**312/1GEOGRAPHY MARKING SCHEME**

**1.** (a) - Physical environment

 - Social / human environment

 (b) - During construction of roads, bridges, dams, an engineer needs to understand the nature /

 type of rocks in order to give a firm foundation.

 - Geography deals with relief, this knowledge will help a civil engineer when constructing

 roads.

**2.** (a) - Centrifugal force

 - Centripetal force

 - Gravitational force

 (b) - Through mining

 - Through examining igneous activities (magma)

 - Through studying seismic waves (Earthquakes)

**3.** (a) - Presence of fossils.

 - Presence of deposits from rivers / ocean waters etc

 (b) - Proportion of silica.

 - Proportion of basic oxides.

 - Variation of proportion of silica and basic oxides in basic rocks varies between 45% and

 55%.

**4.** (a) -**Weathering** is the mechanical breakdown or chemical decay of rocks insitu, as a result of their exposure at or near the earth’s surface.

 (b) - High rainfall facilitates chemical reactions.

 - High humidity facilitates rapid chemical weathering of rocks.

 - High temperature and high humidity facilitate the decay of the plant litter which produces organic acid that cause chemical reaction.

**5.** (a) (i) Temperature range = 240 – 220c

 = 20c

 (ii) Annual rainfall = 17421mm

 (b) - Rainfall occurs throughout the year.

 - Rainfall has two maxima ie. November and April.

 - Highest rainfall occurs just after the equinox.

 - The temperatures are high throughout the year.

 - There is small range of temperature.

 - The highest rainfall occurs when the temperatures are high.

**6.** (a) (i) 1 cm represents 0.5 km/ ½ km

 (ii) Borehole

 (b) (i) – Scattered trees

 - Scrub

 (ii) - The area covered by the map has presence of hills e.g. Kyoomi, Kitui hills.

 - Presence of steep slopes.

 - Gentle slopes to the south eastern part of the map.

 - Many valleys

 - The area is rocky especially in grid square 0382 with evidence of out crop rock.

 - The area has rugged landscape with irregular undulating landscape due to irregular contours.

 - The highest point on the map is 1530 m above sea level evidenced by trigonometrical station in grid 9264.

 (c) (i) - Health service evidenced by health centres.

 - Administration centres evidenced by chiefs centre.

 - Education centre evidenced by schools.

 (ii) 14.5 km

 +0.1

 (d) (i)

 **10cm**



**River**

**Road**

**8cm**

 iii) 1:100,000

 (e) (i) – dendritic drainage pattern

 - parallel

 - trellis

 (ii)

* Vast area to be covered
* Steep slopes / rocky areas
* Crossing or river valleys
* Unfavourable weather (hot)

**7.** (a) (i) **Folding** is the process of crystal distortion which causes the rocks to bend upwards or

 downwards.

 (ii) - Tectonic forces

 (b) (i) X - Atlas Mountains

 Y - Andes

 Z - Rockies

 (ii) - Presence of extensive depression known as geosyncline.

 - Rivers from the surrounding highlands deposit their sediments in the geosyncline.

- The weight and pressure of the sediments causes the floor of the geosynclines to subside.

 - The continents are pulled towards the geosynclines by the sagging motion of the

 geosyncline.

- This movement triggers off convectional currents or compressional forces in the

 continental rocks.

- This causes the continents to begin moving slowly towards the geosyncline.

- Deposited materials are folded upwards to form mountains.



**Sediment**

**Geosynclines**

**Sial**

**Sea**

**Mantle**

**Sial**

**Sial**

**Sea**

**Geosynclines**

**Eroded continent**

**Convection current**

**Continental land mass**





**Sial**

**Sial**

**Mantle**

**Mantle**

**Mountain**

 (c) (i) - Gives ample time to each activity.

 - Reduces time wastage as the researcher works, within the allocated time.

 - It provides a basis for evaluating the fieldwork exercise.

 - It enables one to remain within the scope of the topic.

 (ii) - Discussion of the findings.

- Individuals /groups presenting their reports

- Drawing maps and diagrams.

- Labeling features.

- Putting data into groups.

 (d) - Some fold mountains are snow capped which attract tourists who earn the country

 foreign exchange.

 - Mountain slopes especially on the windward side support growth of forest which

 provide timber.

 - Some fold mountains act as water catchment areas, hence provide water for

 domestic and industrial use.

**8.** (a) (i) **A river tributary** is a small river which flows into a bigger one while **a river confluence** is the point at which a tributary joins the main river.

 (ii) - **Hydraulic action**

-Water hits against the banks of the river channel.

 - The water is forced into the cracks on the riverbank.

 - Some air in the cracks is trapped and compressed.

 -The compressed air develops high pressure which widens the cracks.

 - As the water retreats, pressure in the cracks is suddenly released.

 - Repeated compression and widening of the cracks eventually shatters the rocks.

 - As water retreats, it carries away the loose particles.

 - The force of moving water and the eddying effect sweep away loose materials in the river channel.

 **Corrasion**

- The load carried by the river is used as a tool to scour the bed and sides.

 - Some of the load is hurled by the water against the banks while the heavier one is

 dragged along the river bed.

 - The load chips off the rock on the bank and floor.

 - Eddy currents rotate rock particles in hollows on the river bed and widen the

 hollows into particles.

 (b) (i) - **Volume of water** – a large volume of water increases the ability of the river to erode

 by corrasion, hydraulic action.

 - **Gradient of the river channel**. The steeper the gradient, the higher the water

 velocity.

 - **Nature of the bed rock** – If the rock over which the river is flowing has little resistance to erosion, it can easily be eroded.

 - **Amount of Load-** If a river is carrying a large load and is flowing at high velocity,

 it will be more effective in eroding the channel.

 (ii) - Levees make the channel narrower hence a slight increase in volume of water may

 cause flooding.

 - Levees block tributaries resulting in the formation of different tributaries which

 extend the area under flooding on the plain.

 - The river channel is elevated above the general level of the flood plain. This makes

 the flood waters to rush farther along the plain.

 (c) (i) N – Radial

 P – Parallel

 Q – Fault – guided.

 (ii) - Two rivers flow adjacent to each other and are separated by a common divide.

- One of the rivers has more erosive power due to its bigger volume of water and may be flowing a less resistant rock.

 - The stronger rivers erode both vertically and laterally, faster than the weaker one.

 - Its valley becomes deeper and wider and so it flows at a lower level.

 - The stronger river extends its valley backwards by head ward erosion.

 - It eventually joins the valley of the weaker ones.

 - The head waters of the weaker river start flowing into the valley of the stronger

 river, so the weaker river is captured by the stronger river.

**9.** (a) (i) **Karst Scenery -**  is any rugged landscape whose surface rocks are limestone or

dolomite and which has been acted on carbonation by rain and river water to produce features typical of limestone surfaces.

 (ii) X – Clint

 Y – Grike

 (b) (i) -Water percolates through the rocks of the roof of a limestone cave

 - This water, which is a solution of sodium bicarbonate, drips slowly from the roof of

 the cave to the floor.

 - The water spreads out and begins to evaporate.

 - Tiny crystals of sodium carbonate are deposited on the floor.

 - Each drop which falls on the floor spreads out and evaporates.

 - More crystals form on top of the previous one.

 - the accumulation of the crystals builds a structure upwards called a stalagmite.

 (ii) - The surface rock and the rock beneath the surface should be thick limestone,

 dolomite or chalk.

 - The rock should be hard and well jointed.

 - The climate should be warm or hot.

 - Rainfall should be moderate to high.

 - The water table in the rocks should be deep below the surface.

 (c) (i) - Observation

 - Administering questionnaires

 - Oral interview

 - Taking photographs

 (ii) - Rugged terrain hampers movement.

 - High temperature.

 (d) - The surface and underground features in limestone areas are tourist attraction

 earning the country foreign exchange.

 - Blocks of limestone rocks area used for building houses.

 - Limestone is a raw material for the manufacture of cement.

 - The limestone landscape discourages settlements because its rugged nature and

 scarcity of surface water.

**10.** (a) (i) **Parent material** is the rock debris from which soil forms whereas **bed rock** is the mass of rock which underlies the soil.

 (ii) - Loamy

 - Clay

 - Silt

 - Sandy

 - Gravel

 (b) (i) **Parent rock**

- Parent rock helps to form soil, some parents rock weather faster than others, hence this affect the rate of weathering.

 - Mineral composition of the parent rock determines the mineral component of the resultant soils.

 - aren’t rock determines the texture of the resultant soil.

 **Topography**

- Relief determines the exposure of slopes to the sun, this exposure to sun, cause

 differences in temperature affecting soil types.

 - Gentle slopes develop mature soil.

 - Steep slopes, erosion is greater resulting in immature thin soils.

 **Living Organisms**

 - Break down rocks through burrowing ploughing and root penetration.

 - Influence chemical composition of soil by adding or removing organic acids and

 minerals.

 -Burrowing by animals or ploughing by people improves aeration.

 (ii) - Relief

 - Drainage

 - Transport of soil debris.

 - Leaching

 (c) (i) - Overgrazing

 - Heavy rainfall

 (ii) - They are thin and shallow.

 - They lack humus and have low organic matter content.

 - They are generally saline.

 - They are coarse – textured.

 - They are alkaline because of high lime content.

 - They have low moisture content.

 (iii) - Preserving the existing forests

 - Forestation and growth of soil binding plants.

 - Controlling the cultivation of water catchment areas and river banks.