
GEOGRAPHY PAPER 1

ANSWERS

KCSE 2010

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Geography Paper 1

SECTION A

1.

- The sun
- The planets
- Asteroids
- Meteors/meteorites/meteoroids
- Comets
- Natural satellites

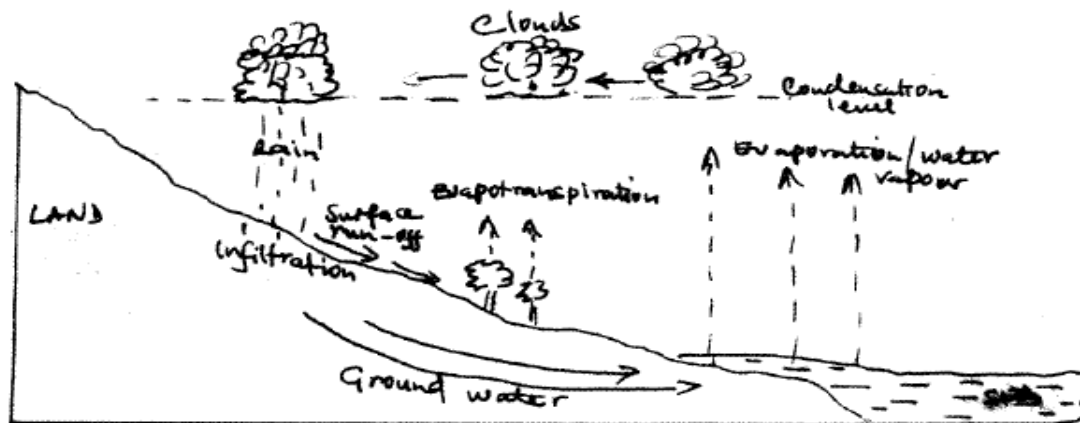
Any 3 x 1 (3 marks)

2. (a)

- Cirrus
- Cirro – cumulus
- Cirro – stratus

any 2 x 1 (2 marks)

(b) Draw a well labelled diagram of a hydrological cycle.



Correctly drawn diagram.

(1 mark)

- Clouds – 1 mark
- Rain – 1 mark
- Infiltration / Surface run-off – 1 mark
- Land/ocean / water body – 1 mark
- Evaporation/evapotranspiration 1 mark
- Condensation 1 mark

max (4 marks)

3. (a)

- gravitative pressure
- Divergence/ convergence/collision/shearing of tectonic plate boundaries
- movement of magma within the earth's crust/volcanic eruption
- folding/faulting
- isostatic adjustment
- blasting of rocks /bomb explosions/construction of large reservoirs
- energy release within the mantle

any 3x1=3 marks

(b)

- The Circum – Pacific belt
- the Tethyan/Mediterranean belt
- the Great Rift Valley belt
- Mid-Atlantic Ocean belt

any 2 x 1 (2 marks)

4. (a) Any naturally formed (solid) mineral aggregate/ a naturally occurring solid material that is composed of one or more minerals (2 marks)

(b)

- some sedimentary rocks contain fossils-
- The rocks have cleavage/are foliated/have bedding planes.
- The rocks form horizontal layers/are stratified.
- the rocks are non-crystalline

Any 3 x 1 (3 marks)

5. (a) P – Headland (1 mark)
Q – Spit (1 mark)
R – Stack (1 mark)

(b)

- Presence of abundant supply of materials to be deposited.
- Presence of a shallow shore/continental shelf.
- A relatively weak long shore current.
- A weak backwash strong swash/constructive waves
- Gently sloping land at the sea shore.

Any 2 x 1 (2 marks)

6. (a)
- 7Km 100m /7100m (2 Marks)
 - $2250 \pm 1^0 / 224^0 - 226^0$ (2 marks)
 - $15 \text{ Km}^2 \pm = \frac{1}{2} \text{ Km}^2$ ($14\frac{1}{2} \text{ Km}^2 - 15\frac{1}{2} \text{ Km}^2$) (2 marks)

(b)

- J – Lala Dam
K – Magare School
L – Dry weather road/All weather road –loose surface
M – Forest

(4 marks)

(c)

(i)

- There are many settlements in the Eastern part of the area because the land is gently sloping which makes construction easy.
- There are clusters of settlements where there are markets/urban centres such as Homa Bay because there are social amenities and economic activities that attract settlements.
- The hilly areas around Run have few or no settlements because the land is steep/ rugged which makes construction difficult/costly.
- There are no settlements to the south-west because the area is set aside as a national reserve and it is forested.
- Some shores of Lake Victoria have no settlement because they are poorly drained/ marshy which discourages human activities.

- Homa Bay Municipality area is the most densely settled because it has a dense road network and water transport for ease of movement.
- There are few settlements in the area, west of Easting 50 and North of the National Reserve due to less rainfall which discourages agriculture.

Any 3 x 2 (6 marks)

(ii)

- Cereal farming - flour mills/maize control store.
- Cotton growing - Cotton experimental farm/ginnery.
- Sisal farming - sisal factory.

(4 marks)

(d)

- The main drainage feature is Lake Victoria.
- The main river is River Akech/Rangwe and they drain into Lake Victoria.
- There are many; short; streams; originating from Ruri Hills.
- Rivers flowing from Ruri Hills form radial drainage pattern.
- Some rivers form parallel pattern.
- Many streams disappear underground/end abruptly.
- River Akech and its tributaries form dendritic pattern.
- The area has dams/boreholes/water holes.
- There are few seasonal streams.
- Most rivers are permanent
- River Akech flows northwards.
- There are papyrus swamps along the shores of Lake Victoria.

Any 5 x 1 (5 marks)

7. 5

(a) (i)

- D - Prairies
- E - Steppes
- F - Downs

(3 marks)

(ii)

- The forests consist of mixed variety of tree species.
- The trees shed their leaves at different times of the year/forests are evergreen.
- The trees are tall straight with large trunks.
- The trees have broad leaves/drip-tipped leaves.
- The trees take long to mature.
- The trees species are mainly hardwood.
- The trees grow close to each other.
- The forests have little or no undergrowth.
- The trees have smooth bark
- The forest has numerous lianas/climbing plants/epiphytes.
- Some of the trees have buttress roots.
- The forests have canopies.
- The forest crowns form three distinct layers.

(6 marks)

(b)

(i) Desert vegetation

- The area has scarce stunted/vegetation because it receives low rainfall.
- High temperature/High rate of evaporation experienced in the area leaves the ground dry, leading to scarce vegetation.

- The long periods of drought causes some seeds to exist in a dormant state only to germinate during the short rains/causes scarce/stunted vegetation.
- The higher rainfall along the margins of the region leads to more luxuriant vegetation in the areas.
- Strong winds may uproot some of the plants leaving the ground bare/strong winds disperse seeds from one part of the region to another leading to establishment of plant species far and wide in the region.

Each climatic condition to score only one

(4 marks)

(ii) Coniferous forest.

- The long cold winter and short summers make trees grow at a slow rate/make the vegetation types to consist of a limited variety of species of plants.
- The low rainfall received in the area/permanently frozen subsoil makes the trees develop shallow roots that spread widely to utilize the moisture in the top soil.
- Precipitation in the region is mainly in form of snow. This makes the trees to be in shape/to have flexible branches. (allow snow to slide to the ground)
- Strong winter winds make the trees to have flexible trunks.

(6 marks)

(c)

- Collecting samples of plants
- Measuring distances
- Estimating heights of plants
- Drawing sketches/transects
- Recording/taking notes
- Taking photographs of plants
- Counting plants

Any 3x1 = 3 marks

(i)

- By their appearance
- By their leaf size/pattern/type
- By their age
- By the texture of the leaves
- By the system of leaves
- By their flowers
- Observing the system of the roots.

Any 3x1 = 3 marks

(ii)

- It can be used to plan agricultural activities
- It can be used to help in the conservation of land/wildlife/soil/water
- It can be used to help in the rationalization of land use
- It can be used for future reference
- It can be used to determine the economic uses of plants/herbal medicine.

Any 2 x 1 = 2 marks

8. (a)

- pressure from the overlying mass of ice cause freeze – thaw action.
- melting water fills the cracks/joints in the bed rock.
- as water freezes it exerts pressure on the cracks enlarging them.
- the enlarged cracks lead to disintegration of the rock.
- the rock debris are scoured/pulled off the mother rock by the moving ice.
- The disintegrated rock eventually gets embedded within the mass of ice.
- As the ice moves; it pills out/gorges out the embedded rock from the mother rock.

(4 marks)

(b)

- rising temperatures lead to melting of ice thereby causing the ice to deposit its load.
- change of gradient to relatively flat surface will reduce the velocity of the glacial movement which will subsequently lead to deposition of fluvial-glacial materials.
- alternating warm and cold periods lead to seasonal melting of ice which allows materials embedded in the ice to be released and deposited.
- stagnation/accumulation of glacier leads to pressure at the base of the glacier which in turn leads to melting of ice at the base.
- friction at the base and sides of a glacier and a rough surface leads to melting of ice, causing the ice to deposit its load.

Condition 5 marks x 3

Explanation 5 marks x 3

(6 marks)

(c)

(i)

- X – Drumlins
- Y – A river/melt water
- Z – Kettle lake/lake

Any 3x1 = 3 marks

(ii)

- Moving ice carries solid materials
- Moving ice stagnates
- Ice at the snout melts
- melting ice releases its load
- Gradually the load piles into a ridge
- Over time the ridge forms a horse-shoe shape/block of solid materials called terminal moraine.

Any 4x1 = 4

(d)

- Glacial till provides fertile soils which are suitable for arable farming.
- Ice sheets in their scouring effect reduce the surface which may expose the minerals making them easy to extract.
- Out wash plains comprise of sand and gravel which are used as building materials.
- Glacial lakes found in lowland areas can be exploited for various economic uses such as fishing/transportation.
- Glaciation forms features such as drumlins/eskers which are tourist attractions.
- Glaciated lowlands are generally flat and ideal for establishment of settlements/development of transportation network.

Any 4x2 = 8 marks

9. (a)

River rejuvenation is the renewal of the river's erosive activity while river captures is the diversion of the head waters/beheading of one river into the system of an adjacent more powerful river.

(2 marks)

(b) (i)

- Knick point/waterfall
- River terraces
- incised meanders/entrenched/ingrown meanders
- Rejuvenation gorges
- Valley within a valley
- meander scar
- Abandoned meander (cut off meander)

Any 3x1 = 3 marks

(ii)

- Wind gap
- Elbow of capture/knick point
- Pirate stream
- Beheaded stream/misfit/captured river.

Any 3x1 = 3 marks

(c)

- The fine particles such as silt are carried in suspension because they are light and can be maintained within the turbulence of the water. Some of the light materials float on the surface of the water.
- The fairly heavy particles/pebbles are lifted and bounce over short distances by the turbulence of the water. This process is known as saltation/hydraulic lift.
- The large and heavy particles are rolled/slide along the river bed. The process is known as traction.
- Soluble materials are dissolved in water and carried in form of solution.

Each point 2 marks = 8 marks

(d) (i)

- to help identify the direction to follow
- to help prepare a work schedule
- to help identify location of features for study
- to help estimate distances to be covered
- To help estimate the time the field study is likely to take. Any 3x1 = 3 marks

(ii)

- the river flowing at a low speed
- the river carrying silt in suspension/the water is brown
- river has braids
- the river meandering in the flood plain
- river has distributaries
- river has deferred tributaries/deferred junctions.

Any 3x1 = 3 marks

(i)

- Reaching more on the top
- Displaying photographs/items collected
- Asking/answering questions
- Writing reports
- Discussing with the rest of the class
- Analyzing/Assessing the information collected against the hypothesis.
- Drawing diagrams
- Modeling the flood plain.

Any 3x1 = 3 marks

10. (a)

(i)

- It is the accumulation zone for leached minerals from horizon A
- The soil texture is clay in nature – generally soils are dark in colour.
- Podzol soils are red/brown in colour.
- The zone sometimes forms the hard pan/murram/lateritic duricrust
- Is sub-divided into B₁, B₂ & B₃

Any 3x1 = 3 marks

(ii)

- Air/soil air
- Water/soil water
- Rock particles/weathered materials/mineral particles
- Living organisms.

Any 3x1 = 3 marks

(iii)

- It helps improve soil texture
- It provides essential minerals to the soils from the decomposed plant matter/humification and nitrification
- It enables soil to retain moisture
- It facilitates aeration of the soil
- Humus is a source of food for the microorganisms in the soil.

(a) (i)

- Soil structure is the way the individual soil particles are arranged into aggregate compound particles while soil texture is the degree of fineness or coarseness of the soil particles.
- (2 marks)

(ii)

- **Topography**
 - Valley bottoms encourage formation of deep fertile soils due to deposition/accumulation of weathered materials/encourages formation of leached soils
 - Steep slopes encourage rapid removal of the top soil thus slowing down formation of soil/they have thin soil/have poorly developed soils
 - Flat areas/may form peat. Gently sloping areas have well developed soils because they are well drained.
 - Slope influences the arrangement/sequence of soil/soil catena causing variation in the types of soil profiles at different parts of the slope.
 - Some slopes are more exposed to the sun/rain/aspect which enhances the rate of weathering on the parent rock/soil formation

Any 3x2 = 6 marks

- **Time**
 - Where soil formation processes takes a short duration the soils are generally immature/where the process has taken a long period of time, soils are generally well developed/mature.
 - Young soils retain the characteristics of the parent rock because they have not been exposed to the factors that may cause change/mature soils may not display the characteristics of the parent rock.

8 marks

(b)

(i)

Overgrazing

It leads to removal of vegetation cover thereby exposing soil to agents of erosion (which remove the top fertile soil).

2 marks

(ii)

Frequent ploughing

- This weakens soil structure making it easy for agents of soil erosion to carry it away. (the top fertile soil)
- It increases oxidation which results in loss of organic matter.

Any 1 x 2 = 2 marks

(iii)

Continuous irrigation

It causes leaching of soil nutrients making the top soil deficient of soluble minerals/it causes salinity.

2 marks