

MARKING SCHEME

NAME.....CLASS.....ADM.....

312/1
GEOGRAPHY
Paper 1
2 ³/₄ Hours

MOMALICHE 3 CYCCLE6
Kenya Certificate of Secondary Education (K.C.S.E)
GEOGRAPHY
Paper 1
September 2021

INSTRUCTIONS TO CANDIDATES

- a) This paper consists of **TWO** Sections **A** and **B**.
- b) Answer all questions in section **A**.
- c) Answer question **6** and any other **TWO** questions from section **B**.
- d) Students should check the question papers to ensure that all pages are printed as indicated and no questions are missing.

SECTION A
Answer all questions

- 1.(a) **What is the shape of the earth?** (1 mk)
- ✓ *Oblate spheroid/ Geoid.*
- (b) **Give two reasons why the earth has the spherical shape** (4mks)
- ✓ *The earth experiences the **force of gravity** pulling towards the centre which creates a rounding effect on its shape*
 - ✓ *The North and south poles experience **centripetal force** which constantly pulls towards each other causing flattened at the poles.*
 - ✓ *At the equator the earth experiences the **centrifugal force** which causes the bulge.*
- 2.(a) **Give the two dates in a year during which the number of hours of darkness and daytime is equal in both the north and south poles.** (2mks)
- ✓ *21st march and 23rd September*
- (b) **Why do the lengths of days and nights vary from one part of the earth to another?** (3mks)
- ✓ *Because the earth is tilted in its axis.*
 - ✓ *Because of the apparent movement of the sun within the tropical.*
 - ✓ *Because of the revolution of the earth.*
- 3.(a) **Name two scales two scales used to measure the intensity of an earthquake.** (2mks)
- ✓ *Rossi-forrel scale*
 - ✓ *The mercalli scale*
- (b) **Give three natural causes of earthquakes** (3mks)
- ✓ *Gravitative pressure.*
 - ✓ *Collision of the tectonic plates.*
 - ✓ *Energy release in the mantle.*
 - ✓ *Isostatic adjustment.*
 - ✓ *Violent volcanic eruptions.*
 - ✓ *Magma movement within the crust.*
4. **State five factors that influence mass wasting** (5mks)
- ✓ *Earthquake shocks lead to the movement of materials down slope*
 - ✓ *Increased deeply weathered rock materials are likely to move down slope*
 - ✓ *Increase in moisture lubricates the soil.*
 - ✓ *Lack of vegetation reduces the ability of the soil to hold together.*
 - ✓ *Undercutting of the slope by excavation*
 - ✓ *Rearrangement of particles by living organism in the soil*
 - ✓ *The angle of slope determines the movement of the material.*
 - ✓ *The nature of underlying rock*
- 5.(a) **What is the difference between an ice sheet and an iceberg?** (2mks)
- ✓ *Ice sheet is a continuous mass of ice covering vast of land while an iceberg is a large block of ice (broken from sheets) floating in seas/oceans.*
- (b) **Name three types of glacial moraines.** (3mks)
- ✓ *Lateral moraine*
 - ✓ *Medial moraine*
 - ✓ *Ground/sub-glacial moraine*
 - ✓ *Terminal moraine*

SECTION B

Answer question 6 and any other two questions from this section

6. Study the map of Kijabe 1:50,000 provided and answer the following questions

(a) (i) what is the approximate height of the top of Kijabe hill?

(2mks)

✓ 2661m-2679m.

(ii) Measure the length of Nairobi-Naivasha railway line from landhies (257978) to the level crossing near Kijabe station (308984). Give your answer in kilometres.

(2mks)

✓ 5.6km±0.1

(iii) What relief feature on the map may have created problems in the construction of the railway line

(2mks)

✓ Escarpment/steep slopes /kijabe hill

(b) Describe the drainage of the area covered by the map.

(6mks)

- ✓ The main drainage features are rivers.
- ✓ There are many permanent rivers .
- ✓ There s presence o-f hot springs.
- ✓ Rivers originating from Kijabe hill are short and disappearing underground .
- ✓ Rivers on Kijabe hill form parallel and radial drainage pattern.
- ✓ Most rivers form dendritic drainage pattern.
- ✓ Main rivers are upper Ewaso Kedong and Bathi which flow South wards.
- ✓ Most rivers are in their youthful stage

(c) Explain how relief has influenced the distribution of settlement in the area covered

(6mks)

- ✓ Most of the settlement are found at the foot-t of the escarpment because the land is sloping
- ✓ The escarpment has no settlement because the land is steep.
- ✓ Kijabe hill has a few settlement on the eastern side because the land is gently sloping
- ✓ The western side of the hill has no settlement as the land is steep.
- ✓ The land immediate to the east of the escarpment has many settlement because it is plateau/gently sloping

(d) Citing evidence from the map, state three economic activities carried out in the area covered by the map

(6mks)

<i>Economic activities</i>	<i>Evidence</i>
1. Forestry	Forestry/Forest guard post
2. Cattle keeping	Dairy/cattle dip
3. Quarrying	Murram pit
4. Transportation	Road, Railway/Tracks
5. Trading	Shops
6. Processing/Manufacturing	Kagwe carbacid Plant
7. Agriculture	Plantations

(e) What is the latitudinal extend of the area covered by the map

(1mk)

- ✓ $0^{\circ} 53's$ to $1^{\circ} 00' s$.

7. (a) Describe the following characteristic of minerals.

(i) Colour

2mks)

- ✓ All minerals have their specific colour some changes colour when exposed e.g gold is yellow, copper oxides are blue or green.

(ii) Cleavage

(2mks)

- ✓ Minerals have distinct cleavages. They have pattern in which they split or divide e.g mica split into thin layers, glass break irregularly.
- ✓ Some breaks regularly

(iii) Hardness

- ✓ Minerals differ in hardness e.g Tacl is soft Quartz is moderately hard and diamond is the hardest

(b)(i) Give two types of igneous rocks
(2mks)

- ✓ Intrusive/plutonic rocks
- ✓ Extrusive rocks
- ✓ Hypabyssal rocks.

(ii) Explain three conditions necessary for the growth of coral polyps

(6mks)

- ✓ Warm waters of $20-30^{\circ} c$ for survival of polyps and planktons which serve as food for the polyps
- ✓ Shallow waters for sunlight to penetrate and allow growth of phytoplankton.
- ✓ Clear waters for air circulation.
- ✓ Saline water for polyps to extract lime to make their skeletons.

(c) Sate four uses of rocks

(4mks)

- ✓ Rocks weather to form soil use for agriculture.
- ✓ Rocks store underground water (aquifers)
- ✓ Some rocks are source of salts. E.g. soda ash .
- ✓ Some sedimentary rocks have nitrates, potash which are used for making dyes, fertilizers
- ✓ Rocks e.g granite and limestone are used for building purpose.
- ✓ Some rocks form fascinating features which attract tourist. E.g granitic tors
- ✓ Some rocks are used as fuel e.g coal

(d) You are planning to carry out a field study on the rocks within your school environment.

(i) Give two secondary sources of information you would use to prepare for the field study (2mks)

- ✓ *Journals*
- ✓ *Magazines*
- ✓ *News papers*
- ✓ *Maps*
- ✓ *Extracts downloaded from the internet*
- ✓ *Books*
- ✓ *-Statistical abstracts*

(ii) State why you need the following items during the field study

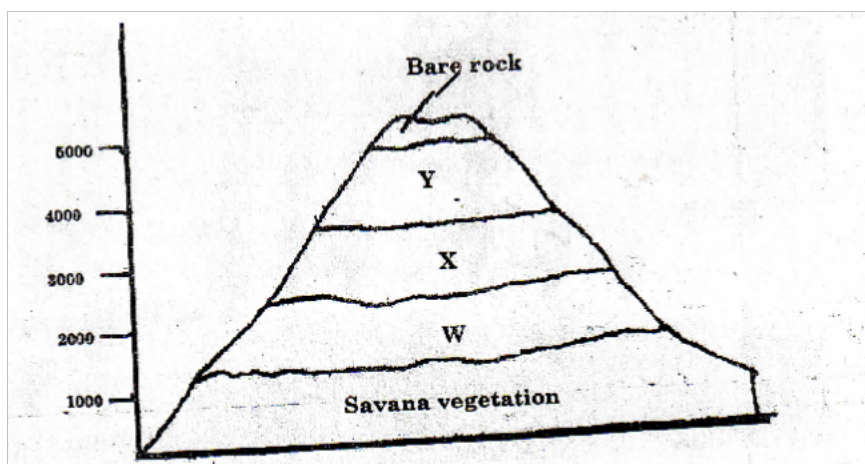
- A fork jembe (1mk)
 - ✓ *Digging*
 - ✓ *Hitting the rocks to determine their hardness.*
- Polythene bag (1mk)
 - ✓ *For holding and carrying rocks samples to school for further analysis*

(iii) Suppose during the field study you collected marble, sandstone and granite, classify each of these samples according to its mode of formation

(3mks)

- ✓ *Marble - metamorphic*
- ✓ *granite - igneous*
- ✓ *sandstone - sedimentary*

8. The diagram below represents zones of natural vegetation on mountain in Africa. Use it to answer question



- (a) (i) Name the vegetation zones marked W, X and Y
- ✓ W - Tropical rain forest (1mk)
 - ✓ X - Bamboo forest (1mk)
 - ✓ Y - Heath and moorland (1mk)
- (ii) Describe the characteristics of the savanna vegetation (6mks)
- ✓ Consist of trees and grass
 - ✓ Wetter areas consist of tall scattered trees
 - ✓ The wetter areas also have tall grass.
 - ✓ Some trees are deciduous.
 - ✓ The most common tree species are umbrella – shape.
 - ✓ The most common tree species are acacia.
 - ✓ There scattered baobab trees.
- (iii) Name the temperate grasslands found in the following counties.
- ✓ Canada - Prairies (1mk)
 - ✓ Russia -Steppes (1mk)
 - ✓ Australia -Downs (1mk)
- (b) Explain three causes of the decline of the areas under forest in Kenya (6mks)
- ✓ Fire outbreaks destroyed large tract of forest which take long to recover
 - ✓ Pest and Parasites attack mainly the planted forest causing many trees to die.
 - ✓ Human activities have destroyed many forest areas, many of which are transformed into farms or grasslands.
 - ✓ Over – exploitation leads to depletion of certain tree species such as Meru Oak, Camphor, and Elgon Teak. These trees take long to mature.
 - ✓ Government policy of degazeting of some forest made people free to clear many forested areas.
 - ✓ Prolonged drought s leads to degeneration of forest some of which take long to recover.
- (c) You are supposed to carry out a field study on the uses of vegetation in the area near your school.
- (i) State three reasons why it would be necessary to visit the area before the day of study (3mks)
- ✓ To familiarize in order to design the appropriate research method
 - ✓ To prepare the working schedule
 - ✓ To be able to formulate the appropriate objectives and hypothesis.
 - ✓ To be able to identify relevant equipment for data collection.

- ✓ *To identify suitable areas for study to meet the people who will provide information during the study.*
- ✓ *To seek permission from the owners of the land/authorities.*

(ii) Give four uses of vegetation you are likely to identify during the study. (4mks)

- ✓ *Use as fodder.*
- ✓ *Use for providing fruits/roots/vegetables.*
- ✓ *Controlling soil erosion.*
- ✓ *For aesthetic value/beauty.*
- ✓ *For cultural/worship.*
- ✓ *Providing building construction materials/*

9. (a)(i) What is a river divide? (2mks)

- ✓ *It is a high ground that separates two or more river basins*

(ii) Describe three ways by which rivers transport its load.

(6mks)

- ✓ **Traction process /rolling /sliding** – *the large heavy particles of the rivers load are rolled /dragged along the river bed.*
- ✓ **Saltation process** – *particles that are not too heavy but cannot remain suspended in water are momentarily lifted by the water turbulence and at times dropped onto the river bed. (short jumps and hops).*
- ✓ **Solution** – *soluble minerals are dissolved in the river water and carried away in solution.*
- ✓ **Suspension** – *light particles of the load are carried and maintained within the turbulence of flowing water.*

(b) Describe the characteristics of a river in its old stage (6mks)

- ✓ *The widening of the valley through lateral erosion.*
- ✓ *The speed of flow is low*
- ✓ *The river forms pronounced meanders.*
- ✓ *The main work of the rivers is deposition.*
- ✓ *There are raised river beds.*
- ✓ *Rivers forms braided channels*
- ✓ *Rivers carries a lot of sediments*
- ✓ *Rivers floods on the flood plains.*
- ✓ *large water volume.*

(c) Describe each of the following drainage patterns:

(i) Super-imposed drainage system

(3mks)

- ✓ *The drainage system develops on a rock structure that overlays a totally different one*
- ✓ *The river valley cuts through the surface rock layer onto the underlying rocks now become exposed.*
- ✓ *The superimposed drainage system bears no relationship to the existing rock structure.*

(ii) Centripetal drainage pattern (2mks)

- ✓ *The pattern develops in an area with a central basin.*
- ✓ *Rivers drain into the depression from different directions.*

(d) You have planned to carry out a study of a river in its youthful stage.

(i) State two ways in which you would prepare for the study (2mks)

- ✓ *Carry out reconnaissance*
- ✓ *Read from reference books.*
- ✓ *Seek permission from the authority.*
- ✓ *prepare a sketch map*
- ✓ *Formulate objectives for the study.*
- ✓ *Formulate hypothesis of study.*
- ✓ *Prepare relevant stationary*

(ii) Name two features you are likely to study (2mks)

- ✓ *Interlocking spurs*

- ✓ Gorges.
- ✓ Waterfalls /rapids/cataracts
- ✓ Potholes

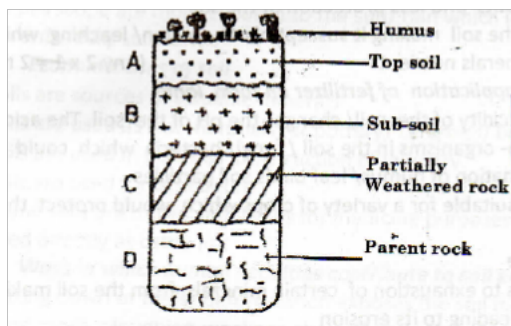
(iii) List two problems you are likely to experience during the study.
(2mks)

- ✓ Steep slopes which make movement difficult
- ✓ Thick vegetation interfering movement.
- ✓ Rocky contours causing injuries.
- ✓ Hot/high temp/heavy downpour.

10 (a) (i) What is soil Catena? (2mks)

- ✓ It is the sequence of different soils from the parent rock on a slope

(ii) Draw a well labelled diagram to show a well developed soil profile
(5mks)



(iii) State three characteristics of soils found in the arid regions of Kenya (3mks)

- ✓ Are light in colour
- ✓ Are saline
- ✓ Are sandy /stony.
- ✓ Are loose in texture
- ✓ Are thin
- ✓ Have low moisture content

(b) Give three factors that determine the colour of the soil (3mks)

- ✓ the types of parent rock.
- ✓ the amount of organic matter /humus.
- ✓ the chemical composition of minerals
- ✓ the amount of water in the soil

(c) Describe how laterization occurs (6mks)

- ✓ During the rainy season, mineral salts in the top layer of the soil dissolve in rain water.
- ✓ The dissolved minerals percolate/seep downwards from the top soil to the sub-soil. (Silica and bases).
- ✓ The dissolved mineral move or are deposited further downwards to the lower layers.
- ✓ Insoluble minerals such as iron and aluminium accumulate on the top layer to form a crust of laterites.

(d) Explain how the following farming practices cause soil erosion.

(i) Burning. (2mks)

- ✓ Burning destroys micro-organisms which are essential for the formation of humus which binds soil particles together.
- ✓ Burning destroys vegetative matter that protects the soil against erosion.
- ✓ Burning destroys nitrogen fixing bacteria making the soil less fertile.
- ✓ Burning loosens the soil making it susceptible to erosion.

(ii) Continuous application of fertilizer on farm lands (2mks)

- ✓ It increases the acidity of the soil which destroys the micro-organism in the soil which could have helped in the formation of humus.
- ✓ -Acidic soils are unsuitable for a variety of crops which would protect the soil from erosion

(iii) Monoculture

(2mks)

- ✓ *Leads to exhaustion of certain minerals from soil making it infertile and bare leading to its erosion.*
- ✓ *Monoculture leads to loosening of soils particles thereby encouraging soil erosion.*