domestic / industrial purpose such as making dyes / fertilisers / medicine.
- Some rocks act as underground water reservoirs.
- Some rocks e.g. soap stone is used for sculpturing.
- Rocks are a source of employment to many people therefore generates income for them.

Any 4 x 2 = 8mks