CONFIDENTIAL

312/1
GEOGRAPHY
PAPER 1
AUGUST / SEPTEMBER, 2022
TIME: 2 ½ HOURS

MANGU HIGH SCHOOL
MARKING SCHEME

Instructions to candidates

(a) *Write your Name and Index Number in the spaces provided above,*
(b) *Write the name of the school and the date of Examination in the spaces provided above;*
(c) *This paper consists of two Sections; A and B.*
(d) *Answer all the questions in Section A.*
(e) *Answer question 6 and any other two questions from Section B.*
(f) *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*

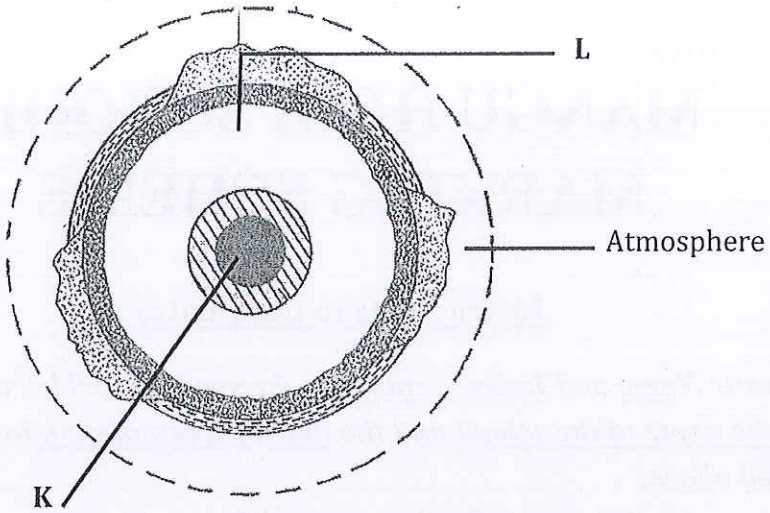
For Examiner's use only

Section	Question	Maximum score	Candidate's score
A	1 – 5	25	
B	6	25	
		25	
		25	
TOTAL SCORE			

SECTION A

*Answer **all** questions in this section*

1. The diagram below shows the structure of the earth.



(a) Name the parts marked **K** and **L**. (2 marks)

✓ ***K*** - ***Inner core***
✓ ***L*** - ***Sial*** /Continental Crust

(b) Describe the composition of the mantle.

✓ ***It is made up of two parts / upper mantle and lower mantle.***
✓ ***Lower mantle is viscous fluid.***
✓ ***Upper mantle is elastic solid/ Semi-molten.***
✓ ***Dominant mineral is olivine / ferro-magnesian silicate.***
✓ ***The mantle has an average density of 3.0 - 4.0 gms/cc.***
✓ it is 2900 KM thick
✓ temp is about 3000°C

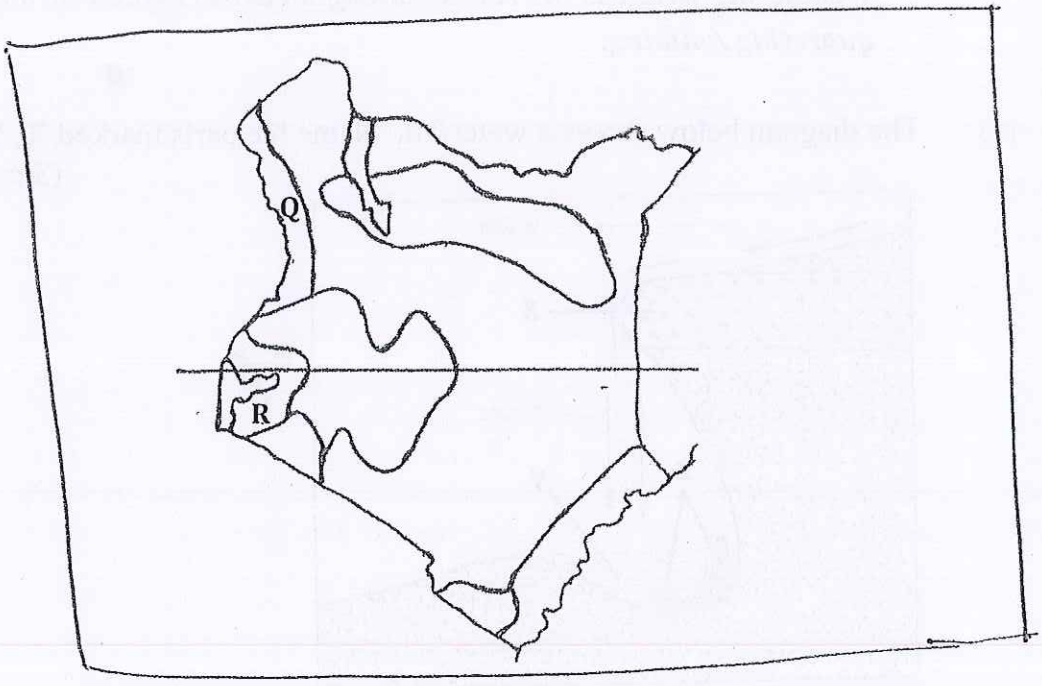
2. (a) State ***two*** factors influencing atmospheric pressure on the earth's surface. (2 marks)

✓ ***The altitude of a place on the earth's surface.***
✓ ***The amount of temperature***
✓ ***The rotation of the earth***

(b) Describe how a rain gauge is used to measure the amount of rainfall. (3 marks)

- ✓ ***The rain gauge is sunk into the ground and its top being 30cm above the ground level. To avoid surface run off and splashing of water during rainfall.***
- ✓ ***The funnel at the top will direct rain water into the cylindrical container containing a glass jar which will collect the rain water.***
- ✓ ***The collected rain water will be emptied into a measuring cylinder which will give the amount of rainfall in millimeters for the clay.***

3. The map below shows climate regions in Kenya. Use it to answer question (a) and (b).



(a) Name the climatic regions **Q** and **R**. (2 marks)

- ✓ ***Q*** - ***Tropical Northern***
- ✓ ***R*** - ***Modified Equatorial***

(b) Give ***three*** characteristics of the climate in the region marked **R**. (3 marks)

- ✓ - ***Small range of temperature.***
- ✓ - ***Receives rainfall throughout the year.***
- ✓ - ***Average rainfall is 1000mm***
- ✓ - ***High temperature av. of 260c***
- ✓ - ***Double maxima of rainfall.***

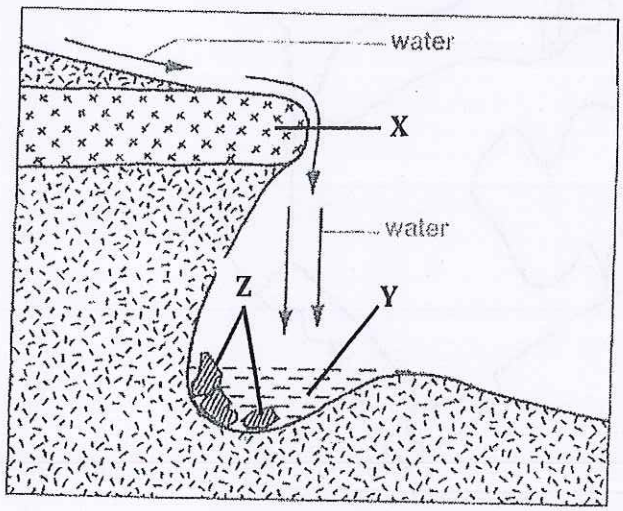
4. (a) Distinguish between block disintegration and exfoliation. (2 marks)

- ✓ ***Block disintegration*** *is a process in which blocks of rocks break away from the original rock mass along joints and bedding planes.*
- ✓ ***Exfoliation*** *is a process through which rocks 'peel off' resulting in the formation of curved rock shells.*

(b) State ***three*** economic benefits of weathering process. (3 marks)

- ✓ ***Weathering cause break up of parent rock to form soil used for agriculture.***
- ✓ ***Weathering produces natural resources e.g. clay used for pottery.***
- ✓ ***Weathering produce features e.g. granitic tors which attract tourists.***
- ✓ ***Weathering weakens the rocks making it easy to exploit through quarrying / mining.***

5. (a) The diagram below shows a waterfall. Name the parts marked **X, Y** and **Z.** (3 marks)



- ✓ ***X*** - ***Horizontal layer of hard rock/resistant rock.***
- ✓ ***Y*** - ***Plunge pool***
- ✓ ***Z*** - ***Rock boulders***

(b) Give ***two*** ways in which a gorge may be formed. (2 marks)

- ✓ ***River flowing along a fault line causing deep vertical erosion through fault line.***
- ✓ ***Retreating waterfall upstream forming a gorge below the waterfall.***
- ✓ ***River flow over a plateau composed of alternating layers of hard and soft rocks***
- ✓ ***River rejuvenation/increased in the river's discharge***

SECTION B

*Answer question 6 and any **two** other questions from this section*

6. Use the map of Nyeri to answer question 6.

i) What is the map title? **(1mk)**

- **East Africa 1: 50,000**

ii) Identify two districts found in Nyeri. (2mks)

- ***Laikipia***
- ***Nyeri***

iii) Identify index to adjoining sheet found in the Northen and Southern. (2mks)

120/2- Ongobit
134/2- Kangema

b) i) Name any three types of land transport found in Nyeri. (3mks)

- ***all weather road bound surface***
- ***all weather road loose surface***
- ***other track (motorable)***
- ***dry weather roads***

ii) Name two Physical features found in grid square 6258. (2mks)

- ***River***
- ***River valley***
- ***Scrub***

c) Describe relief of the area covered by the map. (7mks)

- ***There are over valleys***
- ***The highest height point is 2800m*** // lowest point 1600m a.s.l.
- ***The forest point is 1600m***
- ***They are gentle slope.***
- ***There are rugged slopes central part***
- ***There are ridges in the southern part***
- ***There are slopes towards the east.***

d) Citing evidence, explain four physical factors which favour cattle keeping. (8mks)

- ***Water evidence by may be perennial rivers which the livestock drink.***
- ***Pasture evidenced by forest/ thicket which the livestock feed on.***
- ***Vast lands evidenced by few settlements which provide a large grazing field***
- ***Gentle slopes which are evidenced by widely spaced contours easening mund of livestock.***

7. (a) What is a rock? (2 marks)

* *A substance made a mineral / a combination of minerals particles cemented together forming the solid part of the earth's crust; ✓✓*

(b) Describe how the following types of rocks are formed.

(i) Extrusive igneous rocks. (6 marks)

* *Earth movement leads to the formation of cracks across the earths crust; ✓*
* *Magma ✓moves through the cracks to the earths surface; ✓*
* *The lava then cools and solidifies✓ forming a hard mass. ✓ This is extrusive igneous rock; ✓*

(ii) Mechanically formed sedimentary rocks. (5 marks

* *Rock particles✓ are derived from pre existing rocks through weathering; ✓*
* *the particles are transported by water / wind; ✓*
* *the particles are deposited in layers on land or in the sea bed; ✓*
* *with time the layers are compacted into a rock✓ by the weight of additional layers; ✓*

(c) Explain **three** economic significance of rocks. (6 marks)

* *Rocks weather and form fertile soils which boost crop growing; ✓*
* *Some rock formation create beautiful sceneries which attract tourist thereby earning countries foreign exchange; ✓*
* *Rocks contain mineral which are mined and exported hence foreign exchange; ✓*
* *Some rocks are curved to make ornaments which are sold hence source of income; ✓*
* *Rocks are materials for building and construction industry; ✓*

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

(i) Give three secondary sources of information you would use to prepare for the field study. (3 marks)

* ***Textbooks;*** ✓
* ***Class notes;*** ✓
* ***Internet;*** ✓
* ***Photographs / pictures; / films /slides ;*** ✓
* ***Geographical maps;*** ✓

(ii) Suppose during the field study you collected *granite, lamprohyre* and *Andesite*, classify each sample according to it's type of igneous rock.

* **Granite** – *plutonic rock;* ✓
* **Lamphrohyre** – *hypabyssal rock;* ✓
* **Andesite** – *volcanic rock;* ✓

8. (a)Differentiate between folding and faulting. (2 marks)

✓ ***Folding is the bending of crustal rocks while faulting is the fracturing / cracking of crustal rocks by tectonic forces;***

(2 marks)

(b) The table below shows types of folds and faults. For each, identify the type it belongs to. (5 marks)

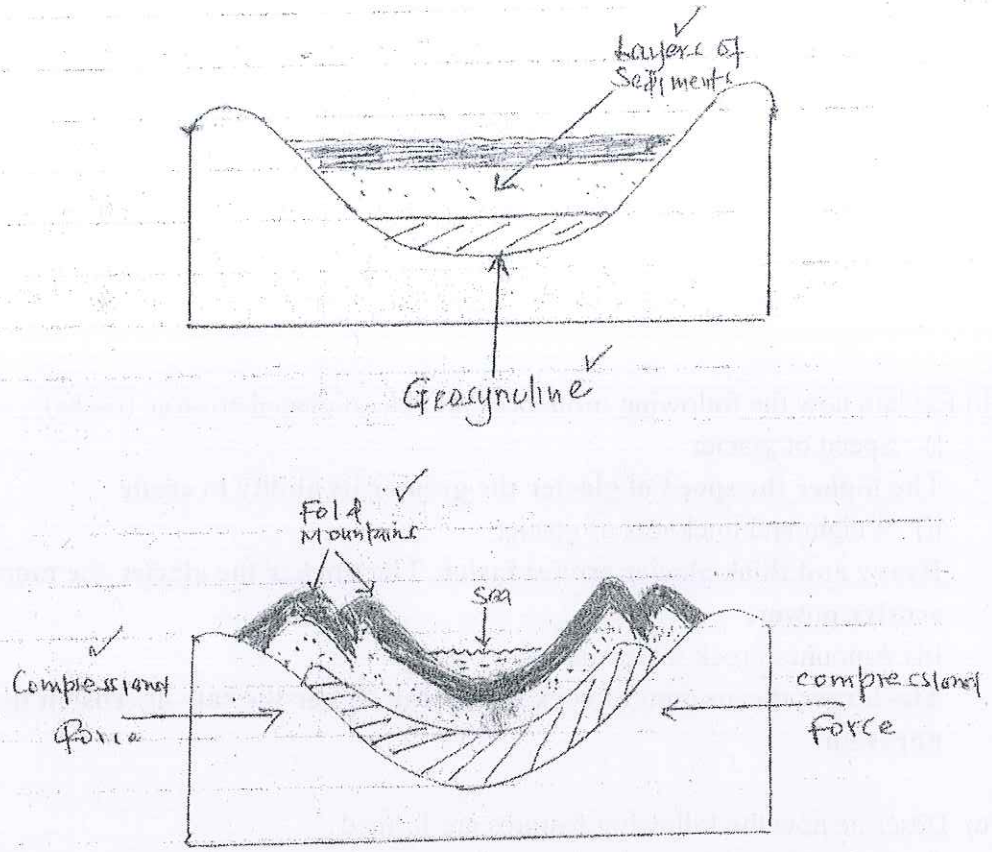
(i) Asymmetrical - ***Fault*** ✓ (1 mark)
(ii) Reverse - ***Fault*** ✓ (1 mark)
(iii)Isoclinals - ***fold*** ✓ (1 mark)
(iv) Sheer - ***Fault*** ✓ (1 mark)
(v) Over thrust – ***fold*** ✓ (1 mark)

(5 marks)

(c) Using well labelled diagrams, describe how Fold Mountains are formed.

(11 marks)

- ✓ ***Extensive shallow depression called a geosynclines develops on the earth's surface;***
- ✓ ***Prolonged and extensive erosion occurs on the surrounding higher grounds;***
- ✓ ***Sediments are deposited in the geosynclines forming thick layers;***
- ✓ ***The weight of the sediments cause subsidence of the geosynclines leading to accumulation of more sediments;***
- ✓ ***Further subsidence of the geosynclines triggers off compressional forces;***
- ✓ ***The sediments up fold and down fold along the edges of the geosynclines;***
- ✓ ***The up folds form fold mountains;***



- ✓ ***Text 7 marks;***
- ✓ ***Diagram – sediments 1 mark***
- ✓ ***Geosynclines 1 mark;***
- ✓ ***Compresional forces; 1 mark;***
- ✓ ***Fold mountains 1 mark;***

(d)Describe how a high fold mountain located at a coastal region influences the formation of rainfall. (7 marks)

- ✓ ***During the day, the sea is heated by the sun's rays;***
- ✓ ***Evaporation takes place from the sea;***
- ✓ ***Warm moist air moves towards the land and rises along the mountain to the higher atmosphere;***
- ✓ ***The rising air cools and condenses;***
- ✓ ***Clouds are formed;***
- ✓ ***Eventually the clouds release rainfall on teh windward slope of the mountain;***
- ✓ ***Cold dry wind moves to the leeward side causing little or no rainfall;(7 marks)***

1. a) Identify three processes of glacial erosion. (3mks)

- **Abrasion**
- **Plucking**
- **Nivation**

b) Explain how the following influences the rate of glacial erosion. (6mks)

i) Speed of glacier

The higher the speed of glacier the greater its ability to erode

ii) Weight and thickness of glacier

Heavy and thick glacier erodes faster. The thicker the glacier the more erosive power.

iii) Amount of rock materials

The larger the amount of rock debris the higher the rate of erosion through abrasion

c) Describe how the following features are formed

i) Pyramidal peak. **(5mks)**

- **Ice collects on several shallow depressions on the mountain side.**
- **The hollows are deepened and widened through adrassion and nivation.**
- **The sides and floor of the depression are attacked by plucking resulting to formation of many cirques**
- **The back walls retreat towards each other forming arête**
- **The aretes converge on the mountain top forming steep sided horn shapes ridge called pyramidal peak.**

ii) Hanging valley **(6mks)**

- **Ice occupies a pre-existing main valley and tributery valley**
- **The main valley and tributary valley are glacially eroded through abrasion and plucking**
- **More erosion is experienced on the main valley than the tributary valley**
- **The main valley is deepened and widened through vertical and lateral erosion forming glacial trough.**
- **The eroded tributary valley remains suspended on the upper edge of the main valley.**
- **This forms the hanging valley.**

iii) Roche montanee (5mks)

- **Glacier comes across a resistant rock out crop in a lowland**

- **The upstream side is polished by abrasion making it smooth**
- **The downstream side is eroded by plucking making it steep**
- **Eventually a resultant rock with smooth upstream and rugged downstream is formed**
- **This is a roche montanee**

10 (a) Name **two** types of submerged coasts. (2 marks)

* *Ria;* ✓
* *Fiord;* ✓
* *Dalmatian ; longitudinal;* ✓
* *Estuarine;* ✓

(b) Explain how the following factors determine the effectiveness of wave erosion along the coast.

(i) Nature of material transported by waves. (2 marks)

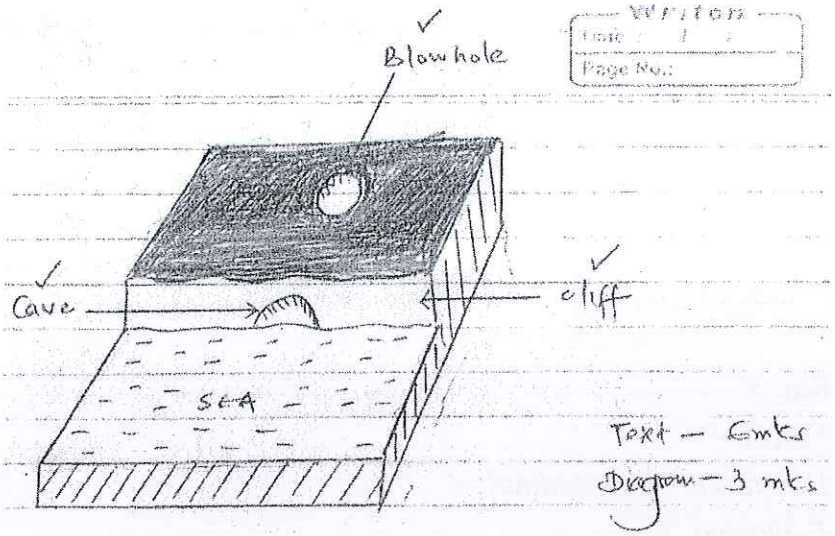
* *Hard rocks carried by the waves increase erosion by abrasion;* ✓

(ii) Nature of coastal rock. (2 marks)

* *Soft coastal rocks are easily worn away by waves / materials carried by the waves;* ✓
* *Jointed rocks enhance effective erosion;* ✓
* *Coastal rock which are soluble are eroded through solution process.* ✓

(c) With the aid of a labeled diagram, describe the processes through which a blowhole is formed. (9 marks)

* *The base of a cliff is attacked by wave abrasion forming a notch;* ✓
* *Continued wave action enlarges the notch into a cave;* ✓
* *Wave action erodes a line of weakness at the back of the cave roof towards the surface;* ✓
* *Weathering through solution enlarges the line of weakness from the surface towards the cave;* ✓
* *Eventually a near vertical shaft connecting the surface to the cave below is formed;* ✓
* *This is a blow hole;* ✓



(d) (i) State **four** conditions that favour the growth of coral. (4 marks)

* *The water should be warm / $20^0 - 30^0C$;* ✓
* *The water should be shallow / depth of 60m;* ✓
* *The water should be clear / free from sediments;* ✓
* *There should be plentiful supply of planktons;* ✓
* *The water should be well oxygenated;* ✓

(ii) Explain **three** ways in which coral contributes to the economy of Kenya. (6 marks)

* *Coral features attract tourists who bring foreign exchange into the country;* ✓
* *Coral reefs provide breeding grounds for fish. This has promoted fishing industry at the cost;* ✓
* *Coral rocks provide limestone which are used as a raw material for making cement;* ✓
* *Coral rocks provide stones which are used in building industry;* ✓
* *Coal stones are extracted and sold as ornaments;* ✓