312/1
GEOGRAPHY
Paper 1
July 2025
Time: 2¾ Hours

SULIMO JET

MARKING SCHEME

1. (a) Differentiate between asteroids and meteors. (2 marks)

Asteroids are small planet-like heavenly bodies orbiting around the sun between Mars and Jupiter, while **Meteors** are small heavenly bodies that enter the earth's atmosphere from the universe at very high speeds, burns up and completely disappears.

(b) State three characteristics of the sun (3 marks)

- This is a star and is the center of the solar system.
- It has the planets and some heavenly bodies orbiting/revolving around it.
- It radiates/produces solar energy.
- It rotates on its own axis in an anticlockwise direction.
- It produces its own light.
- It has gravitational pull.
- It is made up of very hot gases mainly hydrogen and helium.
- It is surrounded by a layer of gas which boils at its surface called corona

2. (a) Identify two types of earthquakes. (2mks)

- Shallow focus earthquake
- Deep focus earthquake
- Intermediate earthquake

(b) Give three ways in which earthquakes affect human activities. (3mks)

- Earthquakes lead to shaking/crumbling of buildings leading to their destruction.
- It may lead to the falling of objects which may lead to loss of life.
- It may damage transport networks making movement difficult.
- It may lead to destruction of electric lines/pipelines resulting to blackouts/fire incidences.

- A large-scale sea wave caused by an undersea earthquake/Tsunami may flood the coastal lowlands leading to destruction of agricultural land.
- Disturbances caused by earthquakes lead to landslides which crush and bury people/property.
- It may lead to collapsing of underground mines which may lead to burying of miners.
- It causes panic/anxiety/emotional shocks.
- It destroys property leading to displacement of people.
- It may damage nuclear plants which pollute the human environment

3. (a) What is climax vegetation? (2 marks)

Climax vegetation refers to the plant cover that has established itself without interference from man in relation to the particular physical environment of climate, relief and soils

b) **State two ways through which climate influences the distribution of vegetation. (2 marks)**

. **Rainfall** –kcse 2020
- Areas receiving high rainfall encourage growth of many varieties of tree species/ luxuriant vegetation/ forest.
- Areas receiving low rainfall have few species/ scanty vegetation.
- Areas of low rainfall have stunted vegetation.

b. Temperature
- Areas experiencing moderate temperatures have a variety of tree species.
- Extreme temperatures/ very low/ very high temperatures leads to scanty vegetation in an area.

c. Wind
- Very strong winds lead to breakage of tree branches or lead to physical damage inhibiting plant growth.
- Winds helps in dispersing seeds and pollination thus enhancing the distribution of vegetation on the Earth's surface.
- Moist winds cause increased precipitation in areas they blow over hence large number of plants.
- Hot dry winds cause dry conditions in areas they blow over hence scanty vegetation

4. (a) What is river rejuvenation? (2mks)

It is the renewal of the erosive power of a river

(b) State three conditions for river capture to occur. (3mks)
- The pirate and Misfit river must flow in adjacent valleys.
- The pirate river should have a wider valley than the misfit river.
- The pirate river must have more active headward erosion than Misfit River.
- The pirate river must be flowing at a lower level than the misfit river.
- The pirate river must be flowing on soft rocks to be eroded more easily.

✓ **(a) Give two features of deposition that result from action of water in arid areas. (2 marks)**

- ✓ Inselberg
- ✓ Pediments and peneplains
- ✓ Pediplains
- ✓ Playa and Salinas
- ✓ Mesas and buttes
- ✓ Dry river valley
- ✓ Alluvial fan
- ✓ Bajada
- ✓ Wadis.

(b) **State three positive effects of desert features. (3 marks)**

i. The unique desert features like barchans/ zeugen are tourist attraction that earns the country foreign exchange.
ii. Loess form deep soils that promote agriculture.
iii. The extensive desert landscape form appropriate site for military training/ nuclear testing.
iv. The extensive desert landscape is ideal for film making.
v. Salt flats are economically used for salt production.
vi. Wind deflation hollows/ oasis are sources of water for agriculture/ domestic use/ attract settlement.
vii. Sand harvested is used for building and construction.
viii. Shifting sand dunes hinder transport activities which hinder settlement.
Ix. Extensive desert landscape form appropriate site for testing car and jet engines

5. Use the map of Tambach 1:50000, sheet 90/3 to answer question 6.

(a) (i) List two physical features on grid 8260. (2 marks)

- Scrubs
- River
- River valley
- Steep slopes
- Gentle slopes

(ii) Measure the distance of the road D36 the north of Northing 70, Give your answer in Kilometer (2 marks)

10.8 +/- 0.1

(iii) Calculate the area of Kaptagat Forest. (2 marks)

Full square = 9/2 = 4.5
Ans= 4.5km²

(b) (i) Give three indicators which shows that the western part of the area covered by the map receive high rainfall. (3 marks)

- Presence of a forest
- Presence of permanent river
- Presence of plantation
-

(ii) Describe the drainage of the area covered by the map. (6 marks)

- There are many permanent rivers
- There are many disappering rivers
- There is a seasonal river
- Most river form a dendtritic pattern including r. kerio
- There are seasonal swamps
- There is a papyrus swamp
- Presence of L. Kapnorok
- The rivers flowing from the escarpment form a parallel drainage pattern.

(c) (i) Enlarge by 2 the area from easting 89 to easting 92 and northing 69 to 72. on the square mark and label the following features.

- Lake kamanorok
- River kerio
- Seasonal swamp
- Air photo principal point No. 80.

(ii) Calculate the new scale of the area drawn.

(d) A straight road is to be built from Tambach town to Muchukwo. State four problems that would be experiences during the construction. (4 marks)

7. (a).Differentiate between a mineral and a rock. (2 Marks)

A rock is a naturally occurring aggregates of mineral particles forming part of the earth's crust, while **Mineral** is an inorganic substance occurring naturally beneath/ at earth's surface.

b i). A part from igneous rocks, give two other types of rocks according to mode of formation. (3 Marks)

- Igneous rocks
- Sedimentary rocks
- Metamorphic rocks

ii). Describe how extrusive igneous rocks are formed. (4 Marks)

- Land forming processes like tectonic movement leads to the formation of lines of weaknesses within the crustal rocks.
- Heat and pressure beneath cause rocks to melt forming magma.
- Magma escape from the earth's interior towards the earth's surface through the lines of weaknesses within the crustal rocks.
- On reaching the earth surface, lava cools rapidly and solidifies to form **extrusive igneous/volcanic rocks** e.g. granite.

iii). State three characteristics of plutonic igneous rocks. (3marks)

- Form from cooling and solidification of magma.
- Form deep inside the crust/great depth.
- Cools slowly
- Form large crystals
- They are coarse textured

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

- Some rock features like granitic tors are tourist attraction earning a country foreign exchange -kcse 2012
- Rocks weather down to form soils which support agriculture.
- Some rocks provide materials for building/construction.
- Some sedimentary rocks contain fossil fuels which are sources of energy for
- domestic/ industrial use -kcse 2012
- Some rocks are source of minerals.
- Some rocks act as storage for water which can be supplied for domestic/ industrial/ agricultural use -kcse 2012
- Some rocks provide raw materials for manufacturing industry e.g. Trona is processed to obtain soda ash used in glass-making industry.
- Some rocks like soapstone are used in carving.
- Some rocks are source of salt/food.
- Some rocks are used for scrubbing human bodies/sharpening tools.

d). Form four students of Highland High school conducted a field study on rocks within their school vicinity.

(i) State how they prepared for the field study. (4 Marks)

- Seeking permission from relevant authorities.
- Conducting a pre-visit or reconnaissance.
- Reading from reference books.
- Conducting discussion in class.
- Consult geography teacher.
- Assembling necessary tools.
- Preparing a route map.
- Formulating objectives and hypothesis.
- Preparing a questionnaire.
- Drawing a work schedule.
- Dividing students into groups.

(ii) State three methods they used to collect statistical data. (3 Marks)

- Observing
- Interviewing
- Sampling
- Note making
- Photographing/video recording/filming
- Counting
- Reading secondary sources/content analysis
- Taking measurements

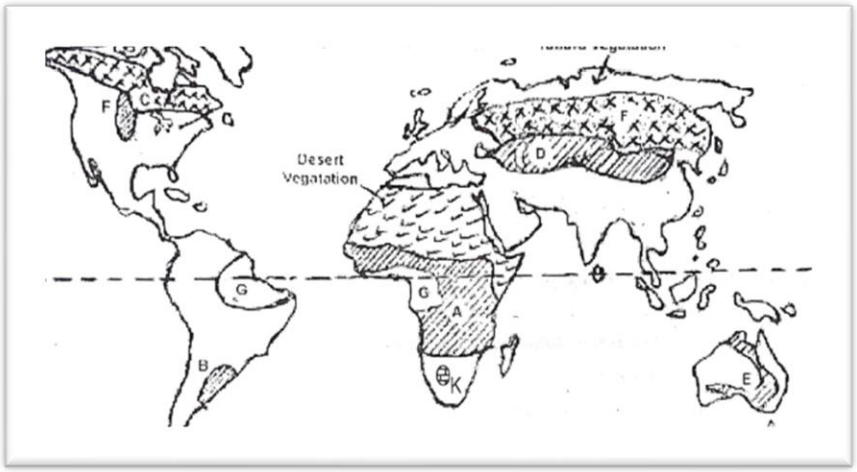
8. a) i) Outline three elements of weather. (3marks)

(i) Temperature
(ii) Humidity
(iii) Rainfall
(iv) Air pressure
(v) Wind
(vi) Sunshine
(vii) Cloud cover

ii) Describe two ways in which distance from water body influenceclimate. (2marks)

- Areas closer to the sea are wetter than those far from the sea due to maritime influence. Maritime air is a wind from the sea.
- During summer, areas far from the sea are drier because the moist onshore winds drop most of their moisture thus bringing dry conditions in such areas. Areas near the sea experience lower temperature because maritime air brings cool winds and also they receive high convectional rainfall.
- During winter, the land loses heat faster than the sea therefore the sea is warmer than the land. Warm onshore winds raises the temperature in coastal regions while places further inland will be cooler.
- Regions on the same latitude but far from the sea will experience very low temperatures because the winds reach there when they have been cooled by the cold land.

b) Use the outline of the world map provided to answer the questions that follow.



i) Name the Climatic regions marked A and G. (2marks)

ii) Describe the characteristics of the Desert vegetation. (5marks)

- Has low rainfall totals/ less than 250mm p.a.
- High temperatures throughout the year.
- Night temperatures are extremely low.
- Low humidity.
- Large annual temperature range.
- Large diurnal temperature range.
- Sandstorms are common.
- Occasional floods caused by scarce and sporadic rains.
- Skies are cloudless at night.
- Strong winds.
- Experiences unreliable rainfall.

iii) Explain three ways in which climatic conditions influence the Tundra vegetation in the region shown. (6marks)

- Winters are very cold with temperature ranging from - 40° C and 0° C.
- Long summers (about 5 months)/ average temperature of 25° C.
- Annual range of temperature is large/ 26° C- 30° C.
- Humidity is high during summer.
- There is precipitation all year round with maxima in summer.
- In winter precipitation is in the form of snow.
- Annual precipitation varies from 600mm to 1000mm.
- In summer winds are onshore.
- Rainfall is both conventional and cyclonic.
- Destructive typhoons are frequent in September.
- Cold continental winds blow offshore in winter lowering temperature.
- Convergence of cold Labrador Ocean current and warm Gulf Stream Drift Ocean current produces fog and mist.

c) You carried out a field study on Vegetation in a nearby forest.

i) Name three ways you would use to identify the vegetation types. (3marks)

ii) Apart from a Camera, list two equipment you would require during your study. (2marks)

- Notebook and pen for writing short notes.
- Camera for taking photographs.
- Geological map for tracing areas of related study.
- Geological hammer for breaking rock samples.
- Jembe/hoe for digging to get soil samples -kcse 2019
- Magnifying lens for viewing specimen.
- Polythene bags for carrying rock samples -kcse 2019
- Route map for showing/locating the area of study.
- Spades for scooping soil to expose rock samples.
- Tape recorder for recording interviews/discussion.

- Tape measure/rulers for measuring.
- Pencils for drawing sketch maps

iv) State three problems you are likely to experience during your study. (3mks)

- Accidents /injuries may occur.
- Possible attack by wild animals like snake/Insects.
- Difficulty in breaking some features like rocks
- Difficulty in identifying some features/rocks
- Fatigue due to difficult terrain.
- Sudden/heavy rain making students to seek a shelter.
- Scorching sun making students to seek a shelter.
- Getting lost/loss of direction
- Inaccessibility of some areas/thick/thorny vegetation/rugged terrain
- Inadequate time for data collection
- Uncooperative/unwilling/absent respondents.

9. a) Define a Coast. (2mks)

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

b) (i) Describe the following processes of wave erosion.

- **Solution (2mks)**

- The solvent and chemical action of the sea water dissolves and removes the soluble minerals that are found in the cliff or sea floor especially where there are limestone rocks.

- **Abrasion (2mks)**

- Rock fragments carried by waves are used as a tool to grind against the cliff face as the waves break. Rock fragments carried by the backwash erodes the sea floor.

ii) State three factors that influence that rate of wave erosion. (3mks)

- **The degree of exposure of the coast to wave erosion.** The exposed coasts are eroded more than the sheltered coasts which reduce the rate of erosion.
- **The duration of exposure of the coast to waves.** The longer the exposure to the coastal waves, the higher the rate of erosion.
- **Nature or supply of materials.** Heavy materials or boulders have a higher erosive power than fine materials.
- **Nature or structure of the coastal rocks.** A coast made up of soft rocks or has well jointed/fractured rocks are easily eroded when subjected to sea waves.
- **Nature or strength of the destructive waves.** Strong waves will cause greater erosion by hydraulic action and abrasion process.

d) **i) State two causes of Emerged Coasts. (2mks)**

- A fall in the sea level.
- An uplift of the coastal land.

ii) State the conditions necessary for the formation of Coral polyps. (3mks)

- The water should be warm about 20°c- 30°c
- The water should be clear from silt/sand.
- The water should be shallow to allow sunlight to penetrate.
- The water should be saline.
- There should be plentiful supply of plankton/microscopic plant food.
- The water should be well oxygenated.
- There should be extensive submarine platforms for the formation of
- colonies by the coral polyps.

ii) Using a well labelled diagram, describe how a blow hole is formed. (5mks)

e) **Explain three economics benefits of coastal features to human activities. (6mk)**

- Submerged coasts like fiords and rias favour the development of ports and harbours.
- Sheltered waters of the fiords provide favourable breeding grounds for fish which are harvested for commercial/domestic purposes.
- Coastal features like sand beaches, caves, fiords attract tourists earning a country foreign exchange.
- Raised coral reefs are a source of coral limestone used in the manufacture of cement for building and construction.
- Coastal features like lagoons, fiords, coral reefs, continental shelf provide suitable grounds for marine life breeding e.g. Malindi marine national park.
- Mudflats support the growth of mangrove trees which provide strong building poles.
- Mangrove trees also provide sites for research purposes in biogeography.
- Coasts form good sites for development of urban centres like New York, Tokyo, Mumbai, Sao Paulo and Rio de Jeneiro.
- Depositional features like sand dunes/coral reefs inhibits water transport and development of ports. Tankers will hit coral reefs causing oil spills.
- Emerged coasts have poor sandy soils unsuitable for growing of a variety of crops.

10. (a) (i) What is a Karst Scenery? (2 marks)

Karst scenery is a limestone/ dolomite/ chalk area/ region where water action has created unique rugged features on the surface and underground.

(ii) Explain three factors which are necessary for formation of Karst Scenery. (6 marks)

- The rainfall should be moderate to high/ humid conditions.
- The temperatures should be high/ hot conditions.
- Presence of hard/ well jointed rocks.
- The water-table should be deep below the surface.

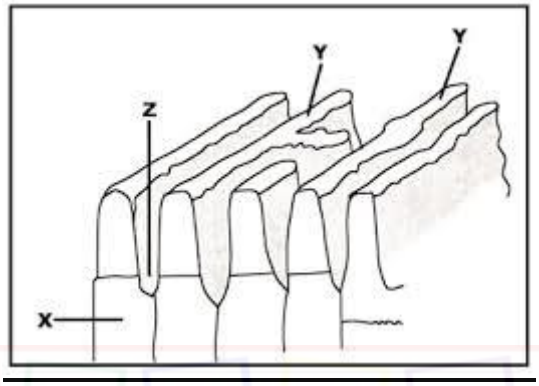
- The area should have thick limestone/ chalk/ dolomite on the surface and beneath.

(b) Describe how the following features are formed;

(i) Underground caves (5 marks)

- They are underground chambers formed in limestone areas.
- Carbonation and solution occurs along the joints and bedding planes of limestone rocks forming a tunnel.
- Further carbonation and solution enlarges the joints/ tunnel to form underground chambers called **caves.**
- Further solution enlarges the cave to form a larger chamber called **a cavern.**

(c) **The diagram below represents surface features, use them to answer the questions that follows.**



(i) Name the parts marked Y and Z. (2 marks)

X- Clints
Y- Grikes

(ii) Explain how the above feature was formed. (4 marks)

- Rain water reacts with carbon (iv) oxide in the atmosphere forming a weak carbonic acid.
- When acidic rain falls, it reacts with limestone rocks forming a soluble calcium bicarbonate.
- Water infiltrating the rocks through the joints enlarges them through solution process.
- The joints are enlarged to become gullies called **grikes.**
- The grikes are separated by ridges/ blocks of limestone called **clints.**

(d) Explain the significance of Karst landscape. (6 marks)

a. Features like limestone pillars and caves attract tourists earning a country foreign exchange.
b. Collapse of dolines and poljes in water table forms solution lakes that provide water for domestic and irrigation use.
c. Limestone blocks are used for building houses.
d. Limestone rocks are raw material in the manufacture of cement used in building and construction.
e. Limestone is used in iron and steel industry to separate iron from other impurities.
f. Limestone regions are very good for grazing sheep.
g. Karst landscape is rugged/ rocky discouraging settlement/ agriculture.
h. Karst landscape has intermittent streams/ no streams leading to scarcity of water supply.

i. Karst landscape has outcrop of bare rocks/ steep sided dry valleys/ gorges hindering development of transport networks.