

FORM FOUR CLUSTER KCSE MODEL 1

GEOGRAPHY PAPER 1 ANSWER

SECTION A (25 Marks)

Answer all questions in this section

1. a) Weather is the state of the atmosphere of a given place over a short period of time while climate is the average weather conditions of a place recorded over a long period of time. 30-35 years. (2 marks)

b) State three factors that cause inaccuracy of recording data in a school's weather station.

Human error/students unable to read the instruments.

Interference with the instruments by people/students.

Poor siting of a weather station.

Extreme weather conditions cause inaccurate readings.

Natural calamities may cause damage to some instruments. (3 x 1 = 3 marks)

2. a) Folding is the bending or distortion of crustal rocks which make them bend upwards and downwards due to compressional forces. (2 marks)

b) State three factors that influence folding.

-Rock type/flexibility or elasticity of a rock.

-Strength or intensity of the compressional force.

- Temperature within rocks/high temperatures that make rocks more flexible/elastic.

-The age of sedimentary rocks. (3 x 1 = 3 marks)

3. a) **Vegetation zones marked**

W- Rain forests

X-Bamboo

Y-Heath and moorland (3 x 1 = 3marks)

b) Reasons why mountain tops has no vegetation cover.

Temperatures are too low to support plant growth.

No soil/bare rock which cannot support plants.

Water always in frozen state/surface is snowcapped. (2 x 1 = 2 marks)

4. a) Soil is accumulation of rock particles, minerals, organic matter, water and air on earth's surface/Superficial thin layer of loose rock materials on the earth's surface in which plants grow. (2 marks)

b) Factors that determine colour of a soil.

- Nature of the bed rock/parent rock.
- Mineral composition/chemical composition.
- Climatic factors/drainage factors.
- Vegetation cover/humus content/organic matter. (3 x 1 = 3 marks)

5. a) Features A - Zeugen

B - Furrow (2marks)

b) Factors influencing wind erosion in arid areas.

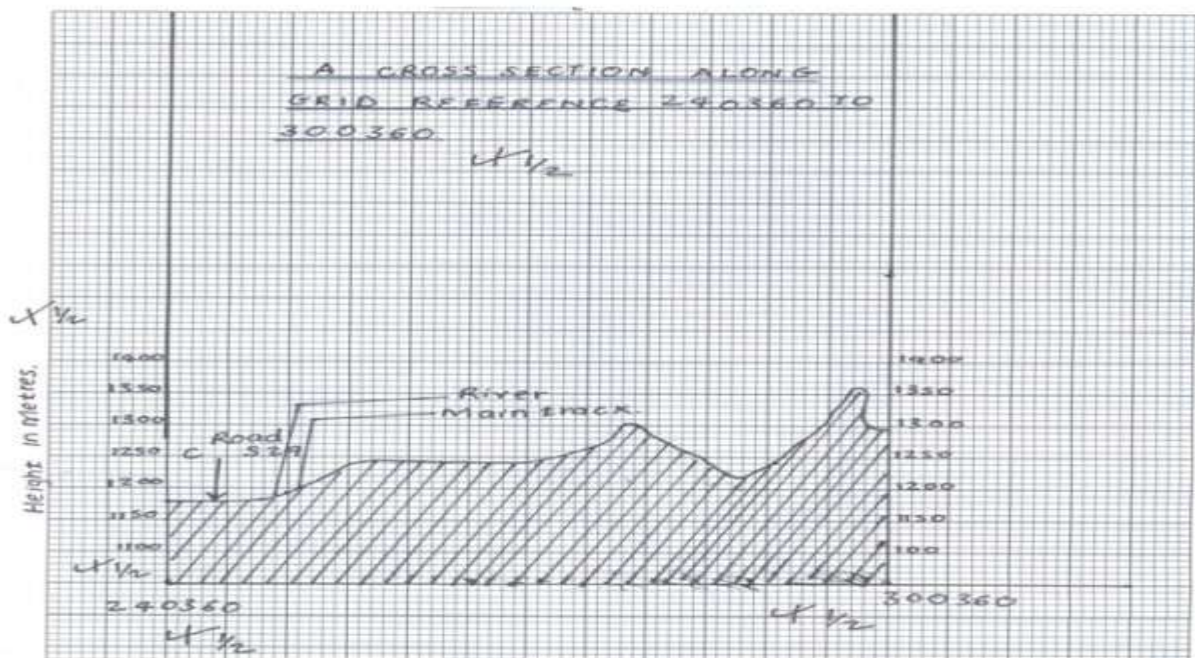
- Strength of wind-strong desert storms or wind erode and carry away a lot of loose dry materials.
- Absence of obstacles/vegetation bare surfaces are exposed to increase erosion.
- Temperature variations- high and low temperatures cause weathering, facilitating wind erosion.
- Nature or rock materials dry loose, unconsolidated materials are easily carried by wind erosion. (3 x 1 = 3 marks)

SECTION B (75 Marks)

Answer question 6 and any other two questions in this section

6. a) (i) Magnetic variation is $2^{\circ} 21'$ (2 marks)

(ii) The bearing is 315° (2 marks)



Award for: title – ½

Labelling axis (v.s) - ½

Starting and ending point – ½

Use of scale – ½

Trend – ½

C529 road – 1

River – 1

Main track (motorable) -1

$$\begin{aligned} \text{(ii) } V.E &= \frac{V.S}{H.S} \\ &= \frac{1}{\frac{5000}{50000}} \sqrt{\quad} \\ &= \frac{50000}{5000} \\ &= V.E = 10 \sqrt{\quad} \end{aligned}$$

c) Describe the drainage of the area covered by the map.

- There are many rivers.
- The main drainage feature is R.Sio.
- Most rivers are permanent.
- There are several seasonal swamps in the northern area covered by the map.
- There are disappearing streams.
- Some rivers form dendritic drainage pattern like R. Wakhungu.
- River Sio flows from North East to South West. (5 marks)

d) (i) Economic activities

Transport - all weather loose surfaced motorable tracks.

Trade - Market at Funyula

Agriculture - Cotton store 2 x1= (2 marks)

- Must give evidence to score

(ii) Describe how relief has influenced settlement in the area covered by the map.

-Hilly areas along the Samia escarpment have few settlements due to difficulties in constructing houses.

-Gently sloping areas to the eastern part of the map has many settlements due to ease of constructing houses.

-Depressions with swampy regions have no settlements since the floods discourage settlement. (2 x 2 = 4 marks)

7. a) (i) What is astronomy? (1 mark)

It is the study of the solar system. (1 x 1 = 1 mark)

(ii) A part from the sun and the planets, name four other heavenly bodies that make up the solar system. (4 marks)

-asteroids

-comets -meteors

-meteorites

-moon (satellites) (4 x 1= 4 marks)

b) What is the local time at Alexandria 300E when the local time at Malindi 400E is 12.00 noon? (2 marks)

1 hr- 60 mins

10= 4 min

Difference in degrees 400-300=100 1

00=40 x 4min = 40 min

Time at Malindi = 12.00+40 min=12.40 p.m. (2 marks)

c) Highlight four effects of the rotation of the earth on its own axis. (4 marks)

-Causes day and night.

-Causes difference of 1hour between meridian 150 apart.

-Causes deflection of wind and ocean currents.

-Causes variation in the speed of air masses.

-Causes rising and falling of ocean tides. (4 x 1= 4 mark)

e) Explain three reasons why the interior of the earth is very hot. (6 marks)

- The weight of the overlying materials exerts great pressure on the core resulting into high temperatures.

-In the process of cooling, after breaking away from the sun the interior of the earth cooled at a slower rate than the outer part hence it retained much of its original temperatures.

-Radioactivity: During the breaking up of the nucleus of an atom. The bombardment of materials within the mantle release a lot of energy which generated heat. (3 x 2= 6 marks)

8. a) Differentiate between river capture and river rejuvenation.

River capture is the diversion of the headwaters of the weak river system into a system of an adjacent more powerful river due to headward erosion while river rejuvenation is the renewal of the erosive power of a river. (2 marks)

b) Describe three processes by which a river transport its load.

Solution- The soluble minerals/materials are dissolved in river water and carried away in solution form.

Suspension- Light insoluble materials such as sand, silt grains, dry leaves and grass are carried and maintained within the water by river turbulence and transported downstream.

Saltation- Some large fragments that cannot remain suspended in the water are momentarily lifted and dropped by water turbulence. The series of hops and jumps move the load down the river.

Traction- The large and heavy loads of the river are rolled/dragged along the river by the moving water and gravity. (3 x 2= 6 marks)

c) Explain three positive influence of rivers and their features to human activities. (6 marks)

-River water is used for both domestic and industrial use.

-Navigable rivers are used as transportation routes in many parts of the world.

-Some rivers are dammed and their water utilized for generation of H.E.P.

-Some river mouths provide port authorities especially in their rivers and estuaries which are exploited for port development.

-River water is used for irrigation of crops thus increasing food production. 3 x 2= 6 marks)

d) Students from Masaku high school intend to carry out a field study of a river in its upper stage.

(i) Name two features they are likely to study. (2 marks)

Waterfalls.

Rapids

Potholes

Meanders

Interlocking spurs

Truncated spurs. 2 x 1 = 2 marks

(ii) Give two reasons why they would need a route map. (2 marks)

- To show the route to be followed during the field study.
- To help estimate the distance to be covered during the study.
- To estimate the time required for the field study.
- To be able to plan for a working schedule. 2 x 1 = 2 marks

(iii) State three reasons why it would be necessary to visit the area before the day of the study. (3 marks)

- To help prepare a working schedule.
- To be able to formulate the appropriate objectives and hypothesis.
- To seek permission from the owners of the land/authorities near the river.
- In order to establish contact possible respondent for data collection.
- In order to help in preparing methods of data collection.
- In order to identify possible problems likely to be faced and their possible solutions. (3 x 1 = 3 marks)

(iv) List two problems they are likely to experience during the study. (2 marks)

- Thick vegetation that hinders communication.
- Attacks by wild animals.
- Steep slopes hindering movement.
- Hostile weather conditions e.g. rain, (specify)
- Accident slipping (2 x 1 = 2 marks)

v) Give two follow-up activities they were involved in. (2 marks)

- Displaying photographs.

- Writing reports.
- Reading more on the topic.
- Hold discussion.
- Analysing/assessing the information collected against the hypothesis. 2 x 1=(2 marks)

9. (a) Resultant rocks which form from metamorphism of

Granite - Gneiss

Clay- Slate (2 marks)

(b) Plutonic	Volcanic
<ul style="list-style-type: none"> • Form from cooling of magma in the earth's crust • Process of cooling is slow forming rocks With large crystals • Coarse texture 	<ul style="list-style-type: none"> • Cooling of lava on the earth's surface. • Rapid process of cooling resulting to Rocks with small crystals. • Fine textured

(any 2 x 1= 2 marks)

(c) Ways in which sedimentary rocks are formed.

-Mechanically formed sedimentary rocks:

- Sediments are derived from weathering of other existing rocks which are laid down in layer sand consolidated to form a hard mass.

-Organically formed sedimentary rocks. Sediments are derived from million of dead organism and plant remains which are laid down in layer son land or in water.

-Chemically formed sedimentary rocks Sediments are derived from precipitation of minerals in areas that experience high temperatures. These sediments are laid down in layers and compacted to form rocks. (Any 2 x 2= 4 marks)

(d) Ways in which rocks contribute to the economy of Kenya. (8 marks)

-Rocks from spectacular features which attract tourist earning foreign exchange.

-Weathering result to formation of fertile soils which support agriculture.

-Rocks provide building and construction materials.

-Rocks contain valuable minerals which are extracted to earn foreign exchange and income.

-Rocks hold water which is used for domestic and industrial use. Any other relevant (4 x 2= 8 marks)

(e) (i) Objectives of the study

- To find out the type of rocks.
- To identify the importance of rocks to the neighbouring community.
- To determine the age of rocks.
- To determine the hardness of rocks. (2 x 1= 2 marks)

(ii) Secondary sources of information they would use to prepare for the study.(2 marks)

- Geological maps.
- Geography text books.
- Photographs of rocks/films/slides.
- Journals/magazines/publications on rocks. (2 x 1=2 marks)

(iii) Activities they would carry out during the field study.

- Collecting rock samples.
- Observing the characteristics of rocks.
- Taking photographs.
- Filling-in the questionnaires.
- Note-taking.
- Asking questions/interviewing the resource person. 3 x 1= 3 marks

(iv) Importance of designing a working schedule for the field study

- To ensure that they remain within the topic of study.
- To ensure that no activity is forgotten.
- To avoid time wastage.
- To be able to evaluate the field study while in progress 2 x 1= 2 marks

10. a) Differentiate between a seismic focus and epicenter. (2 marks)

A seismic focus is the point inside the earth which is the origin of earthquake shocks whereas the epicentre is the point on the surface of the earth which is vertically above the seismic focus.

- To score one must score on both sides. (2 x 1= 2 marks)

(iii) Give three natural causes of earthquakes.

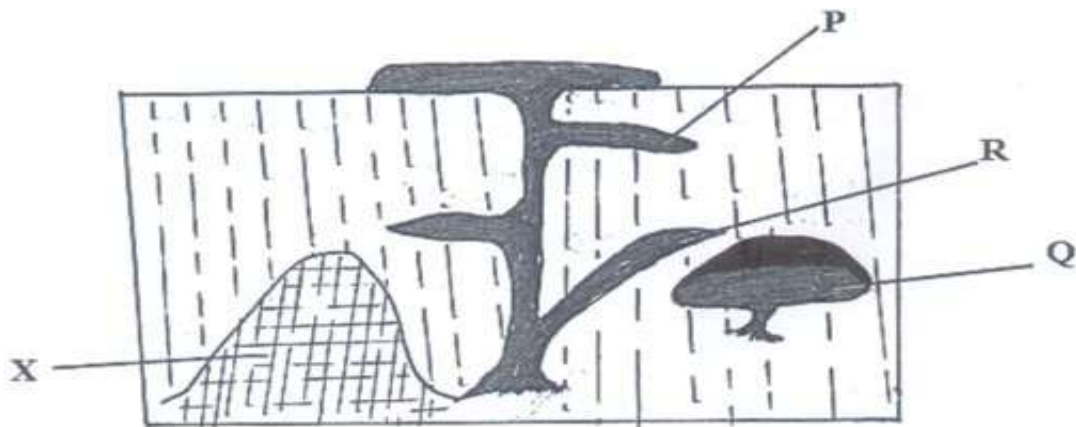
- Movement of tectonic plates and compression of extension boundaries.

- Gravitative pressure.
- Movement of magma within rocks of the crust.
- Isostatic adjustment in the rocks of the crust.
- Energy release from the mantle.

(iv) Name 3 major earthquake zones of the world.

- Circum- pacific belt.
- Mediterranean –East Belt/Alpire-himalagas belt
- Mid-Atlantic Ocean Belt
- The Great Rift Valley Belt. (3 x 1= 3 marks)

b) Use the diagram below of intrusive features of vulcanicity to answer the questions that follow.



(i) Identify features (3 marks)

- X - Batholith
- P - Sill
- R - Dyke

(ii) Describe how feature Q is formed.

- Earth movement forms a vent in the rocks of the crust.
- Viscous magma is forced through the vent to intrude between the bedding planes.

- The magma is very thick and cannot flow/ spread out easily.
- The magma pile and spread upwards between the rock layers.
- The magma cool and solidify slowly.
- It forces the overlying rock layers to arch upward.
- This forms a mushroom-shaped dome of intrusive igneous rock with a flat base called a laccolith.
(6 x 1= 6 marks)

(c) Explain four ways in which volcanic features positively influence human activity.

- Volcanic rocks weather and form fertile soils which support agriculture.
- Volcanic mountains/highlands attract high rainfall on the windward side which is a source of rivers that provide water for domestic/individual use.
- Volcanic mountains/highlands attract high relief rainfall on the windward slope which encourage agriculture and settlement.
- Volcanic mountains influence formation of relief rainfall that support forests on the mountain slope which are exploited for timber and construction materials.
- Some volcanic rocks are important building and construction materials promoting this industry e.g. phonolites.
- Steam jets and geysers provide suitable sites for generation of geothermal power.
- Volcanic eruption form pipes with valuable minerals which are mined and sold to generate income. (4 x 2= 8 marks)