TRIALS SEPTEMBER 2022

GEOGRAPHY P1 MARKING SCHEME

SECTION A

Answer all the questions in this section.

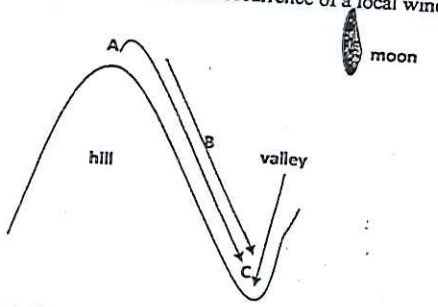
1. a) State the relationship between Geography and Medicine. (2mks)

2. *Medicine deals with diagnosis, prevention and cure of diseases in people while Geography explains factors and geographical conditions influencing the spread of various diseases in a branch called Medical Geography.*

b) State three importance of studying geography. (3mks

- *Helps gain knowledge about environment*
- *Helps gain practical skills such as observing, recording, analyzing and drawing.*
- *Its key to various careers such as surveying and piloting*

3. The diagram below shows the occurrence of a local wind.



a) Name the wind labelled B.

Katabatic wind (1mk)

b) Why is ~~the air at~~ point A at high pressure? (2mks)

A-high pressure At night the hill top looses heat that terrestri radiat

C-low pressure faster than the valley bottom because its exposed.

- The air contracts and becomes dense hence high pressure.

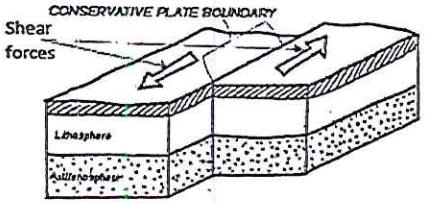
c) State two factors determining the amount of solar radiation reaching the earth's surface. (2mks)

- *Transparency of atmosphere; dust, dust and clouds block suns rays from reaching the earth's surface.*
- *Distance of the earth from the sun at different times of the year due to revolution of the earth makes the earth to receive high insolation during perihelion and low insolation during aphelion.*

4. a) Why are extension boundaries referred to as constructive boundaries? (1mk)

At extension boundaries, tectonic plates move apart giving way for magma from the mantle to erupt and solidify to form new landforms.

b) Draw a well labelled diagram to show a transform fault boundary. (3mks)



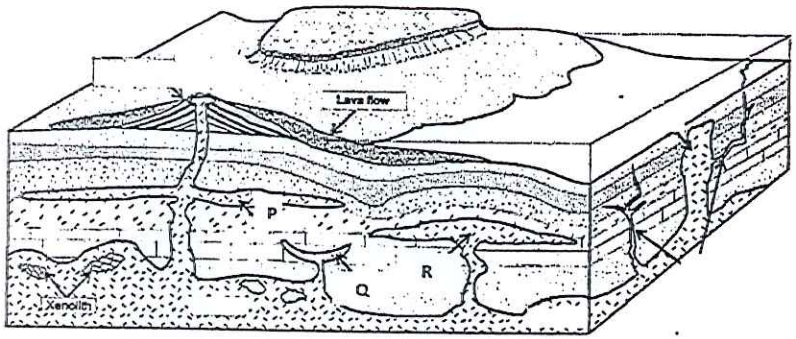
c) Name one relief features that may be formed during subduction. (1mk)

Volcano, trench

5. a) Differentiate between intensity and magnitude as measures of earthquakes.

Intensity is a measure of how hard or strong an earthquake shakes the ground while magnitude is the measure of the energy given off by an earthquake. (2mks)

b) The diagram below shows intrusive volcanic features.



Identify the features labelled P, Q and R in the diagram below. (3mks)

- *P-sill*
- *Q-lopolith*
- *R-laccolith*

5a) State three ways in which the nature of rock can influence weathering. (3mks)

- ***Color: dark rocks absorb heat faster and crack due to stress while shiny or light colored rocks reflect sun's rays and hence absorb heat at a slower rate.***

b) Identify two main types of weathering common in mid-latitude regions.(2mks)

- *Mechanical weathering*
- *Chemical weathering*

SECTION B

Answer all the questions in this section.

1. Study the map of Kijabe (1:50,000) sheet 134/3 provided and answer the questions that follow.

(a) (i) Give the vertical interval of the map. (1mk)

20m

(ii) What is the latitudinal and longitudinal extent of the map? (1mk)

Latitude 0 to 1°00' S and longitude 36°30' E to 36°45' E

(iii) Identify any three types of natural vegetation found between Easting 30 and 35. *thicket, woodland, scrub* (3mks)

(c) (i) Using a vertical scale of 1cm to represent 100 m, draw a across-section between grid reference 240930 to 260000. (5mks)

(ii) On the cross – section. Mark and label the following,

- all weather road bound surface (1mk)
- river (1mk)
- hill (1mk)

(iii) Calculate the vertical exaggeration of the cross-section you have drawn

1: 10,000 ÷ 1:50,000 (2mks)

$$\frac{1}{10,000} \div \frac{1}{50,000} = \frac{1}{10,000} \times \frac{50,000}{1} = 5 \text{ times}$$

(b) (i) Citing evidence identify three social functions in the area covered by the map.

- *Educational – presence of schools such as in grid ref 2397 and 2801*
- *Medical-Presence of hospital in grid ref 3295*
- *Residential-Settlements in central and south-eastern part of the map*

(3mks)

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

- *The area has the following drainage patterns:*
  Radial drainage pattern
  Dendritic drainage pattern
  Parallel drainage pattern

- *There are many permanent rivers in the area covered by the map*
- *There are disappearing rivers in the area covered by the map*

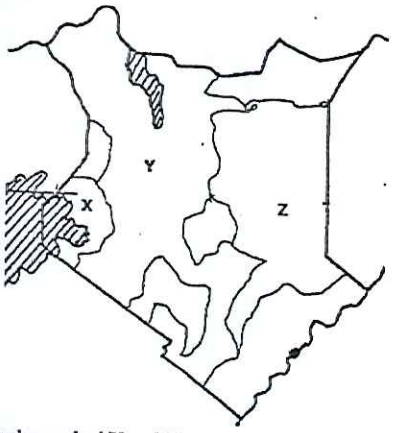
(iii) State three factors influencing the distribution of settlements in the area covered by the map. (3mks)

- *Forested areas have no settlements*
- *Steep hills and escarpment have no settlements*
- *There are linear settlements along roads for ease of transportation*
- *There is nucleated settlement in Kijabe town due to availability of social services*

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

This is a naturally occurring aggregate / agglomeration of minerals that forms part of the earth's crust

b) The map of Kenya below shows the distribution of rocks. Use it to answer the questions that follow.



i) Name the rocks marked Y and Z. (2mks)

Y-volcanic rocks (granite / gneiss

Z-sedimentary rocks

ii) Explain the formation of chemically formed sedimentary rocks. (5mks)

- Rainwater/weak acids dissolve minerals from pre-existing rocks

- The dissolved minerals are transported by water in solution form

- The solution is emptied into inland an inland basin/large water body

- Waters from different areas with different minerals are emptied into the water body

- Chemical reaction takes place due to the mixing of the different solutions

- Reaction makes the minerals to precipitate forming sediments.

-Evaporation may take place in shallow water bodies leaving behind a precipitate which forms the sediments

- The sediments accumulate on the bed of the water body

- Continued accumulation makes the overlying layers to press down the lower layers

- The sediments are with time compressed into a hard compact mass called the sedimentary rock

NB: Last point must be mentioned to score a maximum

iii) Explain three ways in which rocks are significant to human activities. (6mks)

- *Some rocks contain valuable minerals which are mined and minerals are used for varies purposes by people*
- *Some rocks like trachyte, or marble are used by people for building purposes*
- *Some rocks form unique features which attract tourists e.g. granite*
- *Rocks weather/break down to form soil which is used for various agriculture purposes*
- *Some rocks (impermeable) store water as underground water which is used for industrial/domestic purposes.*

c) i) What is rock metamorphism? (2mks)

This is an internal process where the existing rocks are forced to change/transform to new different rocks due to great heat and pressure or both.

ii) Explain three processes of rock metamorphism. (6mks)

- *Thermo metamorphism – great heat due to intrusion of volcanic rocks will force the original rocks to change e.g. sandstone change to quartzite.*
- *Dynamic metamorphism – great pressure due to compression/sheering forces rocks to change to new rocks.*
- *Thermo-dynamic metamorphism- caused by both great heat and pressure to make rocks change s e.g. granite to Gneiss or clay to slate*
- *Meta somatic metamorphism – where hot gases force rocks to change.*

d) You intend to carry out a field study on types of rocks near your school.

i) Give an example of each of the following types of rocks you are likely to identify:

- hypabyssal igneous rocks (1mk)
  quartz, porphyry, dolerite
- chemically formed sedimentary rocks (1mk)

rock salt, gypsum, flint, trona, travertine, limonite, hematite, tufa, limestone

ii) State two activities you are likely to be involved in during the study. (2mks)

- *measuring*
- *taking notes*
- *observing the rocks*
- *collecting samples*
- *asking questions/ conducting oral interviews*
- *digging/ breaking rocks*
- *labelling samples*

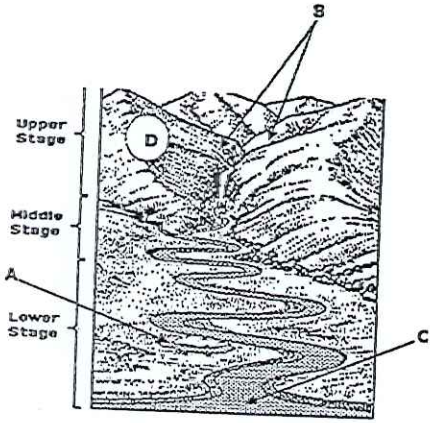
8. a) i) What is River regime? (1mk)

River regime is the seasonal fluctuation in a river water volume.

ii) Describe corrasion process in river erosion. (2mks)

This is where the river uses its load(stones and rocks) to knock off / chip rocks on the banks and the floor of the river valley.

b) The diagram below shows the long profile of a river. Use it to answer questions (i), ii), (iii)



i) Identify the features marked A, B C and D. (4mks)

A-ox-bow lake
B-interlocking spurs
C-estuarine delta / estuary

ii) Describe the formation of a natural levee. (3mks)

- *At the old stage a river spills materials over its banks and some are deposited there.*
- *Repeated deposition causes the river bans to be raised forming the levees.*

- *The raised river banks made of alluvial materials are the natural levees.*

iii) Outline the significance of such a river. (4mks)

- *The river bed is source of building materials such as smoothed gravel, pebbles and sand.*
- *Some alluvial sediment may contain valuable minerals like gold, diamonds.*
- *Alluvial deposits has fertile soils for agriculture*
- *The river is prone to flooding leading to loss of property and lives*
- *The river water can be a medium of spreading harmful water borne diseases*

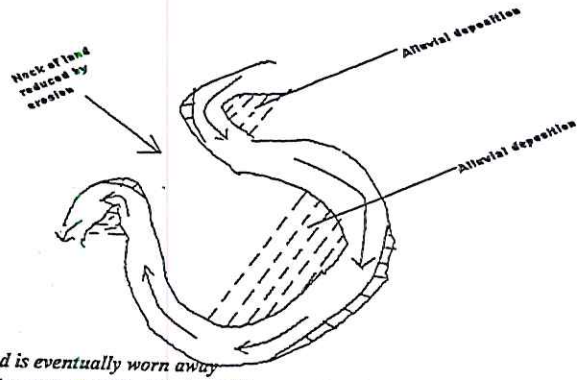
c) i). Describe Trellis drainage pattern. (3mks)

- *In this pattern tributaries join the main river at right angles.*
- *The minor tributaries also join the main tributaries at right angles*
- *Main river is called the consequent river,*
- *The tributaries which flow in accordance with the rock structure are called subsequent rivers*
- *Tributaries which flow in opposite direction to the main river are called obsequent rivers*
- *Secondary consequent rivers are tributaries which flow in the same direction as the main river*
- *They occur in landscapes with scarps and where folding has occurred.*

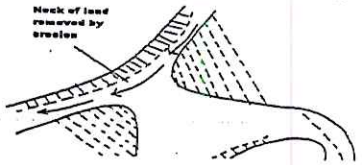
(5 x 1= 5marks)

ii) With the aid of well labeled diagrams, describe how the feature marked A is formed. (6mks)

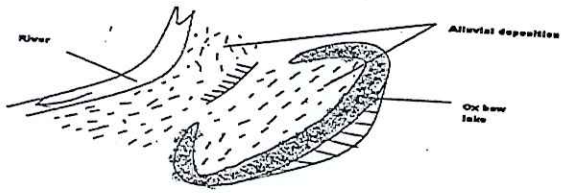
- *At the old stage a river begins to meander its course.*
- *Lateral erosion dominates the outer side of the bend while deposition takes place on the inner bank.*
- *Lateral erosion results in the reduction of the neck of land between the bends.*



- *The neck of land is eventually worn away*
- *Deposition on the meander sides blocks off the meander which forms a lake.*



- *The river abandons the meander and follows the newly created short cut.*
- *The abandoned meander contains water and forms an ox-bow lake.*



9. a) i) Apart from fold mountains, name two other features resulting from folding. (2mks)

- *ridge and valley landscape*
- *intermontane plateaus*
- *intermontane basins*

ii) Explain how fold mountains were formed according to contraction theory. (3mks)

- *During the the formation of the earth, the surface rocks cooled faster than those of the interior.*
- *Since the interior of the earth was cooling at a slower rate than the surface, the surface rocks started wrinkling in order to fit on the cooling contracting rocks of the interior*
- *The wrinkled surfaces are the fold mountains.*

b) i) Define the term orogenesis. (1mks)

This is the process of fold mountain formation.

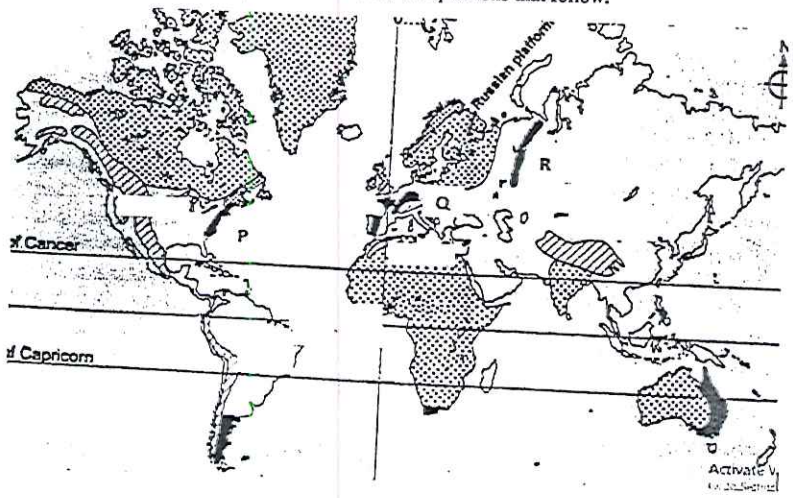
ii) Name two fold mountains formed during the Alpine orogeny. (2mks)

- *Himalayas*
- *Alps*
- *Andes*
- *Rockies*
- *Atlas*

State two factors influencing folding of sedimentary rocks. (2mks)

- *Strong compressional force influences the folding of sedimentary rocks.*
- *Young/elastic sedimentary crustal rocks*

c) i) Use the world map provided and answer the questions that follow.



Name mountain ranges marked P, Q and R. (3mks)

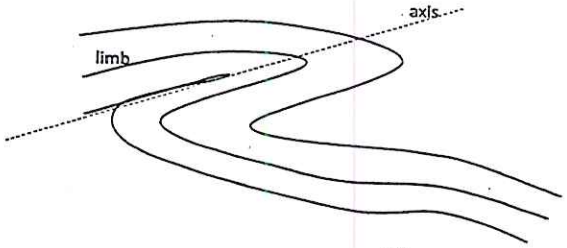
P-Appalachians

Q-Alps

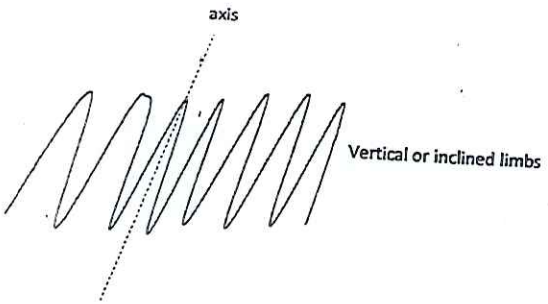
R-Urals

ii) Draw a well labelled diagram of each of the following types of folds.

- Overfold. (2mks



- Isoclinal folds. (2mks)



d) i) Explain two negative effects of folding to human activities. (4mks)

- *Leeward slopes of fold mountains receive little or no rainfall/experience dry conditions which discourage settlement/crops farming.*
- *The rugged nature of folded landscape discourage settlement*
- *Fold mountains are barrier to transport/make construction of transport lines expensive/difficult.*

ii) Explain two ways in which fold mountains influence climate in a region. (4mks)

- *Fold mountains receive heavy rainfall on the windward slope while leeward slopes receive very little rainfall*
- *In the northern hemisphere the south facing slopes of fold mountains experience higher temperatures compared to the north facing slopes. In the southern hemisphere the north facing slopes have higher temperature than the south facing slopes.*
- *Temperature inversion occurs in the lowland valleys therefore they are cooler than the higher slopes of fold mountains*
- *Some fold mountains have very high attitude resulting in very low temperatures and are permanently covered with snow eg. The Alps*

10. (a) (i) Define the term ocean. (2mks)

An ocean is a large extensive body of saline water occupying a basin/ depression between continents

(ii) Explain two factors influencing horizontal movement of ocean water.(4mks)

Winds

(iii) Describe how a wave breaks. (4mks)

- *Waves blow over ocean water causing a frictional drag which eventually moves the ocean water in the direction of the wind. This moving water is what is called ocean current*

Earth's rotation

- *Earth's rotation causes deflection of winds and ocean currents to their right of origin in the northern hemisphere and to their left of origin in the southern hemisphere.*

Shape of land masses

- *Ocean currents follow the outline of ocean coastline*
- *Currents can squeeze through narrow constricted areas hence increasing velocity. Such a current is called a stream current.*

Difference in water temperature

- *Tropical oceans are warm while polar water is cold. Polar water is hence dense. It sinks and flows towards equator. The warm tropical water is less dense it hence flows polewards to replace the water that sunk.*

b) Name the ocean currents marked A and B. (2mks)

A- warm North Atlantic Drift

B-warm Brazil current

c) Describe how a Geo is formed. (4mks)

- *Waves attack the base of the cliff through abrasion and hydraulic action to form a notch*
- *Continued wave action enlarges the notch into a cave*
- *Waves attack the back of the roof of the cave through solution to form a blow a hole*
- *The roof of the cave collapses along the line of weakness resulting into a long narrow sea inlet called a geo*

d) (i) Using well labelled diagram, describe the formation of Cuspate foreland. (5mks)

- *The angle of the coastline changes leading to halting of the long shore drift*
- *Deposition begins to form a ridge of sand that extends seawards called a spit*
- *Two spits the grow towards each other at an angle on both sides of the main land*
- *Continued deposition of sand and spit leads to convergence of the two spits to enclose lagoon*
- *The resultant triangular shaped feature is called a cuspate foreland*

(ii) Explain two ways in which Kenya can benefit from its coastal landforms. (4mks)

- *Coastal features e.g. caves, islands form the sceneries which attract tourists / bring foreign exchange to the country.*
- *Oceans provide a variety of recreation e.g. sport fishing.*
- *Coral reefs are source of raw materials for cement making.*
- *Oceans provide natural highways for transport.*
- *Lowland coasts provide good sites for development of settlements.*
- *Ocean water provide a variety of fish which promotes fishing on the sheltered waters of the fiords.*
- *Mangroves growing in mud flats are used for timber and fuel wood.*