

WESTLANDS SUB-COUNTY JOINT EXAMINATION

Kenya Certificate of Secondary Education (K.C.S.E)

MARKING SCHEME

Geography (312/1)
Paper 1
JULY/AUGUST 2016

SECTION A - ANSWER ALL QUESTIONS

- 1 a) - Causes four seasons - spring, summer, autumn and winter.
- Causes varying lengths of day and night at different times of the year.
- Causes changes in the position of the midday sun at different times of the year.

(3mks)

- b) Difference in longitude

$$10^{\circ} + 37^{\circ}E = 47^{\circ}$$

$$15^{\circ} - 1 \text{ hr} = \frac{47 \times 4}{60} = \frac{47}{15} = 3 \text{ hrs } 2 \text{ mins}$$

$$47^{\circ} - ?$$

$$\begin{array}{r} 10.00 \text{ am} \\ 3.02 \\ \hline 6.58 \text{ am} \end{array}$$

(2mks)

2. a) What is desertification (2 mks)
- It's slow but steady encroachment of desert like - conditions onto potentially productive agricultural land.

- b) State three negative effects of desertification in Kenya
(3 mks)

- Led to the development of infertile soils.
- Population pressure due to migration of people from arid areas during drought.
- Desertification has encroached on productive land making it useless.
- Under development of arid areas since they are not economically productive.
- Exposed land to severe soil erosion hence water catchment areas have been destroyed causing shortage of water.

3. a) Give three reasons why some lakes in Rift valley are saline (3 mks)

- Some lakes lack outlets in the form of rivers.
- High rate of evaporation
- Surface run-off and rivers dissolve a lot of salt from the rocks on which they flow.
- Some lakes do not have enough fresh waters emptying into them.
- The rocks over which the lake water is in contact with may contain a lot of mineral salts.

- b) Identify two natural ways in which lakes

are formed (2 mks)

- Earth movement
- Volcanicity
- Erosion
- Deposition.

4. a) State three natural causes of earth quakes
(3 mks)

- Tectonic causes
- Magma movement within the earth crust
- Gravitational pressure
- Isostatic adjustments
- Energy release in the mantle.

- b) Give two effects of earth quakes in built up areas (2 mks)

- Earth quakes cause sea waves called Tsunamis which cause flood which drown buildings neighbouring the coast.
- Causes landslides which bury people alive
- Causes big cracks in buildings.
- When earthquakes occur in densely populated areas they cause a lot of damage to property.

5. a) State two reasons why wind action is more effective in the hot desert. (2 mks)

- The presence of loose unconsolidated dry masses of soil.
- The occurrence of strong, tropical storms.
- The absence of vegetation cover

- b) Name three features resulting from wind erosion in the desert areas. (3 mks)

- Rock pedestals
- Mushroom blocks
- Zeugen
- Yardangs
- Deflation hollows and oases

SECTION B:

Answer questions 6 and any other two questions

6. a) i) The height of Odiado hill is 1568 meters above sea level. (1 mk)

- ii) The bearing of Ndanyi hill at grid square 3030 from Kanzala hill at grid square is

$\frac{2837}{150^\circ}$

(2 mks)

iii) The length of the provincial boundary from 263280 to 340289 (2 mks)
13 km 700m

b) ii) The two points are not intervisible
1mk

c) Describe the drainage of the area covered by the map (4 mks)

- The area covered by the map has permanent rivers e.g. river nasewa, kironondo
- There are seasonal swamps on the northern side of the area covered by map and papyrus swamp on the western side.
- The main river is Sio in the area covered by map.
- River Nasewa and its tributaries from dendritic drainage pattern
- there are vanishing rivers in the area covered by map
- river Sio flows toward South-West

d) Citing evidence from the map, give three social services offered in the area covered by the map

(3 mks)

- Health services - dispensary (2230) hospital (2431)
- Educational services - school (3535)
- Religious centre - mission (2231)
- Recreational service - rest house (2331)

e) Explain three factors that have influenced trading activities in the area covered by the map (6 mks)

- There is ready market from dense settlement in the area covered by map hence many trading centres
- Well developed transport network e.g. all weather roads loose surface in the area covered by map to transport goods to the market
- Availability of security e.g. police post, chief camp e.t.c. which ensure that traders are secure.

7. a) Folding - a process of crustal distortion which causes the rocks to bend upwards or downwards.

1 x 2 = 2 mks

ii) Overfolds are asymmetrical folds caused by a very Strong force pushing against a very resistant rock resulting in the anticline being pushed over the limb at the next fold whereas recumbent folds are overfolds which are completely pushed over on one side such that they lie in a horizontal manner.

1 x 2 = 2 mks

b) Three other features resulting from folding other than fold mountains

- Rolling plains
- Ridges and valleys
- Intermontane basin
- Intermontane plateau

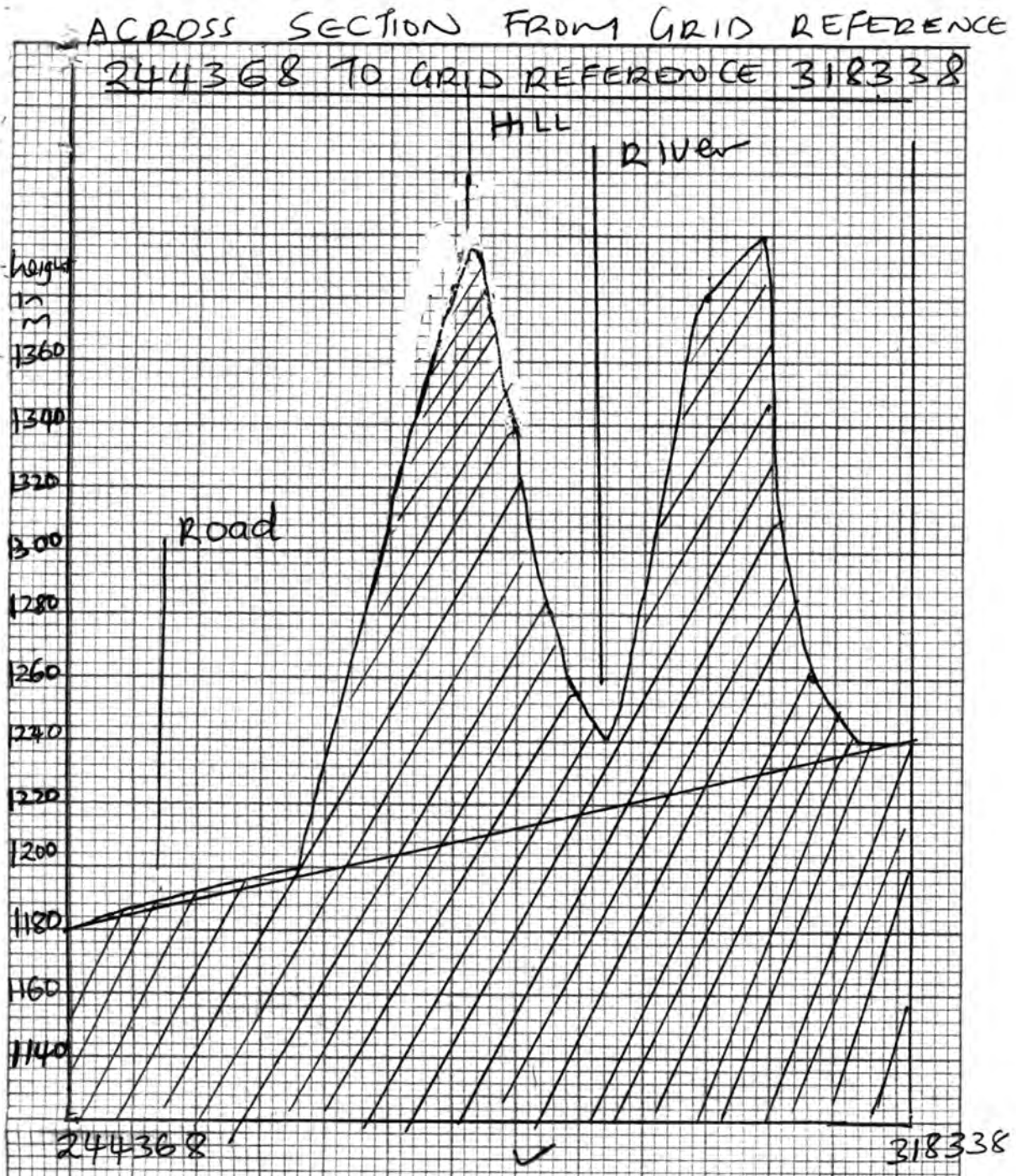
1x1 (3 mks)

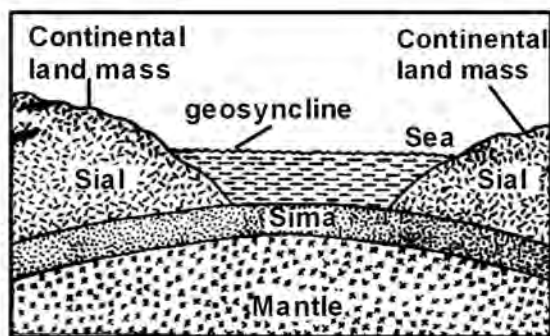
ii) Extensive shallow depressions called geosynclines develop on the earth's surface

- Prolonged and extensive erosion occurs on the surrounding high grounds.
- Sediments are deposited in the geosyncline forming thick layers
- The weight of the sediments causes subsidence of the geosyncline leading to the accumulation of more sediments to great thickness.
- Further subsidence of the geosyncline triggers of compressional forces which cause the sediments to fold.
- The folded layers of sediments in the geosyncline are thrust upwards to form fold mountains along the edges of the geosyncline due to the closeness of the source of the forces.

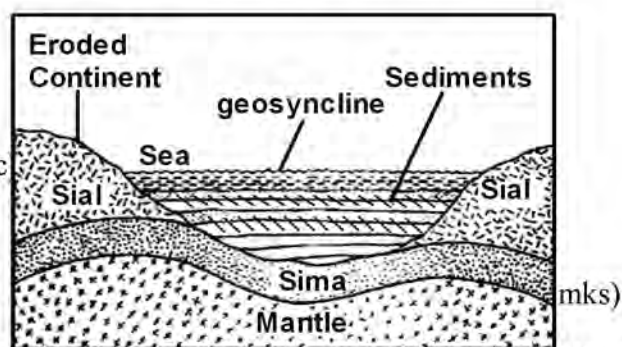
Texts - 5 mks

Diagrams - 3 mks

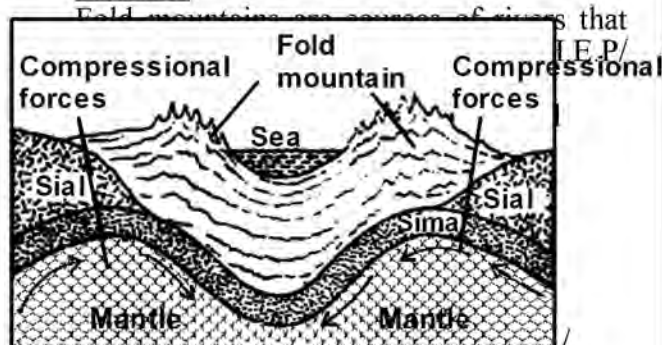




Formation of a geosyncline



Geosyncline fills with sediments



Sediments fold to form mountains

show covered slopes that earning

- Windward slopes of fold mountains receive heavy rainfall that enhances agricultural activities.
 - Lee ward sides of fold mountains create rain shadow effect which results into aridity/discourage crop farming.
 - Some fold mountains may act as barrier to transport and communication make construction of transport & communication lines difficult/ expensive
- any 3 x 2 = 6 mks

8. a) Plutonic rocks are formed when magma cools and solidifies below the earth's surface whereas volcanic rocks are formed on the surface of the earth when lava has solidified.

1 x 2 = 2 mks

- ii) - These are rocks which have been formed by compaction and cementation of the sediments which have been laid down on land or water.
- When pre-existing rocks are broken down

into sediments. These sediments transported by water, wind or glacier.

- Sediments are then deposited in layers/ strata
- The layers are then compacted by pressure of overlying materials and become sedimentary rocks with time
- These rocks are also called clastic rocks

1 x 1

(5 mks)

- ii) Type of mechanically formed sedimentary rocks

- sandstone, claystone, mudstone, loess

1 x 2 (2 mks)

- b) i) Three ways in which metamorphic rocks are formed

- When existing rocks are subjected to great heat (thermal)
- When existing rocks are subjected to great pressure (dynamic)
- when existing rocks are subjected to both great heat and pressure (thermal dynamic) making them change both in appearance and character

1 x 3 (3 mks)

- ii) Fill in the table below

1 x 1

(3 mks)

- c) Ways in which rocks contribute to the economy of Kenya

- Some rocks form tourist attractions Kit Mikai & hence earn foreign exchange
- Provide employment hence raising living standards of people
- Rocks contain minerals which when mined earn income to the people
- Some rocks are used in building and construction industries
- Some stones such as Kisii soapstone, marble are sold to make carvings that are sold to earn income.

3 x 2 = 6 mks

- d) i) Methods of data collection

- Direct observation
- Administering questionnaire

- text books

Interviewing	Metamorphic rock
Original Rock	
Experimentation	
Sand stone	Quartzite, slate
Granite	
Coal	Graphite
Slipping & falling	

- Bad weather e.g. heavy rain
- Attacks of wild animals e.g. snakes
- Poor transport due to impassable roads
- Tiredness/ fatigue due to steepness of the area.

9. a) i) The soil catena is the sequence of different soils down a slope **2mks**
ii)

each layer 1mk
Total 4mks

iii)

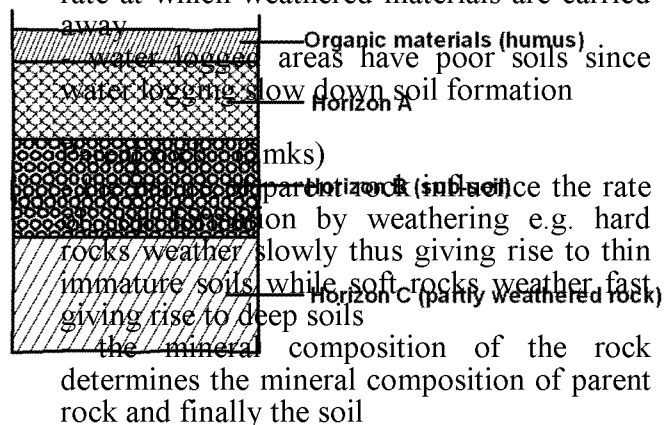
- There is no moisture in the soil.
- Soils are light coloured
- Soils are sandy
- They are saline in some places

3mks

- b)i) - The soil structure refers to the way soil particles are grouped together into different particles while soil texture refers to the composition of a particular soil in terms of the size of particles
2mks

ii) Topography (2mks)

- steep slopes have thin soils due to high rate at which weathered materials are carried downslope
- valley bottoms have deep soils due to slow rate at which weathered materials are carried



- large grained rocks produce large grained soils while fine grained rocks produce fine grained soils

Time (2mks)

- soils which has taken longer time is deeply formed (deep soils) while soils that take short time to mature are thin

c) i) Burning (2 mks)

- Bush fires expose the soil to agents of erosion
- Burning kills the micro-organisms that contribute to soil formation.

2mks

ii) Continuous application of fertilizers

- Some minerals are not soluble in water through the process of leaching some minerals remain on the surface as a deposit.

2mks

iii) Monoculture

- Growing of a single crop over along period of time in the same land removes specific mineral nutrients from the soil making it infertile

2mks

d) State three significance of soils

- give physical support for the rooting systems of plants
- habitats for bacteria which are necessary for breakdown of organic matter into humus
- medium through which plants absorb water
- provide mineral elements of nitrogen
- used for building and construction
- used in ceramics e.g. pot making

3mks

10. a) i) A river divide is a boundary that separate two neighbouring basins.
2mks

ii) The processes of river erosion are

- Solution
- Hydraulic action
- Attrition
- Corrosion

3mks

b) i) Processes of river transport are

- Suspension
- Saltation
- Traction
- Solution

4mks

ii) Formation of a meanders

diagram 2mks
 Explanation 4mks
 Total (6 mks)

- In mature stages river flows sluggishly due to reduced gradient.
- it meets obstacles and flows around it
- Erosion on the outer bank and deposition on the inner bank causing the river to form loop like bends.
- Erosion continues on the outer bank narrowing the land between the two outer banks forming a pronounced meander.

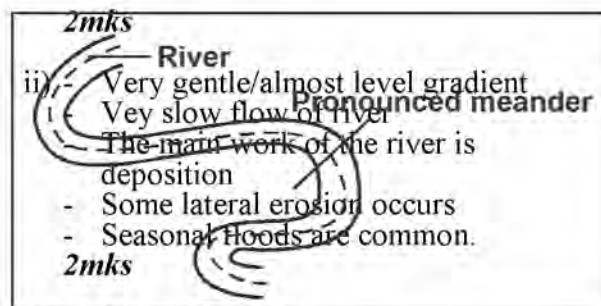
c) i) This is the diversion of head waters into the system of an adjacent powerful river due erosion. 1mk

ii) At first there is a powerful river and weaken river flowing adjacent to each other.

- The powerful river erodes vertically and laterally than the weak river making it to flow as a lower level.
- At the same time, it extends its valley backwards by headwards erosion.
- The stronger river eventually joins the valley of the weak river.
- The headwaters of the weaker river start flowing into the valley of the stronger river.

Meander 3mks

- d) i) - Avoid time wastage
 - To show the direction
 - To show where the features are



- ii) - Very gentle/almost level gradient
 - Very slow flow of river
 - The main work of the river is deposition
 - Some lateral erosion occurs
 - Seasonal floods are common.
- 2mks
- iii) - Group discussion
 - Report writing
 - Group leaders/ read reports to class
 - Displaying pictures