

KASSU JET JOINT EXAMINATION  
Kenya Certificate of Secondary Education  
312/1  
Paper 1  
GEOGRAPHY

**MARKING SCHEME**

**SECTION A**

Answer *all* the questions in this section.

1. (a) **State three reasons what is important to study geography** (3 marks)
- *It leads to development of career opportunities*
  - *Promotes positive attitudes towards protection*
  - *Encourages international awareness*
  - *Encourages time management or responsibility*
  - *Helps to develop mental skills*
- (b) **What is the relationship between Geography and Agriculture**
- *Geography studies the relief of an area which helps identify areas suitable for agricultural countries.*
  - *Geography studies different types of soils. Which influences types of agriculture crops.*
  - *Geography deals with the study of climate and weather which is important in the planning of agricultural activities such as planting and harvesting.*
2. (a) **What is weather forecasting?** (2 marks)
- *It is the prediction of the state or condition of the atmosphere of a given place within a specified time.*
- (b) **List three elements of weather.** (3 marks)
- *Humidity*
  - *Air pressure*
  - *Rainfall*
  - *Wind*
  - *Cloud cover*

3. Study the diagram below and use it to answer the questions (a) and (b) below.

(a) Identify the feature (1 mark)

- Plug dome/plug volcano/spine volcano

(b) Describe how it is formed. (4 marks)

- Earth movements from a vent in the earth's crustal rocks.
- Highly viscous magma is forced out through the vent as cylindrical mass.
- The eruption is explosive breaking the rocks around the vent and the rock debris settle around the vent.
- The magma cools solidified rapidly as it rises to form a plug.
- More underground pressure pushes upwards rising higher above the ground to form a cylindrical circular pillar of solid lava called plug

4. (a) What is Karst scenery? (2 marks)

- It is a landscape made of chalk, limestone or dolomite rock surface and underground features formed due to carbonation and solution processes.

(b) State three factors influencing the occurrence of underground water.

- The amount of rainfall
- Slope gradient
- Vegetation cover
- Level of ground saturation
- The rate of evaporation

5. The diagram below shows how land glaciated features. Study the diagram and answer the following question.

(a) What is outwash plain (2 marks)

- It is a gentle sloping plain of unconsolidated materials of clay, soil, and gravel deposited in a surface manner in a lowland glaciated area by melt water.

(b) Identify the features marked U, V and W (3 marks)

- U - Drum line
- V - Erratic block
- W - Moraine dammed lake.

## SECTION B

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

6. Study the map of Nyeri 1:50000 (sheet 120/4) provided and answer the following questions

(a) (i) Name the two districts in the northern part of the map extract (2 marks)

- Laikipia district
- Nyeri district

(ii) Give the latitudinal extent of the area covered by the map (2 marks)

- From  $0^{\circ}19'$  South to  $0^{\circ}30'$  South

(iii) According to the marginal information provided in the map, what is the magnetic variation of the area when the map was drawn. (2 marks)

- Magnetic variation =  $1^{\circ}31'$

(iv) Calculate the area of Nyeri forest on the map. Give your answer in square kilometres. (2 marks)

Complete square = 2

Incomplete squares = 21

Area =  $2 + 21/2 = 2 + 10.5$

=  $12.5 \text{ km}^2$

(b) Describe drainage of the area covered by the map (5 marks)

- The main drainage features is rivers
- River Chanya is the main river
- Most rivers are permanent
- There are many reservoirs in the area covered by the map
- River Chanya and its tributaries form a dendritic drainage pattern
- Rivers generally flow from west to east/westwards
- There is a high density of many rivers in the area covered by the map
- Most rivers originate from Aberdares forest
- Most rivers are bending/winding
- Most rivers are in the youthful stage

(c) Citing evidence from the map, explain three factors that favour the growing of coffee in Nyeri area. (6 marks)

- The area experiences cool temperatures that favours coffee growing due to high altitude as evidenced by contours that rise above 1600 metres above the sea level
- The area receives high rainfall that is adequate for growing coffee as evidenced by the presence of many permanent rivers/presence of forests
- The area has well drained soils suitable for coffee growing evidenced by the presence of gently sloping terrain as indicated by moderately spaced contours

- The area has adequate supply of labour necessary for coffee picking evidenced by the high density of settlement
- The area has well developed transport network for transporting coffee to the coffee factories evidenced by the many roads/tracks

(NB the factor ,evidence and explanation must be given)

**(d) Explain three factors that have influenced settlement in the area covered by the map (6 marks)**

- Transportation; the area is served by many roads which makes movement of people and goods easy thus encouraging settlement along the roads
- Drainage; there are few settlement/no settlement along the rivers/near reservoirs this may be due to seasonal flooding/presence of pests and water borne diseases
- Vegetation; there are no settlement /few settlements within the forests due to land being reserved for forests
- Relief; there are many settlements in the south eastern part because the land is gently sloping/most of the river valleys have no settlement

7. **(a) (i) Differentiate between a rock and a mineral. (2 marks)**

A rock is a substance that is an aggregate of mineral particles forming the earth's crust **while** minerals are naturally occurring inorganic substances with definite physical and chemical properties occurring at or beneath the surface of the earth.

**(b) Describe the following characteristics of minerals.**

**(i) Color. (2 marks)**

- Different minerals display different colors e.g gold is yellow in color .

**(ii) Hardness. (2 marks)**

- This is a measure of resistance of a mineral to disintegration. Some minerals e.g. diamond have a high resistance to breakage while others are soft .e.g. Talc

**(c) (i) What are igneous rocks? (2 marks)**

- These are rocks that are formed from cooling and solidification of magma or lava on or below the earth's surface.

**(ii) State three notable differences between plutonic and volcanic rocks. (3 marks)**

- Plutonic rocks form from magma while volcanic rocks form from lava.
- Plutonic rocks form deep in the earth's crust while volcanic rocks form on the surface of the earth.
- During formation of plutonic rocks magma cool slowly while during formation of volcanic rocks, lava cools rapidly.

- Plutonic rocks form large crystals /coarse grained /textured while volcanic rocks form small crystals or no crystals at all/are fine grained. (3×1=3mks)

(d) Describe the formation of the following rocks.

(i) Mechanically formed sedimentary rocks. (3 marks)

- Sediments of rock particles are derived from pre-existing rocks by the process of weathering.
- The sediments are transported by agent of erosion e.g., water, wind, ice and deposited in sea, or on land in layers.
- The sediments undergo compaction and cementation as more layers are deposited and consolidated to form a new rock.

(ii) Chemically formed sedimentary rocks. (3mks)

- They form when minerals in rocks gets dissolved and carried in solution in water bodies.
- Water reaction with these dissolved minerals leads to precipitation of the sediments.
- The sediments accumulate at the bottom of the water body and finally compress to form a rock.

8. Identify the missing type of rocks. (3 marks)

Original rock	Metamorphic rock
Limestone	i) <i>Marble</i>
ii) <i>Coal</i>	Graphite
Granite	iii) <i>Gneiss</i>

(a) Supposing you were to carry out a field study on rocks at the Kenyan coast.

(i) State two reasons as to why you would ask for permission from the school administration. (2 marks)

- For the administration to be informed of some students being out of school for official purpose.
- To help in preparation of the budget needed.
- To help in preparation of the transport means. (any first 2 ×1=2mks)

(ii) What reasons would you give for the widespread of sedimentary rocks at the coastal plain? (3 mks)

- The coastal plains were once part of the extensive continental shelf of the Indian ocean and so sedimentation took place.
- Shallow continental shelf provided conducive environment for coral polyps to form sedimentary rocks.

- Many rivers deposit their load to at the mouth in the ocean accumulating to form sedimentary rocks.

10 (a) (i) **Differentiate between soil texture and soil structure (2 marks)**

*Soil texture is the size distribution of minerals particles composed in the soil while soil texture is the way the individual soil particles are arranged and joined to form lumps/clusters*

**OR**

*Soil texture is the coarseness and fineness of soil grains while soil structure is the arrangement of soil particles to form particular shape*

(ii) **Apart from living organisms, name four other components of soil (4 marks)**

- Organic matter
- Soil water /moisture
- Soil air
- Mineral particles/weathered materials/inorganic matter

(b) **The diagram below shows different layers of soil. Use it to answer questions (b) (i), (ii) and (iii)**

(i) **Name the soil layers X ,Y and Z. (3 marks)**

- X – Sub soil
- Y – Weathered parent rocks materials
- Z – Parent rock

(ii) **Give two main processes of soil formation which takes place in horizon W (2 marks)**

- *Elluviation*
- *Leaching*

(iii) **State four characteristics of soil in horizon X (2 marks)**

- *Consists mainly of silicate clays, alluminium and iron*
- *Made up of hard pan/laterite*
- *Soils are prismatic/columnar*
- *It's a zone of illuviation/zone of enrichment*
- *Soils are generally dark in colour*

(c) **Explain how the following farming practices may result to loss of soil fertility**

(i) **Continuous irrigation (2 marks)**

- *Causes leaching of soil nutrients making the soil deficient of soluble minerals causing soil salinity*

**(ii) Over grazing (2 marks)**

- *Leads to the removal of vegetation cover thus exposing the soils to agents of soil erosion which will remove the top fertile soils*

**(iii) Over cultivation (2 marks)**

- *Weakens the soil structure making it easy for agents of soil erosion carrying away the top soil*
- *May increase oxidation resulting to loss of organic matter*

**(d) Explain ways in which natural vegetation may prevent soil from erosion (4 marks)**

- *Plant leaves cover and reduce the force of the rain drops controlling splash erosion*
- *Vegetation cover increases the rate of rain water infiltration into the soil reducing surface run off controlling sheet erosion*
- *The roots of plants increase the rate of rain water percolating into the soil controlling erosion*
- *The plant roots bind the soil particles together thus controlling erosion*
- *Plant cover reduces the rate of soil water evaporation making the soil moist/wet and compact*
- *Dead and decaying vegetation matter adds humus to the soil making the soil particles bound*

*for more free exams visit [www.freekcsepastpapers.com](http://www.freekcsepastpapers.com)*