

**BUNAFAM GEOGRAPHY PAPER 1 EXAMINATION
JUNE 2022**

MARKING SCHEME

SECTION A.

Answer all the questions in this section.

1 (a) Name two theories of the origin of the earth.

Passing Star Theory / Big bang

Nebular Cloud Theory

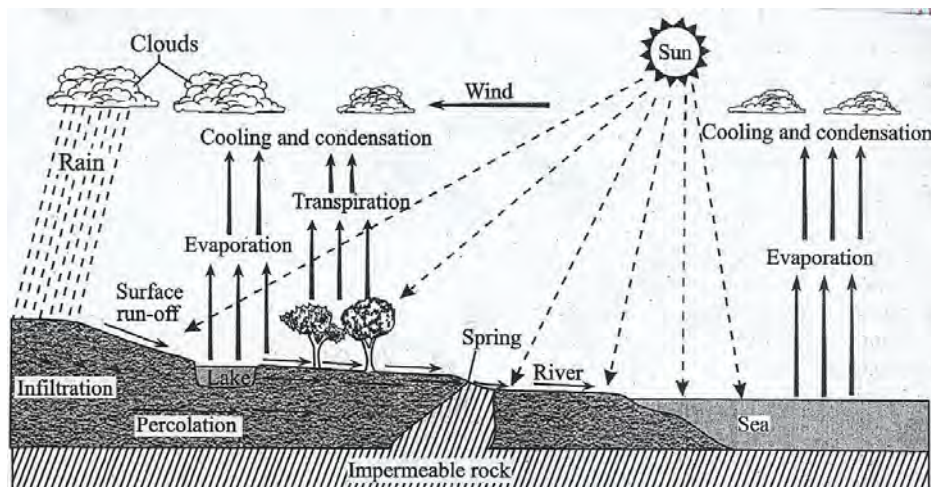
(b) State three effects of the rotation of the earth on its own axis. (3 marks)

- It causes the occurrence of day and night.
- It causes deflection of winds and ocean currents.
- It causes the rising and falling of the tides.
- It causes variation in time at different longitudes.
- It causes difference in atmospheric pressure on the surface of the earth.

2(a) State two ways in which underground water may reach the earth's surface (2marks).

- Through springs / capillary
- Through wells
- Through transpiration.

(b) Draw a well labelled diagram of the hydrological (5marks)



3. Give three reasons why the recording of data at a school weather may be inaccurate (3marks).

- Use of defective instruments
- Human error
- Interference with the instruments
- Poor study of a weather station
- Extreme weather conditions
- Natural calamities

Any 3 x 1 (3marks)

4 (a) What is natural vegetation **(2marks)**

It is the plant cover that grows naturally / wildly on the earth's surface without interference by man or his animals.

(b) State three characteristics of the Mediterranean type of vegetation **(3marks)**

- Some plants have small / thick - skinned / leathery leaves
- Some plants have long tap roots
- Some plants have thick barks
- Some plants have large fleshy bulbous roots
- Some plants have a shiny waxy leaves
- Some trees are deciduous
- Some plants are evergreen

(Accept any other correct point)

5(a) Name two major earthquake zones of the world **(2marks)**

- Circum - Pacific belt
- The Tethyan / Mediterrenean belt
- The Great Rift valley belt
- Mid Atlantic ocean belt

(b) Give three factors that influence the rate of weathering (3marks)

- Rain / Temperature
- Nature of the rock
- Angle of slope
- Living organisms / flora and fauna
- Human activities
- Time

SECTION B

Answer question 6 and any other two questions from this section

6. Study the map of Nyeri 1:50,000 (sheet 120/4) provided and answer the following questions.

a) i) What is the longitudinal extent of the map extract? (2marks)

36°45' - 37°00'E

ii) Give the four figure grid reference of the labour camp near Mweiga estate. (1mark)

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iii) Identify two districts in the area covered by the map. (2marks)

- Nyeri district
- Laikipia district

b) i) Give two methods use to represent relief on the map (2marks)

- Contours
- Trigonometrical station
- Depression symbols

ii) State three problems that maybe encountered during the construction of roads in the area covered by the map (3marks)

- Steep slopes which may necessitate road cutting / many road bends / meanders.
- Many river / river valleys s may lead to the construction of many bridges / culverts
- The high density of settlements may lead to high cost of compensation.

c) Citing evidence from the map, give three reasons why cattle rearing is widespread in Nyeri area. (6marks)

- Presence of scrub and scattered trees shows that there is natural pasture for cattle.
- Presence of many rivers / sources of water show that there is adequate water for cattle.
- The area has high attitude / 1000m which provides cool conditions suitable for cattle rearing
- Dense market / settlement to premarket for cattle / cattle product

d) i) Apart from administration, give three other services provided in the area covered by Nyeri map (3marks).

- Medical services / health services
- Educational Services
- Religious service
- Commercial services / Trading
- Transportation services
- Security
- Tourism services

ii) Describe the distribution of settlement in the area covered by the map.

(4marks)

- There is linear settlement along transport lines and edges of forest.
- Present of clustered settlement in urban centres.
- There is sparsely settlement on Northern part.
- South East areas has dense settlement on Northern part.
- There are no settlement in forested areas / national parks.

iii) Give two factors that favour coffee growing in Nyeri map. (2marks)

- Presence of high rainfall evidenced by permanent rivers and forests.
- High attitude, necessary for coffee growing - 1700M

- Dense settlement in coffee growing area evidenced by labour lines, clustered settlement in southern area.
- Several feeder roads connecting to all weather road of evidenced by road numbered D434, E576.

7) (i) Apart from fold mountains, name three other features resulting from folding (3marks)

- Synclinal valleys / Depressions
- Rolling plains
- Ridges
- Intermontane basins / Intermontane plateaus.

ii) On the outline map of Africa provided, name the feature marked x, y and z. (3 marks)

- X - Atlas mountains
- Y - Cape ranges
- Z - Ethiopian highlands



b) Describe the formation of Fold Mountains (5marks)

- Geosyncline are formed on the earth's surface
- Prolonged and extensive erosion occurs on the surrounding higher grounds.
- Sedimentary are deposited in the geosyncline forming thick layers.
- The weight of the sediments cause subsidence of the geosyncline triggers off compressional forces which draw the higher grounds closer.
- The sediments wrinkles at the edges to form Fold Mountains.

c) (i) Name four major orogeny

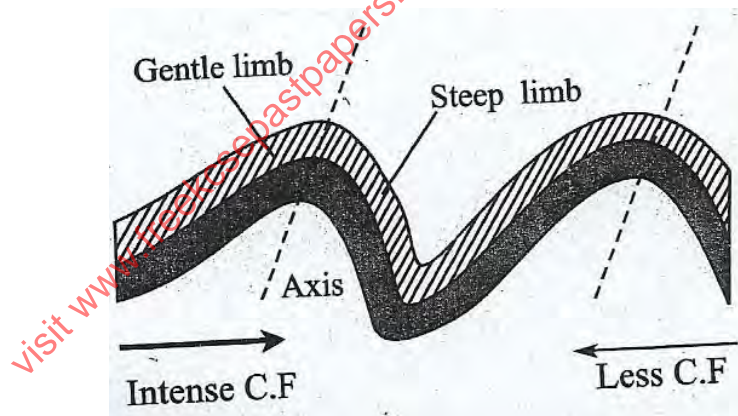
(4marks)

- Charnian orogeny
- Caledonian orogeny
- Hercynian / Armenian orogeny
- Alpine orogeny

ii) Using a well labelled diagram describe the formation of an Asymmetrical fold

(6marks)

- Crustal rock layers are subjected to unequal compressional forces.
- The compressional force is stronger on one side than the other.
- This forms a fold with one limb steeper than the other.
- The limbs are not symmetrical from the axis and thus called asymmetrical fold.



(d) Explain two ways in which Fold Mountains influence climate (4marks)

- Temperature of land slopes that face the sun are warmer than those facing away from the sun (aspect)
- Wind slopes of Fold Mountains receive higher rainfall while leeward slopes have lower rainfall due to the rain shadow effect.
- Higher attitudes of Fold Mountains experience low temperature that cause the formation of snow and ice on the slopes.

- Fold Mountains may cause temperature inversions as cold dense mountains winds slow down to the valley bottoms at night and push up the warm air in the valleys.
- High attitudes of Fold Mountains lead to lowering of pressure and temperature upwards.

8) a(i) What is a river divide (2marks)

It is a ridge / high ground that separates two or more river basins.

ii) Describe three ways by which a river transports its load. (6marks)

- Traction / Rolling / Sliding
- The large and heavy particles of the river load are rolled / dragged along the river bed.

Saltation / hopping / hydraulic lift; particles that are not too heavy but cannot remain suspended in water are momentarily lifted by the water turbulence and at times dropped onto the river bed.

Solution - Soluble minerals are dissolved in the river water and carried away in solution.

Suspension / floating in water, light particles of the load are carried and maintained within the turbulence of flowing waters.

Any 3 x 2 (6marks)

(b) Describe the characteristics of river in its old stage (4marks)

- The speed of flow is low
- Gradient of the plain is low
- River forms pronounced meanders
- There is formation of river terraces / bluff / cliffs
- Presence of small islands / braided channels / river braids.

(c) Describe each of the following drainage patterns

i) Superimposed drainage pattern (3marks)

The drainage system develops on a rock structure that overlay a totally different one.

The river valley cuts through the surface rock layers on the underlying rocks. Gradually the surface rocks are removed and the underlying rocks now become exposed on the river bed.

The river maintains its original directions of flow despite the new rock structure.

The superimposed drainage bears no relationship to the existing rock structure / it is discordant with the rock structure.

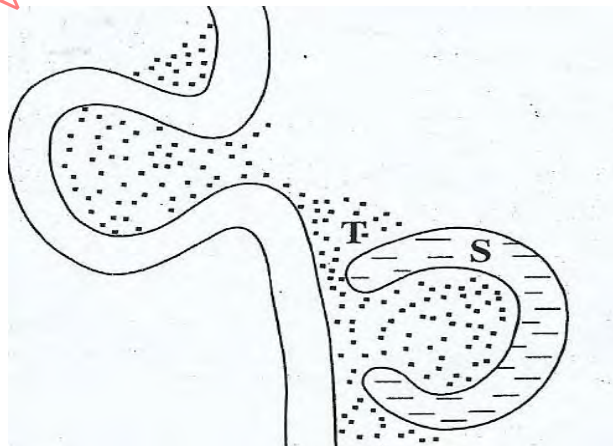
ii) Centripetal drainage pattern (2marks)

The pattern develops in an area with a central basin. Rivers drain into the depression from different directions.

d) (i) What is a delta (2marks)

It is a low - lying plain platform of alluvial deposits of silt or mild at the month of a river.

ii) The diagram below shows a section of a river. Use it to answer the questions that follow.



Name the features marked S and T (2marks)

S - Ox bow lake

T - Alluvial deposits

iii) State four conditions that are necessary for the formation of the feature marked S (4marks)

- Presence of pronounced meanders in the flood plain
- Heavy load being carried by the river.
- A reduction in the river gradient / reduction in the river energy to erode vertically / low velocity.
- Lateral erosion on the outer side of the river banks
- Deposition on the inner side of the river banks
- Periodic flooding

9 (a) Describe the following characteristics of minerals

i) Colour (2 marks)

Different minerals display different colours e.g. minerals that have iron have dark colours.

ii) Cleavage (2marks)

Minerals have patterns in which they break, some minerals break into thin layers while others break along layers.

iii) Hardness (2 marks)

This is the measure of resistance of a mineral to disintegrate. Some minerals such as diamond have a high resistance while others such as talc are soft.

b) (i) Give two types of igneous rocks (2marks)

Intrusive rocks / plutonic / hypatyssal rocks

Extrusive rocks / volcanic rocks

iv) Explain three conditions necessary for the growth of coral polyps (3marks)

- They require warm water / 20^o - 30^oc in order to live
- They require well oxygenated water for them to grow fast

- They require water that is free from sediments because silt interferes with their ability to gather food.
- They require enough light in the water for the growth of plankton which is the food for polyps.
- They require saline water from which the polyps extract lime to construct their skeletons.

c) Describe three ways in sedimentary rocks are formed (9marks)

Mechanically formed sedimentary rocks:- Rock fragments are transported by wind / water / ice. They are deposited in layers, over a long period of time they are compacted into a hard rock.

Organically formed sedimentary rocks:- Remains of plants. Animals are deposited in layers, over a long period of time, the remains are compacted forming a hard rock.

Chemically formed sedimentary rocks:- Dissolved minerals are transported into water bodies. They are then transported into water bodies, they are then precipitated / evaporated over a long period of time, the precipitates / evaporates are then compacted to form a hard rock.

Way - 1 mark

Description - 2marks

d) (i) What is rock metamorphism? (2marks)

- A process where pre-existing rocks undergo physical and chemical changes to form new rocks due to heat or pressure.

(ii) State THREE causes of heat and pressure during rock metamorphism.

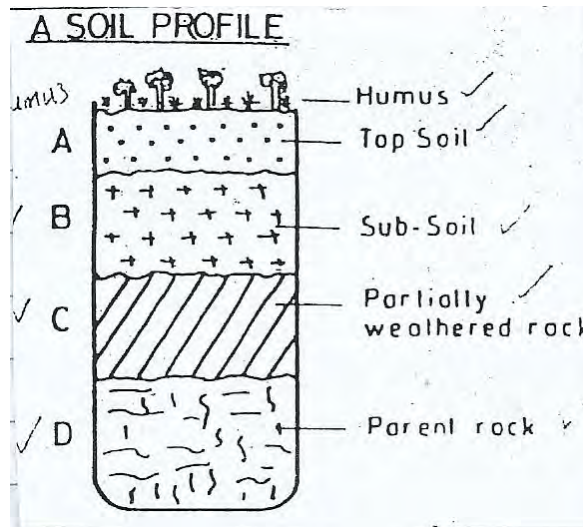
(3marks)

- Compressional forces earth movements.
- Heat from hot magma.
- Weight from the overlying rock layers.

10 a (i) What is soil catena (2marks)

Soil catena is the sequence of different soils on a slope.

(ii) Draw a labelled diagram to show a well developed soil profile.



(iii) State three characteristics of soils found in the arid regions of Kenya

(3marks)

- The soils are light in colour
- Some are saline
- Some are sandy / stoney
- Some are in loose texture
- Some are thin
- Some have low moisture content.

(b) Give three factors that determine the colour of soils

(3marks)

- The type of parent rock
- The amount of organic matter / humus
- Chemical composition / degree of concentration of iron oxides
- Amount of water in the soil / the drainage of the soil

c) Describe how lateralization occurs

(6marks)

During the wet season, mineral salts in the top layer of the soil dissolves in rain water.

The dissolved minerals percolate / seep downwards from the top soil to the sub soil.

The dissolved minerals are deposited further downwards to the lower layer.

Insoluble minerals such as iron and aluminium accumulate on top layers to form a crust of laterite.

During the dry season some of the soluble minerals are moved from the bottom layers to the top of the soil by capillary action.

d) Describe how the following types of erosion occur.

i) Sheet erosion

(2marks)

This occurs on gentle slopes which are bare when heavy rain falls, water spreads over a large area. As water moves, it removes the top layer of soil evenly over the area.

ii) Gulley erosion

(2marks)

It occurs on steep slopes.

Rain water cuts deep groves / channels / rills on the slopes. The channels are widened and deepened to form gullies.

d) Give two factors that influence the thickness of a soil

(2marks)

- Nature of the bedrock
- Rate of weathering of parent rock which is determined by its mineral composition.
- Length of time taken for the soil to develop
- Vegetation cover

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