GEOGRAPHY FORM 2

OPENER EXAM TERM 2 2023

MARKING SCHEME

TIME: 2½ HOURS

SECTION A

1. a) What is the time at station Y 30°W when the time at point Z 20°E is 4.00 p.m.

$30 + 20 = 50°$

$1° = 4$ min

$50° = ?$

$50 \times 4 = \dfrac{200}{60} = 3$ hrs 20 min

Time at Y = 4.00

+ 3.20

7.20 p.m.   (2 mks)

b) Three effects of revolution of the earth.

- Changes the position of midday sun at different types of the year
- Varying length of day and night
- Causes lunar eclipse
- Causes four seasons

(Any 3 x 1 = 3 mks)

2. a) Effects of the following forces on the shape of the earth.

i) Centrifugal force – causes bulging at the equator

ii) Centripetal force – pulls poles towards each other and causing flattening

iii) Gravitation force – pulls towards the centre causing rounding effect

1

(3 x 1 = 3 mks)

b) Why the interior of the earth is hot.

- Pressure exerted by overlying rock masses

- Radioactivity/Radioactive decay

- Process of cooling – outer part cooled faster than inner part therefore inner part retains much of original heat

(Any 2 x 1 = 2 mks)

3. Conditions for formation of dew.

- Daytime should be warm to accelerate evaporation for provision of water vapour

- Calm air so that air can remain in contact with ground long enough to be cooled below its dew point

- A cloudless night as this accelerates the rate at which the earth loses the heat during the night

(3 x 1 = 3 mks)

4. Characteristics of extrusive rocks.

- Forms small crystals

- Fine grained/fine texture

- Some are porous

- Cooling and solidification is extremely rapidly

(3 x 1 = 3 mks)

5. a) Reasons why it is necessary to study the plate tectonic theory.

- It explains the current position of continents

- Enables one to understand the creation of structural landforms

- Explains the destruction of structural landforms

- Helps one to understand how the earth maintains balance/isostacy

- Explains the causes of earthquakes/volcanicity

(Any 2 x 1 = 2 mks)

b) Name two types of tectonic plate boundaries.

- Divergence/Extension/Constructive
- Convergence/Compressional/Destructive
- Transform/Conservative

(Any 2 x 1 = 2 mks)

SECTION B

6. a) Types of maps studied in geography.

- Topographical maps
- Atlas maps
- Sketch maps

(3 x 1 = 3 mks)

b) Ways of locating places on maps.

- Use of place names
- Use of latitudes and longitudes
- Use of grid references
- Use of direction/bearing/distances

(3 x 1 = 3 mks)

c) Marginal information on a map sheet.

- Map series
- Sheet name/title
- Sheet index number
- Grid system
- Scales
- Key
- Edition/publisher/copyright
- Latitudes and longitudes

3

(Any 4 x 1 = 4 mks)

d) i) The total annual rainfall

2038mm (2 mks)

ii) Wettest month

July (1 mk)

iii) Annual range of temperature

$30 - 23 = 7^{o}c$ (2 mks)

iv) Mean annual rainfall

$2038 \div 12 = 169.83mm$ (2 mks)

v) The hottest month

October (1 mk)

e) Instruments which could have been used to collect the data in the table above.

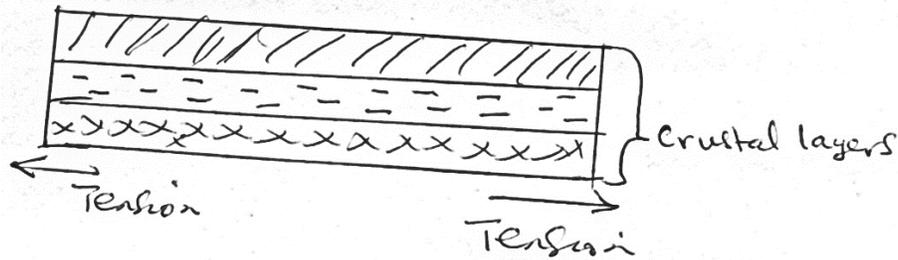- Rain gauge
- Thermometer

(2 x 1 = 2 mks)

7. a) Relief features formed as a result of faulting.

- Tilt block
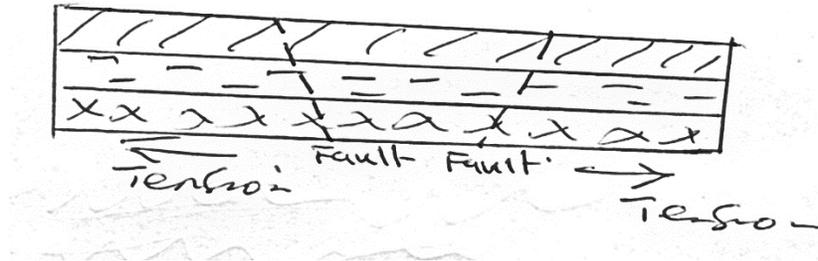- Escarpment/fault scarp
- Block mountain/horst
- Fault steps

(Any 3 x 1 = 3 mks)

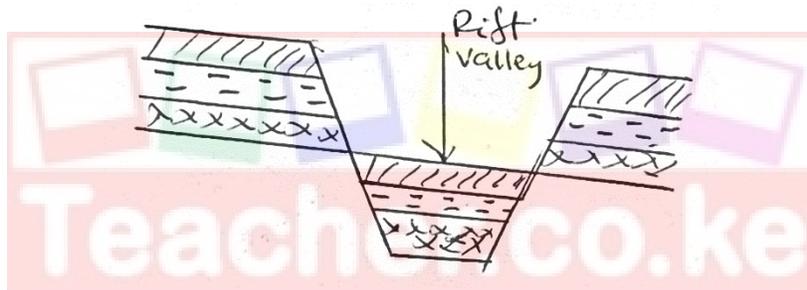b) Formation of rift valley through tension force.

- Crusted rocks are subjected to tension force

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- Continued tensional forces results to the development of normal parallel faults.

- The middle block sinks as the side blocks are pulled apart.

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<u>Text – 4</u>

<u>   8</u>

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c) Reasons why it is important to carry out a pre-visit.

- To familiarize with the area of study

- To enable them draw a route map

- Enables them to prepare a work schedule

- Enables them to identify the relevant tools/equipment of study

- Enables them to prepare financially/estimate cost

- Enables them to estimate time for the study

- Enables them to contact people whose assistance will be needed during the study

- To assess the suitability of the area for the study

- Enables them to draw objectives/hypothesis
- Enables them to identify suitable method of data collection
- Enables them to identify the possible problems and look for solution in advance

(Any 4 x 1 = 4 mks)

8. a) i) Three features found in rift valley of Kenya.

- Hot springs
- Crater/caldera/crater lake
- Volcanic cones/mountains
- Lava plateaus/plain
- Plug dome/spines
- Ash and cinder cones
- Fumuroles/solfatara

(Any 3 x 1 = 3 mks)

ii) Two negative effects of vulcanicity in Kenya.

- Some volcanic features create barriers making construction of transport and communication lines expensive
- Rugged nature of volcanic landscapes make settlement and agriculture difficult
- Volcanic mountain range create a rain shadow effect which result in aridity
- Recent volcanic lava flows have poorly developed soils unsuitable for agriculture

(Any 2 x 1 = 2 mks)

iii) Describe the characteristic of composite volcano.

- It has a vent or pipe
- It is composed of alternating layers or ash/and lava
- It is conical in shape/steep sided
- It has side vents
- It has conelets/parasitic cones on the sides
- At the peak it may have caldera/crater/plug

(Any 3 x 1 = 3 mks)

b) i) Name two types of earthquake waves.

- Primary/push/p-waves

- Secondary/shear/s-waves

- Longitudinal/l-waves

(Any 2 x 1 = 2 mks)

ii) Five ways in which the earth's crust is affected by earthquake.

- Earthquake cause lateral/vertical displacement of rocks

- They cause raising/lowering/uplifting and warping of parts of the sea floor

- Cause raising/lowering of land

- They cause landslides/slumps

- They lead to faulting of the crust

- They lead to volcanic eruptions

(Any 5 x 1 = 5 mks)

9. a)   What is a rock?

- A rock is an aggregate of mineral particles forming part of the earth's crust.

(2 mks)

b)   Classify the rocks listed in the table below.

Name of rock	Class
Marble	Metamorphic
Gneiss	Metamorphic
Peridotite	Igneous
Sandstone	Sedimentary
Granite	Igneous

(5 x 1 = 5 mks)

c) i) Methods of estimating the age of rocks.

- Radio-carbon dating

- Relative dating

- Absolute dating

(Any 2 x 1 = 2 mks)

ii)   Factors that influence metamorphism in rocks.

- Resistance of the rock to crushing

- Grain size of the rock being changed

- Porosity of the rocks

- Solubility of the constituents of the rocks

- Chemical action of the minerals

- Stability of the minerals that are produced

(Any 4 x 1 = 4 mks)

d)   Characteristics of sedimentary rocks.

- They are stratified

- They contain fossils

- They are non-crystalline

- They are formed from sediments

- They are formed from sediments of pre-existing rocks

(Any 2 x 1 = 2 mks)

10. a) i) Examples of non-metallic minerals.

- Diatomite

- Coal

- Soda ash

- Soap stone

- Fluorspar

- Limestone

- Gemstone

- Salt

(Any 2 x 1 = 2 mks)

ii) Minerals mined in the following areas in East Africa.

    I.   Kereita in Limuru Kenya – Carbon (IV) oxide

    II.   Geita in Tanzania – Coal

    III.   Kilembe in Uganda – Copper

(3 x 1 = 3 mks)

b) Describe how shaft mining is carried out.

- Vertical shafts are sunk beneath the earth's crust to the mineral deposit
- Horizontal tunnels are dug to reach the minerals
- Props/beams are erected to the support of the roof of the tunnel
- Mineral is dug, blasted or drilled
- Minerals are transported by rail tracks or conveyor belts from the bottom to the surface

Sequence must be followed   (5 x 1 = 5 mks)

c) Name three conditions necessary for the formation of petroleum.

- Pressure of sedimentary rocks
- Presence of organic remains and fossils
- Presence of porous rocks
- Presence of non-porous rocks
- Presence of pressure to compress the organic remains

(Any 3 x 1 = 3 mks)

d) State two effects of mining on environment.

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- Pollution from poisonous gases and dust causing respiratory diseases
- Dereliction of land
- Mining leads to soil erosion
- Loss of biodiversity

(Any 2 x 1 = 2 mks)