FORM 4 END OF TERM 2 EXAM

GEOGRAPHY
Paper 1
July 2018

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1. a. Name the two layers of discontinuity that make up the interior structure of the earth.

- Mohorovicic / moho
- Gutenburg

(2 ×1 = 2 marks)

b. State three characteristics of the outer core in the interior structure of the earth.

- Outer core is composed of molten rock material.
- It is made up of iron and nickel
- It is estimated to be about 2100 Km to 2890 Km thick.
- It has temperatures ranging from 3700 ^{O} C to 5000 ^{o}C.
- It has an average density of 10.0 gm \ cc to 12.3 gm \ cc

(Any 3 × 1 = 3 marks)

2. **a. The diagram below shows an eclipse. Name the features marked V and W.**
- V - The sun
- W - The moon

b. Four proofs that the shape of the earth is spherical.
- The gradual emergence of a ship approaching the shore.
- Circumnavigation of the earth along a straight path leads one to the starting point from the opposite direction.
- The different times during which the sun rises and sets in different parts of the world.
- The appearance of the middle pole to be relatively higher than other poles placed along a straight line on a level ground at equal distance.
- The circular shape of the earth seen on photographs taken from satellites.
- The circular shadow cast by the earth during a lunar eclipse.
- The earth is a planet and all planets are sphere.

(4 × 1 = 4 marks)

3. a. Give three causes of earthquakes. (3 marks)
- Gravitative pressure / force / p
- Divergence / convergence / collision / shearing / divergence
- Movement of magma within the earth's crust.
- Volcanicity / folding / faulting
- Isostatic adjustment
- Energy release from the mantle
- Blasting of rocks / explosion / construction of dam

(3 × 1 = 3 marks)

b. Name two major earthquake zones of the world. (2 marks)
- The Circum - Pacific belt
- The tethyan / Mediterranean belt
- The great rift valley belt
- Mid– Atlantic ocean belt

(Any 2 × 1 = 2 marks)

4. a. What is weathering? (2 marks)
- Weathering is the breaking down / disintegration and decomposition of rocks at or near the earth's surface in situ (by physical or chemical process)

b. Give three factors that influence the rate of weathering.

- Climate
- nature of the rock
- Topography / angle of slope
- Living organisms / flora and fauna
- Human activities
- Time

(Any 3 × 1 = 3 marks)

5. a. What is land breeze?

- It is a mass of cool air blowing from the land to the sea during the night.

(2 marks)

b. Give two ways in which sea breezes influence the adjacent land.

- It lowers temperature of adjacent areas.
- It may increase (relative) humidity.
- it moderates diurnal range of temperature
- it may lead to convectional rainfall

(2 marks)

SECTION B

6. a. i. The longitudinal extent of the area covered by the map.

- $34^{0}30'$ E $34^{0}45'$ E

(2 marks)

ii. Types of vegetation.

- Forest
- Woodland
- Scrub
- Riverine trees

Any (3 marks)

b. Economic activities.

- Trade - presence of market
- Transport and communication - Presence of all weather road
- Forestry - presence of forest

Any (3 marks)

c. i. Four proofs indicating the area receives high rainfall.

- Presence of permanent rivers i.e. R. Awach Tende
- Presence of natural forest e.g. Kodera forest.
- Human activities like coffee growing
- The dense population

(4 marks)

ii. Measure the length of all weather road from rigid reference 918418 to 930360. state the answer in kilometers and meters.

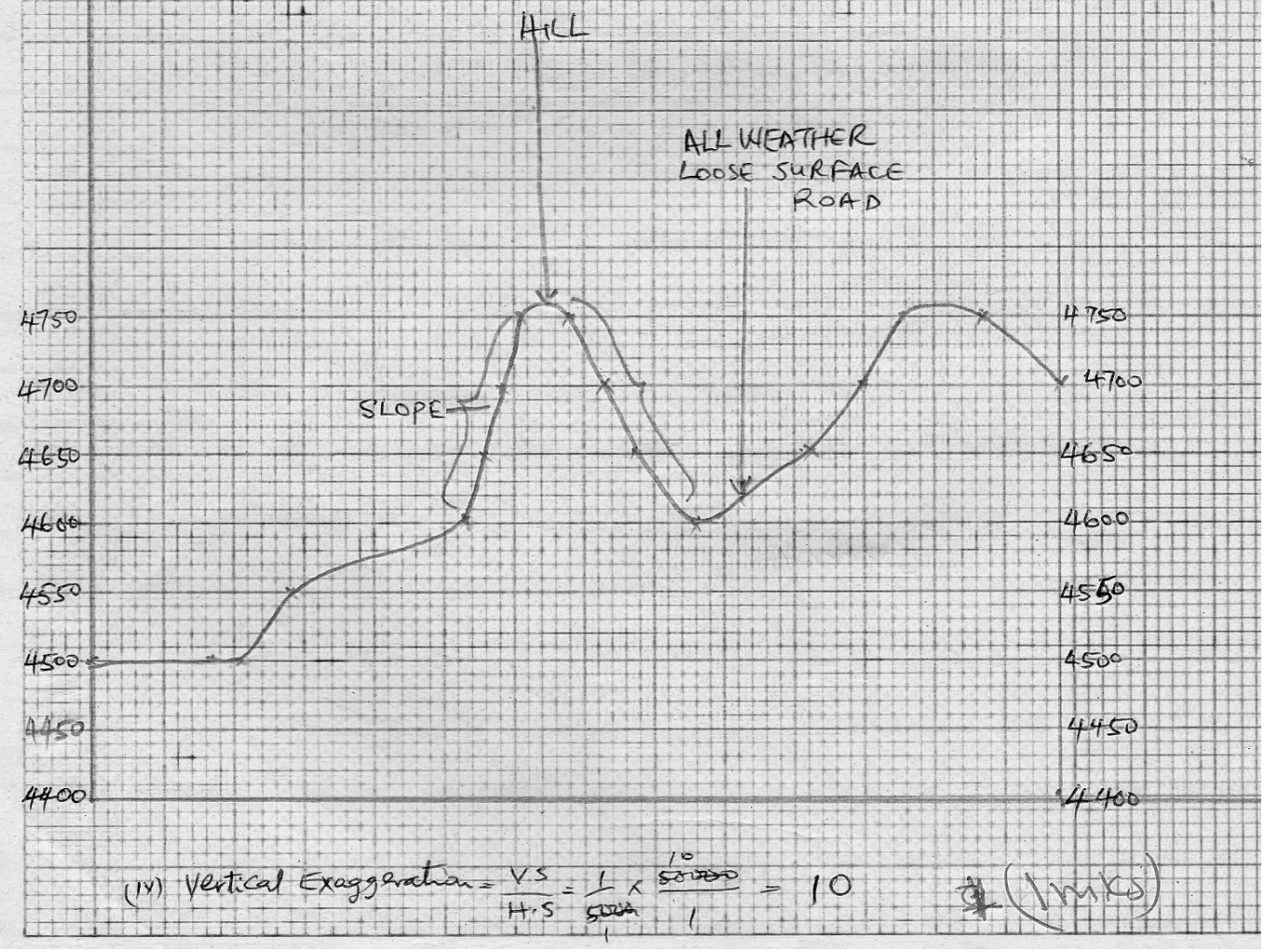
- 8 Km 500 m (2 marks)

d. Describe the drainage of the area covered by the map.

- There are many permanent rivers in the area covered in the map.
- Some rivers drain in the swamp e.g Isanta
- Some rivers are disappearing in the underground at grid square 8419.
- Some rivers have formed dentritic pattern i.e R. Riana
- The main river is R. Riana
- Rivers on the southern side of the area covered by the map are flowing from East to the Western side of the area covered by the map.
- Rivers in the Northern side of the area covered by the map are flowing Northward.

(4 marks)

CROSS-SECTION FROM EASTING 77 TO EASTING 84 ALONG NORTHING 25 ON OYUGIS MAP SHEET NO. 130/1



(iv) Vertical Exaggeration $= \frac{VS}{H \cdot S} = \frac{1}{5000} \times \frac{10}{1} = 10$ (1mks)

7. a. i. Give four reasons why weather forecasting is important.

- Weather forecasting enables farmers to plan their farming activities.
- it helps people to choose the clothing for the day.
- It influences designing of the houses and guides in landing of aircrafts.
- Helps in planning military activities.
- It guides fishing activities.

(3 marks)

ii. Three conditions that lead to fog formation.

- The air must have sufficient moisture.
- Clear sky / absence of clouds allow free terrestrial radiation.
- Air must be cooled to below dew point.
- The wind must be light / calm conditions to help hold the water droplets in suspension.

(3 marks)

b. Aspect. **(2 marks)**

- In the Northern hemisphere of temperate regions, North facing slopes are cooler as they do not receive direct sunshine . Southern facing slopes are warmer because they receive direct sunlight.
- In the southern hemisphere of temperate regions, North facing slopes are warmer while the south facing slope are cooler.
- Windward slopes receive higher relief rainfall as they trap moist prevailing winds which rise through orographic effect.. Leeward sides have little or no rainfall due to the rain shadow effect.
- Windward sides have warm, moist rising winds while the leeward sides have descending warm, dry wind with drying effect on the lower slopes of mountain sides.

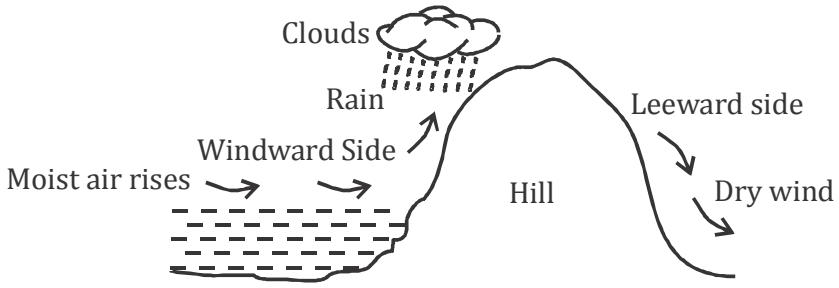
Altitude **(2 marks)**

- Temperature decreases with increase in height above sea level at 6.5^{o} C for a rise of 1000m.
- Lower altitudes have a longer column of air that retains a lot of heat. Higher altitude have a shorter column of air (arefied) leading to cooling which lower temperature.
- At higher altitudes there is a cooling and condensation of rising moist air resulting in rainfall.
- temperature is higher at low altitudes than at high altitudes as the air is heated from below and not directly from the sun.
- Lower areas have a higher atmospheric pressure caused by the longer column of air while higher areas have lower atmospheric pressure due to the shorter column of air.

Distance from the sea. **(2 marks)**

- During summer onshore winds transfer a cooling effect from the sea to the land making coastland cooler than areas further inland.
- During winter, onshore winds transfer a warming effect from the sea to the land making coastland warm. As the winds move further inland, they are cooled by the cold land resulting in low temperature.
- Onshore winds may cause a lot of rain to fall along coastland areas throughout the year. Area further inland receive less rain especially during the summer as the winds have dropped moisture at coastal areas.

c. Relief (Orographic) rainfall



- Water in a lake or sea is heated causing evaporation of moisture.
- moist air forced to move horizontally by a wind.
- The moist wind is forced to rise up the hill on the windward side.
- As the air rises, it expands which causes cooling.
- the moisture condenses and form clouds.
- The clouds then form relief rainfall

- the rainfall on the windward side
- The cool air then crosses over the hill and descends on the leeward side as a dry wind.
- Little or no rainfall on the leeward side. (6 marks)

d. i. Three advantages of studying weather through fieldwork. (3 marks)
- Enables students to collect the first hand information.
- It helps students to develop manipulative skills.
- Enables students to apply the knowledge learned in the classroom.
- Makes learning interesting .
- Provides detailed or in depth or broadened learning.
- Enhances visual memory.
- breaks the classroom monotony (3 marks)

ii. **Formulate a suitable hypothesis**

- The area of study receive high rainfall. any correct and relevant (1 mark)

iii. Follow– up activities
- Discussing the findings.
- Analyzing the data.
- Writing a report
- Giving relevant advice to the state
- Drawing sketches
- Displaying photographs / sketches

(3 mark)

8. **a.** **Magma** is the molten rock material which originates from the interior of the earth, cools while below the earth's surface (and has large crystal) while **lava** is the molten rock materials that has reached the surface. (has solidified and has small crystals.

(2 marks)

b. E - Dyke
F- Lapolith
G- Sill

c. i. Crater
- Eruption of lava trough a central vent causes building up of a core.
- the lava in the vent cools and contracts.
- The cool larva withdraws in to the vent leaving a shallow depression of the core
- Gas explosions may blow away surface rocks causing a crater.

Examples
Mt. Longont
Menengai
Mt.Suswa
Mt. Marsabit

(3 marks)

ii. A geyser **(5 marks)**
- The rain water percolates down through cracks in the rocks.
- The water gets in to contacts with hot igneous rocks.
- The water is super heated and gases /steam form
- Pressure builds up in the cracks.
- The pressure causes steam and water to be ejected explosively jet to the surface intermittently
- The water and steam are emitted intermittently as pressure level changes.

Example - Lake Bogoria.

iii. A lava plateau
- It is formed when magma reach the surface of the earth through series of vent / fissures.
- The larva is extremely ultra basic
- the lava spreads evenly over a large area.
- the lava cools slowly and solidifies.

Example - Yatta plateau
Uasin Gishu plateau
Laikipia plateau

(4 marks)

d. -Volcanic highlands / mountains are sources of rivers which provide water for domestic / agricultural / industrial use.
- Volcanic rocks weather down to form fertile volcanic soils which support agriculture.
- Volcanic rocks are important building materials in the construction industry.
- Volcanic features are tourists attractions which promote tourism.
- Volcanic mountains / highlands influence formation of relief rainfall which encourages agricultural activities.
- Volcanic highlands / mountains modify temperatures making them attractive to human settlements.
- Volcanic features such as steam jets and geysers provide suitable sites for geothermal power generation

(4 × 2 = 8 marks)

9. a. i. What is an ice sheet? (2 marks)
- It is a continuous mass of ice covering a large area / surface.

ii. Give two reasons why there are no ice sheets in Kenya. (2 marks)
-Kenya experience high temperatures under which ice sheets cannot form.
- Most parts of Kenya have low altitudes.
- Kenya is found at low latitudes

iii. Explain three factors that influence the movement of ice from the place of accumulation (6 marks)
- Gradient of the land - Ice move faster when the slope is steep.
- Temperatures / Seasonal changes - higher temperatures result in to thawing, leading to faster movement of ice.
- Nature of the surface - When the surface on which ice is moving is rough, it causes friction lowering the speed of the movement of ice / smooth surface increase speed of movement of ice.
- Size / thickness of glacier - large masses of ice exert pressure which lead to melting of ice underneath. This increases the speed of ice movement.

(3 × 2 = 6 marks)

b. **Describe how an arête is formed (4 marks)**
- Two adjacent cracks / hollows exists on a mountain side.
- The two hollow / cracks are filled with ice.
- The ice erodes the sides through plucking and deepens the hollow through abrasion.
- Through erosion, the back walls of the hollows slowly recede.
- Eventually the hollows / cirques are separated by a knife edged ridge .
- the ridge is called an arête.

(Any 4 × 1 = 4 marks)

c. The diagram below shows types of moraines in a valley glacier.
i. Name the type of moraines marked S, T and V. (3 marks)
- S - Medial (1 mark)
- T - Lateral (1 mark)
- V - Terminal (1 mark)

ii. Explain four positive effects of glaciations in lowland area. (8 marks)
- Glacial till provide fertile soils for arable farming.
- Ice sheets in their scouring effect reduce the land surface and depth to expose mineral seams which become easy to extract.
- Outwash plains comprises of sands and gravel which are used as materials for building and construction.

- Lakes formed through glaciation can be exploited for various economic uses such as fishing, transportation or as tourist attraction.
- Glaciated lowlands are generally flat due to erosion and depositions and are ideal for construction of buildings and communication lines.

(4 × 2 = 8 marks)

10. a. Explain the factors that cause movement of ocean waters (6 marks)

- **the prevailing winds -** Wind blows over the water surface causing a frictional drag that makes the water to move horizontally towards the same direction with that of wind.
- **The earth's rotation -** In Northern hemisphere, winds and current are deflected to the right while in the southern they are deflected to the left.
- **Shape of the land masses -** Due to land mass ocean current changes direction and follows the outline of the coasts.
- **Salinity of water -** Highly saline water is denser thus causing sinking and less saline water floats hence the vertical movement.
- **Convergence of the surface** current makes water to sink and move vertically downwards.

b. **State two factors that influence transportation of material along the coast. (2 marks)**

Waves - Strong waves can carry large quantities of materials over a long distance.

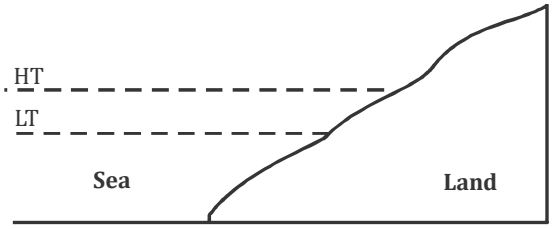
Tides - high tides extend the area under the influence of waves further up the beach as waves break further inland.

Ocean currents - are responsible for the movement of materials from one part of the ocean to the other end on to the beach.

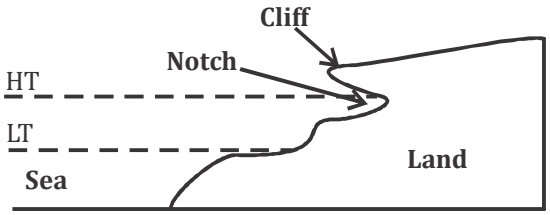
Nature of load - Light particles are suspended while soluble materials are dissolved and both transported over long distances.

ii. With the aid of a well labeled diagram describe the formation of wave cut platform. (8 marks)

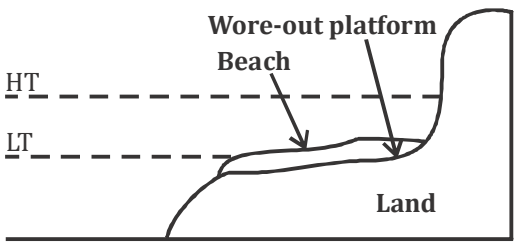
- This is the shore line before wave action. Abrasion and hydraulic action attack the region between the high tide and low tide level.



- This is the shoreline acted upon by breaking wave cut a notch at the high tide level. There is little offshore deposition



- Due to continuous undercutting , the overhanging collapses and a cliff form. The plane and a beach appear as deposition becomes significant



c. i. State two causes of coastal sub mergence (2 marks)

- Subsidence of the coastal land due to local faulting leading to the sinking of the coastal land and part of the sea floor or due to the ocean bed rising due to isostatic movement.
- A positive change is base level due to an increase in the ocean water change.

ii. Name two types of sub merged upland coasts (2 marks)

- Ria coasts
- Dalmation / longitudinal coasts
- Fiord coast

d. State five benefits of coastal land forms.

i. Coastal features like beaches, caves act as tourists attractions which earns a country income and foreign exchange.
ii. Some coastal features like coral reefs, lagoons provide suitable habitats for marine life.
iii. Sheltered waters of fiords offer suitable sites for breeding of fish hence promote fishing.
iv. Rias like the one at Kilindini has favored the construction of a deep well sheltered harbor.
v. Emerged coral reefs weather to provide coral limestone that is used to make cement.
vi. Emerged coastal plains provide land which is used for settlement and construction of transport routes.

Any 5 x 1 = 5mks