KITUI COUNTY MOCK
END OF TERM II FORM FOUR EXAMINATION, 2017
Kenya Certificate of Secondary Education (K.C.S.E)
312/1
GEOGRAPHY
PAPER 1
MARKING SCHEME

1. **a) Three ways how air pressure influences weather**
   - Low air pressure areas usually experience convergence of winds e.g. at the equator the S.W winds meet the N.E winds (Trade) to form the I.T.C.Z resulting into rainfall
   - High pressure areas usually get winds moving away (diverging) and this leads to dry conditions without rainfall
   - Lower atmospheric pressure increases the amount of water vapour (humidity) into the atmosphere and the higher the atmospheric pressure the lower the humidity

   (3 marks)

   b) Two Global winds
   - Trade winds
   - Westerlies
   - Polar winds

   (Any 2 x 1 = 2 marks)
2. **a) Chemically formed sedimentary rocks**
   - Travertine / Dolomite / Rock salt
   - Gypsum / Haematite / Trona

   b) Conditions necessary for formation of coral
   - Warm water whose temperature is between 20 to 30 degrees Celsius
   - Shallow water with the depth of less than 60 m
   - Saline ocean water / salty water
   - Clear and well oxygenated water free from silt / mud
   - Submerged conditions even at low tides

   (Any 3 x 1 =3 marks)
3. **a) Two theories that explain the origin of the earth**
   - Passing star theory
   - Nebula cloud theory

   b) Three proofs that the earth is oblate spheroid
   - It is possible to circumnavigate the earth as was done by Magellan in 1519
   - The fact that there is a difference of 1 hour between fifteen degree meridians apart show the sun is first seen in eastern part of the world then the western side
   - The shape of the shadow cast on the moon during the eclipse of the moon is spherical
   - The horizon of the earth viewed form above in the atmosphere is spherical
   - An approaching show will show the smoke first and the a gradual appearance
   - Through a telescope other planets have shown a spherical shape and the earth being one of the planets should be spherical

   (Any 3 x 1 = 3 marks)
4. **a) Categories of lakes formed by earth movement**
   - Down warped lakes – Lake Victoria, Lake Kyoga
   - Rift valley lakes – Lake Nakuru, Lake Baringo, Lake Bogoria

   (2 marks)

   b) Examples from East Africa
   - Down warped lakes – Lake Victoria, Lake Kyoga
   - Rift valley lakes – Lake Nakuru, Lake Baringo, Lake Bogoria

   (Any 2 x ½ = 1 mark)
5. **a) Definition of hydrological cycle**
   - It is the interchange of water between land, sea and air through the process of evaporation, precipitation and percolation of water into the ground and the surface run-off

(2 marks)

b) Factors that determine the amount of water that sinks into the ground or flows on the surface

- The prevailing climate conditions
- The type of soil
- The nature of the landscape
- The underlying geological structure

(4 marks)

6.

a) i) Identify two human made features found at the grid square 2320

- Bridge / mc call's bridge
- All weather road loose surface

(2 marks)

ii) What is the altitude of the highest point in the area covered by the map?

- 2362 metres a.s.l

(2 marks)

iii) Three types of vegetation found in the area east of easting 40 and north of northing 27

- Forest
- Scrub
- Woodland
- Scattered trees
- Thicket

(Any 3 x 1 = 3 marks)

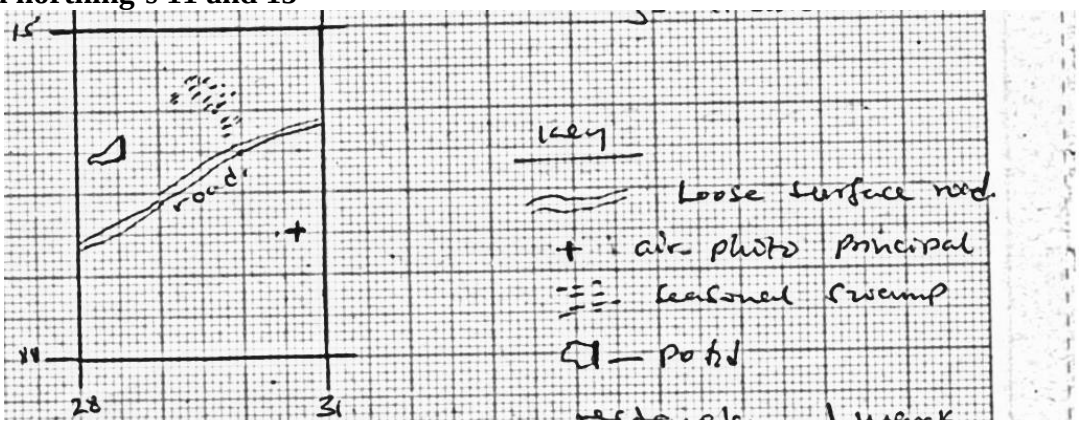
b) i) Bearing of air photo principle point at grid square 2931 form the air photo principle point at grid square 3426

- 318 ± 1 (317º – 319º) (2 marks)

ii) Measure the distance of the dry weather road (C640) form the junction at point M(345142) to the junction at N(416200)give your answer in kilometres

- 12.1 km ± 0.1 (12.0 – 12.2 km) (2 marks)

c) i) Draw a rectangle measuring 3 cm by 4 cm to represent area bounded by easting's 28 and 31 and northing's 11 and 15



Rectangle 1 mark

Every feature 1 mark x 4 = 4 marks)

ii) On the rectangle draw, mark and name the following;

- Loose surface road
- Air photo principle point
- Swamp
- Pond

(4 marks)

d) i) Identify four social services offered in Kitale Municipality

- Educational services – school at grid square 2614
- Transportation – roads e.g. C638
- Commercial service / Trading – e.g. presence of shops
- Religious services – churches
- Health services – hospital grid square 2312

(Any 4 x 1 = 4 marks)

ii) Describe the drainages of the area covered by the map

- The main drainage feature is rivers
- The main river is river Koitobos
- Most of the rivers are permanent
- The main river flows from North West towards south east
- There are numerous seasonal swamps towards the western part of the map
- Many tributaries join the main river forming dendritic pattern e.g. grid square 2419
- There are many dams in the area covered by the map e.g. grid square 3910
- Many rivers disappear into the swamps e.g. grid square 2520

7.

a) i) Polar / cold climate (1 mark)

ii) Ocean currents marked R and S

R – Canary ocean current

S – Gulf stream

(2 marks)

b) Characteristics of the climate marked T

- Temperatures are high throughout the year at about 27ºC (5ºC)
- Experiences high rainfall of between 1500mm and 2000mm evenly distributed throughout the year
- Experiences a double maximum rainfall region / two rainy seasons caused by overhead sun twice a year
- The region also has high humidity due to heavy rainfall and high evaporation rates
- Major winds experienced at the south-east and north-east trade winds
- Experience low pressure all year round thus no distinct season
- Rainfall is mainly convectional type usually accompanied by thunderstorms; highlands experience relief / orographic rainfall

(Any 4 x 2 = 8 marks)

c) How the following factors influence climate

i) Altitude

- This is the height above sea level
- Low lands are usually warmer than the highlands because the atmosphere becomes thinner as altitude decreases where the ground losses heat faster
- Atmospheric pressure decreases with increase in altitude. This is due to the weight of atmospheric air above highlands being less than in lowlands

(4 marks)

ii) Distance from the sea

- During hot seasons, coastal lands are relatively hotter than inland areas on the same latitude due to the existing effects of the sea breezes. By the time the sea breezes reach inland areas, they have adopted to the temperature of the land over which they are passing
- Coastal land receives more rainfall than the interior of continents. This is due to the coats receiving moist winds from the sea but by the time the winds reach inland areas they are usually dry

(4 marks)

d) i) Effects of climate change to the physical environment

- High rainfall results to flood that will a proof vegetation
- High temperature results to drying of vegetation
- Ice will melt leaving the mountain tops bear

(Any 2 x 2 = 4 marks)

ii) Climatical conditions experienced in the Sahara desert

- Low annual rainfall (less than 250mm) dry climate
- Occasional flash floods / sporadic rains
- Clear skies / clear sunny days / high terrestrial radiation
- High temperature during the day
- A large diurnal range
- Strong winds
- Develops low pressure in summer and high pressure in winter

- High mean annual temperature
- Large mean annual range of temperature
- Intense solar radiation
- Unreliable rainfall
- Low humidity
- High evaporation rate
- Sudden rainfall

(Any 2 x 1 = 2 marks)

8.

a) i) Factors that influence glacial erosion

- Nature of the rock
- Speed of glacier
- Thickness and weight of ice
- Availability of debris

(Any 2 x 1 = 2 marks)

ii) Parts labeled 1 to 6

- 1 – Cirque
- 2 – Rock step
- 3 – Rock Basin Lake
- 4 – Moraine dammed lake
- 5 – Terminal moraine lake
- 6 – Fluvial glacial deposits

(6 marks)

b) Ways in which tills are formed at the coast

- Ablation till is formed when ice melts
- Lodgement till is formed when till is deposited when the ice at the top of glacier reaches its melting point when the ice is still moving
- Basal till is formed when the lower debris rich layers are slowed down by an obstacle
- A flow till is when the debris found at the top of the glacier flow into the depressions that are within the ice
- A till plain is formed when the till covers the ground forming irregular landscapes with small hills and depressions

(Any 4 x 2 = 8 marks)

c) i) What is erratic?

- It is a large boulder of rock layer which has been transported by a glacier and hence rests on a country rock that is very different form its own origin

ii) Examples of erratic's

- Lower slope of Mt. Kenya at Teleki valley side
- Kimberly district in South Africa
- South eastern Ireland
- Northern Germany

(Any 3 x 1 = 3 marks)

d) i) Types of interviews

- Oral
- Question based

(2 marks)

ii) Problems the researcher would have experienced

- Windstorms and related diseases
- Blowing sand that reduce visibility
- Sand blown by the wind would also reduce smooth running of the researcher

(Any 2 x 1 =2 marks)

9.

a) What is natural vegetation?

- Is the plant cover that exists on its own in an area without the interference of external modifying influences like people and animals

(Any 1 x 2 = 2 marks)

b) i) Types of vegetation found in the following countries

- **New Zealand** – Downs
- **Argentina** – Pampas
- **South Africa** – Veld

(3 marks)

ii) State two factors why mountain tops have no vegetation

- Temperature ids too low / too cold to support plant growth
- There is no soil to support plant growth / bare rock
- Precipitation / water is in the frozen state

(Any 2 x 1 = 2 marks)

c) i) Explain four ways in which coniferous forest is adapted to the climate conditions

- Trees have needle-like leaves which helps to reduce water loss during winter
- Trees have waxy skin which protects them from cold winters
- Trees have conical shape which allows snow to slide off easily and therefore minimum demand to trees
- Trees are evergreen which enable them to maximize utilization of sunlight during short summers
- Tress trunks are flexible enabling them to sway / bend without breaking when there is presence of winds
- Trees have shallow roots which are widely spread to enable them to utilize moisture form the top soil because sub-soil is mostly frozen
- Trees have thick barks with a slot of resin which protects them from frost

(Any 4 x 2 = 8 marks)

ii) Explain how two following factors influence the distribution of vegetation;

Altitude

- At high altitudes where temperature is very low vegetation cover is low
- At low altitudes where temperature is very high there is dense vegetation

(2 marks)

Human beings

- Human beings influence vegetation positively through afforestation and negatively through felling of trees and burning of charcoal

(2 marks)

d) i) State four reasons why it is necessary to have a route map

- Identifying the direction to take
- Estimating the distance to be covered
- Estimating the time likely to take
- Planning schedule of activities
- Identifying the location of different tree types

(Any 4 x 1 = 4 marks)

ii) Give two reasons you need a tape measure

- To measure the height of trees
- To measure the width and length of identified area of the forest / area of the section identified

(2 marks)

10.

a) i) What is soil?

- Soil is the uppermost surface layer of loose or unconsolidated material which overlies the crucial rocks and on which plants grow

(2 marks)

ii) Three components of soils

- Air / gases
- Water / moisture
- Organic matter / humus inorganic matter / minerals

(Any 3 x 1 = 3 marks)

b) i) Soil layers marked B, C, and D

- **B** – Subsoil
- **C** – Weathered parent materials
- **D** – Bedrock

(3 marks)

ii) Two main processes of formation of soil in horizon A

- Elluviation
- Leaching

(2 marks)

iii) Characteristics of soil in horizon B

- Consists of mainly silicate clays
- Made up of hard pan (laterite)
- Soils are prismatic (columnar)
- It is a zone of illuviation / enrichment
- Soil is generally dark in colour
- Calcium carbonate / gypsum is present

(Any 4 x 1 = 4 marks)

c) Explain how the following helps in the maintenance of soil fertility and quality

Crop rotation

- Growing of different types of crops on the same piece of land prevents soil exhaustion since different crops require different nutrients form the soil hence soil fertility in improved

(2 marks)

Mixed farming

- Keeping of animals and growing of crops in the same piece of land improves the fertility of the soil. This is because manure form the animals is used to enrich the soil with minerals

(2 marks)

Bush fallowing

- When land is cultivated for some time and left to rest for a given period it improves the quality of soil in that the land regains its fertility during the period of rest

(2 marks)

d) State five uses of soils to human activities

- Soils are used in building and construction
- Some soil types are used as raw material for pottery / ceramics / bricks / tiles
- Soils are used for agriculture
- Some soil types are sources of valuable minerals
- Some soils are mixed with herbs and sold for medicinal purposes
- Some soils are directly used as food

(Any 5 x 1 = 5 marks)