

11.0 GEOGRAPHY (312)

The year 2010 KCSE Geography examination was presented in two papers: **paper 1 (312/1)** covers the “physical geography and map reading” while **paper 2 (312/2)** examines “Human and economic geography, photographic interpretation skills and simple arithmetic calculations”. Each of the two papers had ten (10) questions.

This report analyses the performance of candidates in the year 2010 Geography examination papers, paying special attention to the poorly performed items. It looks at what the questions tested, the candidates’ weaknesses and possible reasons for their poor performance. It also gives advice to Geography teachers with the aim of improving future performance in the subject.

11.1 GENERAL CANDIDATES’ PERFORMANCE

The table below shows the overall performance in Geography over the period 2007 to 2010.

Table 17: candidates overall performance in Geography for the last four years

Year	Paper	Candidature	Maximum Score	Mean Score	Standard Deviation
2007	1		100	45.50	19.82
	2		100	48.14	16.37
	Overall	103,288	200	93.62	34.00
2008	1		100	35.91	17.10
	2		100	38.08	16.35
	Overall	109,745	200	74.01	31.92
2009	1		100	33.29	16.54
	2		100	42.56	15.87
	Overall	112,446	200	75.73	30.88
2010	1		100	37.26	17.07
	2		100	38.00	14.62
	Overall	112,402	200	74.98	30.36

The following observations can be made from the table above:

- 11.1.1 The candidature decreased slightly from **112,446** in 2009 to **112,402** in 2010.
- 11.1.2 There was an improvement in performance in paper 1 (312/1) from a mean of **33.29** in 2009 to **37.26** in 2010. However, there was a drop in performance in **paper 2 (312/2)** from a mean of **42.56** in 2009 to **38.00** in 2010.
- 11.1.3 The decline in the performance of **paper 2** to a mean of **38.00** led to the decrease in the overall mean to **74.98** in 2009 from **75.73** in 2009.
- 11.1.4 The best performance over the four year period was in the year 2007 which had an overall mean of **93.62**.
- 11.1.5 The standard deviation in both papers shows a reasonable spread of candidates’ scores.

The overall performance of the subject declined as some questions were performed poorly. These will be discussed in the following section.

11.2 PAPER 1 (312/1)

The performance of candidates in this paper improved from a mean of **33.29** in 2009 to **37.26** in the year 2010. This report looks at questions 6(c)i and 7 (a) which were performed poorly.

Question 6 (c) i (Mapwork)

Explain three factors which have influenced the distribution of settlement in the area covered by the map.

Weaknesses

Many candidates only mentioned the factors that influence distribution of settlement without mentioning the distribution.

Expected response

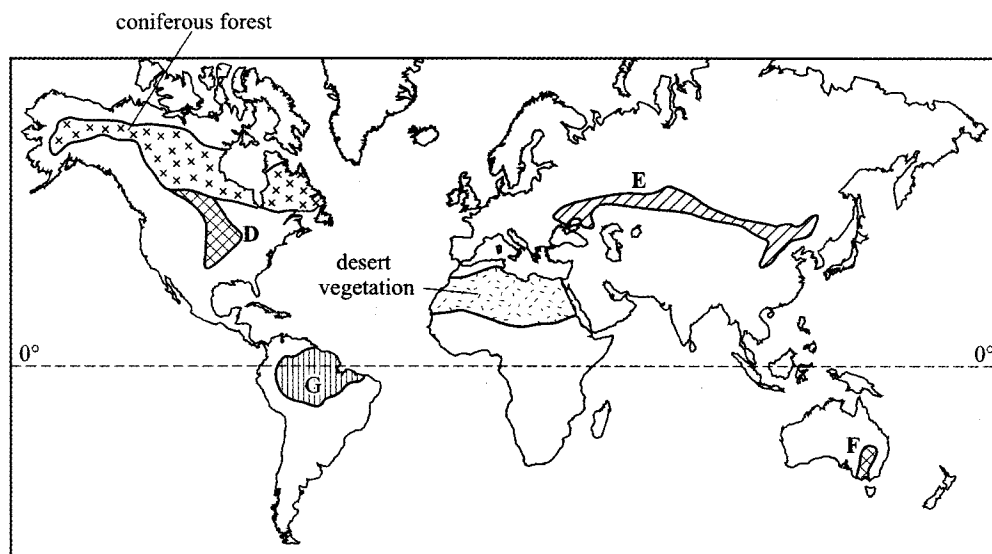
- There are many settlements in the Eastern part of the area because the land is sloping, which makes construction easy.
- There are clusters of settlements where there are markets/urban centres such as HomaBay because there are social amenities and economic activities that attract settlements.
- The hilly areas around Ruri has few or no settlements because the land is steep/ rugged which makes construction difficulty/ costly.
- There are no settlements to the south-west because the area is set aside as a national reserve and it is forested.
- Some shores of Lake Victoria have no settlement because they are poorly drained/ marshy which discourages human activities.
- HomaBay Municipality area is the most densely settled because it has a dense road network and water transport for easy movement.
- There are few settlements in the area west of Easting 50 and North of the national reserve due to low rainfall which discourages agriculture.

Advice to teachers

This was a question that tested the skills of identifying distribution of population on a map. Teachers should ensure that they teach the candidates these skills of identifying distribution patterns and be able to explain the factors that affect them.

Question 7 (a)

The map below shows some vegetation regions of the world. Use it to answer questions (a) and (b).



- (i) Name the temperate grasslands marked D, E and F
- (ii) Describe the characteristics of the natural vegetation found in the shaded area marked D

Weaknesses

Many candidates were not able to name the temperate grasslands marked on the map and could not identify the vegetation marked G on the map

Expected response

(a) i

- D - Prairies
- E - Steppes
- F - Downs

ii

- The forests consist of mixed variety of tree species.
- The trees shed their leaves at different times of the year/ forests are evergreen
- The trees are tall/straight with large trunks.
- The trees have broad leaves/drip-tipped leaves.
- The trees take long to mature.
- The tree species are mainly hardwood.
- The trees grow close to each other.
- The forests have little or no undergrowth.
- Trees have smooth barks.
- The forest has numerous lianas/climbing plants/epiphytes.
- Some of the trees have buttress roots.
- The forests have canopies.
- The forest crowns form three distinct layers.

Advice to teachers

This was a question that tested the skills of identifying types and distribution of grasslands in the world. Teachers should ensure that they teach the candidates using maps for the candidates to be able to locate the different types of vegetation.

11.3 PAPER 2 (312/2)

The performance of candidates in this paper dropped from a mean of **42.56** in **2009** to **38.00** in the year **2010**. This report looks at questions 2(b) and 8 (b) ii which candidates had problems answering.

Question 2 (b)

State four physical conditions that favour cocoa growing in Ghana.

Weaknesses

The candidates were not able to give specific information required in a case study.

Expected responses

- High temperatures/temperatures of 24°C to 30°C.
- High rainfall/1,200mm - 1,500mm/high well distributed rainfall throughout the year.
- Deep, well drained(fertile) soils/loamy soils/ light clays/ volcanic soils.
- High relative humidity / 70% - 80%.
- Shade from strong sun rays for the seedlings.
- Shelter from strong winds.
- Undulating lowlands/0 to 750 m above sea level.
- Sunshine for ripening of the pods.

Advice to teachers

In the case of case studies, specific information is required, for this question the mention of figures was crucial in the answers.

Question 8 (b) (ii)

Explain **three** ways in which energy crisis affects the economy of Kenya.

Weaknesses

The candidates were required to give the crisis and show how it affects the economy of Kenya, but most of them only gave the effects without the crisis

Expected responses

- The increase in the prices of crude oil makes Kenya to spend a lot of foreign exchange in importation. This lowers the foreign currency reserve which brings about unfavourable balance of trade which slows down the rate of economic growth.
- Increase in oil prices triggers the increase in the prices of commodities/ inflation leading to low standards of living/ high cost of living.
- Increase in oil prices leads to increase in the prices of farm inputs which in turn lead to reduced agricultural production/leads to food crisis.
- The high cost of fuels increases the cost of production slowing down industrial growth.
- Oil crisis leads to scarcity of by-products of oil leading to shortage of raw materials for certain industries/ high prices of byproducts.
- Increase in fuel prices leads to increased transport costs which trigger price increase in almost all the sectors of the economy.

Advice to teachers

The teachers must emphasize the importance of highlighting the crisis and then the effect in such a question.

11.4 GENERAL COMMENTS

- 11.4.1 Teachers should effectively cover the syllabus within the time allocated.
- 11.4.2 Teachers should desist from using unapproved revision materials and set standard tests for revision.
- 11.4.3 The teachers should teach their students to understand the rubric and follow it.
- 11.4.4 The teachers should train the students to avoid using a generalised approach to answer questions based on case studies.
- 11.4.5 Teachers should use teaching and learning aids like maps, charts and atlases in geography lessons for the learners to understand better the concepts.
- 11.4.6 There is need to in-service geography teachers to handle the syllabus.

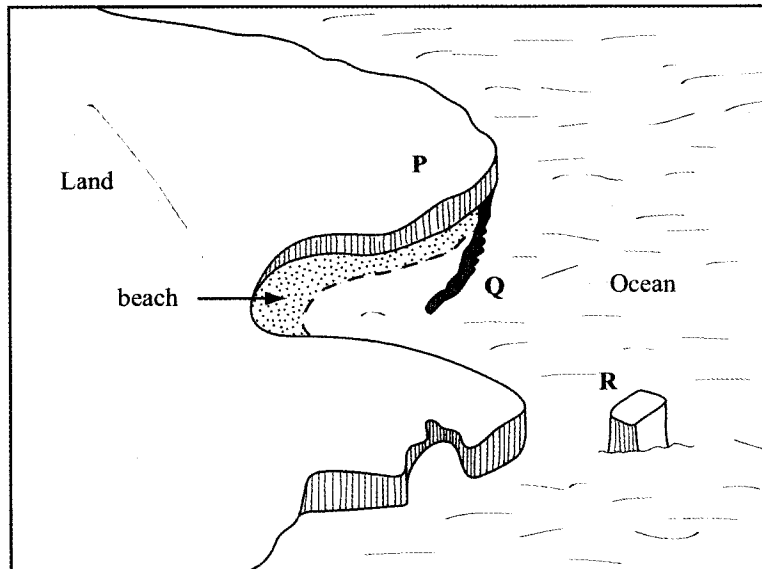
29.9 GEOGRAPHY (312)

29.9.1 Geography Paper 1 (312/1)

SECTION A

Answer **ALL** the questions in this section.

- 1 Give **three** components of the solar system. (3 marks)
- 2 (a) Identify **two** types of high level clouds. (2 marks)
(b) Draw a well labelled diagram of a hydrological cycle. (5 marks)
- 3 (a) Give **three** causes of earthquakes. (3 marks)
(b) Name **two** major earthquake zones of the world. (2 marks)
- 4 (a) What is a rock? (2 marks)
(b) Give **three** characteristics of sedimentary rocks. (3 marks)
- 5 (a) The diagram below shows some coastal features.

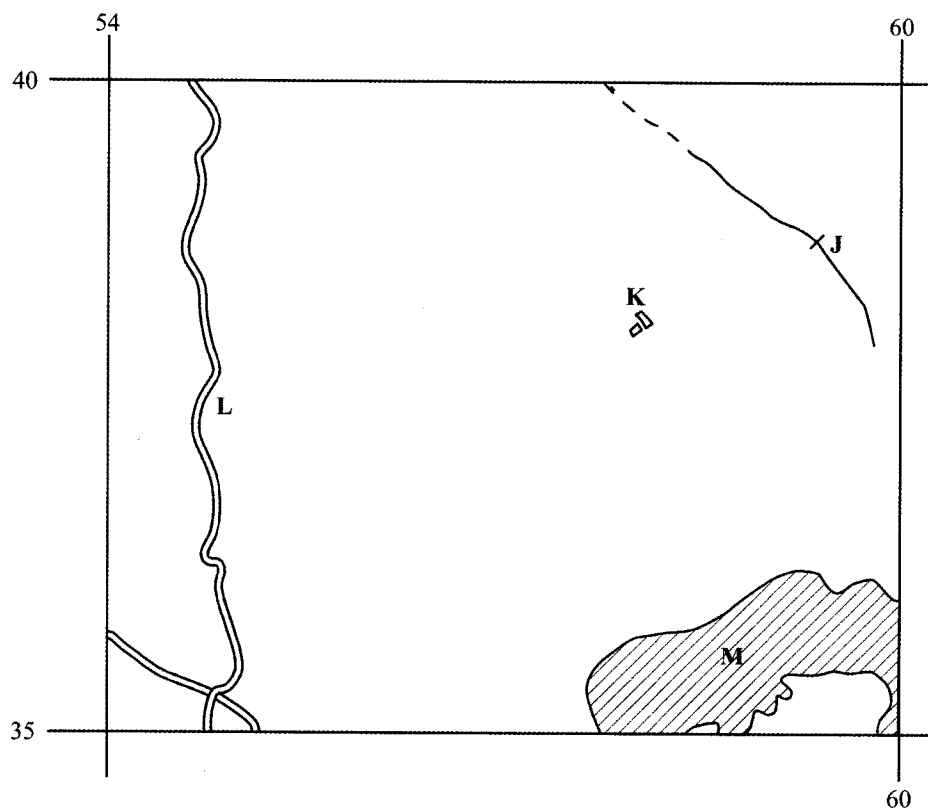


- Name the features marked **P**, **Q** and **R**. (3 marks)
- (b) State **two** conditions necessary for the formation of a beach. (2 marks)

SECTION B

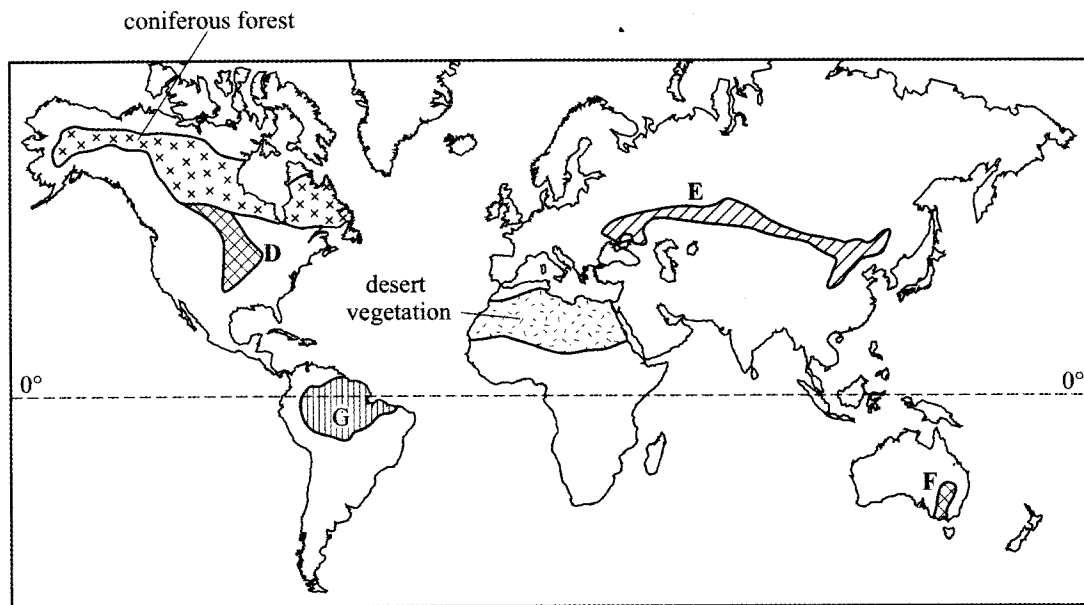
Answer question 6 and any other **TWO** questions from this section.

- 6 Study the map of Homa Bay (1:50,000) sheet 129/2 provided and answer the following questions.
 - (a) A pipeline is to be laid from Lake Victoria along the line marked X–Y.
 - (i) What is the length of the piping to be used? (Give your answer to the nearest 100 metres). (2 marks)
 - (ii) Calculate the bearing of point Y from point X. (2 marks)
 - (iii) Calculate the area of the part of Lake Victoria shown on the map excluding the marshy sections. (Give your answer in square kilometres). (2 marks)
 - (b) The rectangle below represents the area in the map extract bounded by Eastings 54 and 60 and Northings 35 and 40. Identify and name the features marked **J**, **K**, **L** and **M**. (4 marks)

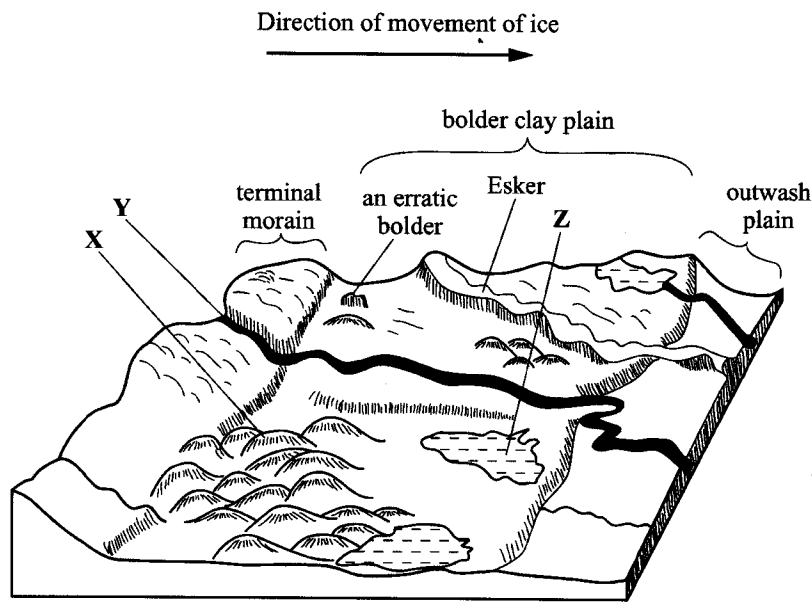


- (c) (i) Explain **three** factors which have influenced the distribution of settlements in the area covered by the map. (6 marks)
- (ii) Citing evidence from the map, give **two** agricultural activities carried out in the area covered by the map. (4 marks)
- (d) Describe the drainage of the area covered by the map. (5 marks)

7 The map below shows some vegetation regions of the world. Use it to answer questions (a) and (b).

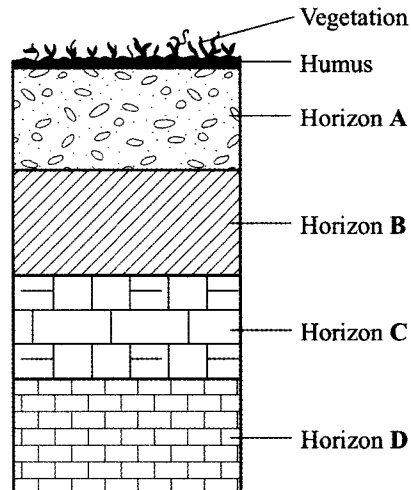


- (a) (i) Name the temperate grasslands marked **D**, **E** and **F**. (3 marks)
- (ii) Describe the characteristics of the natural vegetation found in the shaded area marked **G**. (6 marks)
- (b) Explain how climate has influenced the existence of the following types of vegetation shown on the map.
- (i) Desert vegetation; (4 marks)
- (ii) Coniferous forest. (4 marks)
- (c) You are required to carry out a field study of the natural vegetation within your local environment.
- (i) Apart from identifying the different types of plants, state **three** other activities you would carry out during the field study. (3 marks)
- (ii) How would you identify the different types of plants? (3 marks)
- (iii) State **two** ways in which the information collected during the field study would be useful to the local community. (2 marks)
- 8 (a) Describe plucking as a process in glacial erosion. (4 marks)
- (b) Explain **three** conditions that lead to glacial deposition. (6 marks)
- (c) The diagram below shows features resulting from glacial deposition on a lowland area.



- (i) Name the features marked X, Y and Z. (3 marks)
 - (ii) Describe how terminal moraine is formed. (4 marks)
 - (d) Explain **four** positive effects of glaciation in lowland areas. (8 marks)
- 9
- (a) Differentiate between river rejuvenation and river capture. (2 marks)
 - (b) Give **three** features resulting from:
 - (i) river rejuvenation; (3 marks)
 - (ii) river capture. (3 marks)
 - (c) Explain the **four** ways through which a river transports its load. (8 marks)
 - (d) You are planning to carry out a field study on the lower course of a river.
 - (i) Give **three** reasons why you would require a route map. (3 marks)
 - (ii) State **three** characteristics of a river at the old stage that you are likely to observe during the field study. (3 marks)
 - (iii) Give **three** follow-up activities you would be involved in after the field study. (3 marks)

- 10 The diagram below represents a well developed soil profile. Use it to answer question (a).



- (a) (i) Describe the characteristics of horizon **B**. (3 marks)
- (ii) Apart from humus, name **three** other components of soil. (3 marks)
- (iii) State **three** ways in which humus contributes to the quality of soil. (3 marks)
- (b) (i) Differentiate between soil structure and soil texture. (2 marks)
- (ii) Explain how the following factors influence the formation of soil: (6 marks)
- topography;
 - time.
- (c) Explain how the following farming practices may lead to loss of soil fertility: (2 marks)
- (i) overgrazing;
 - (ii) frequent ploughing;
 - (iii) continuous irrigation.
- (2 marks)
- (2 marks)

29.9.2 Geography Paper 2 (312/2)

SECTION A

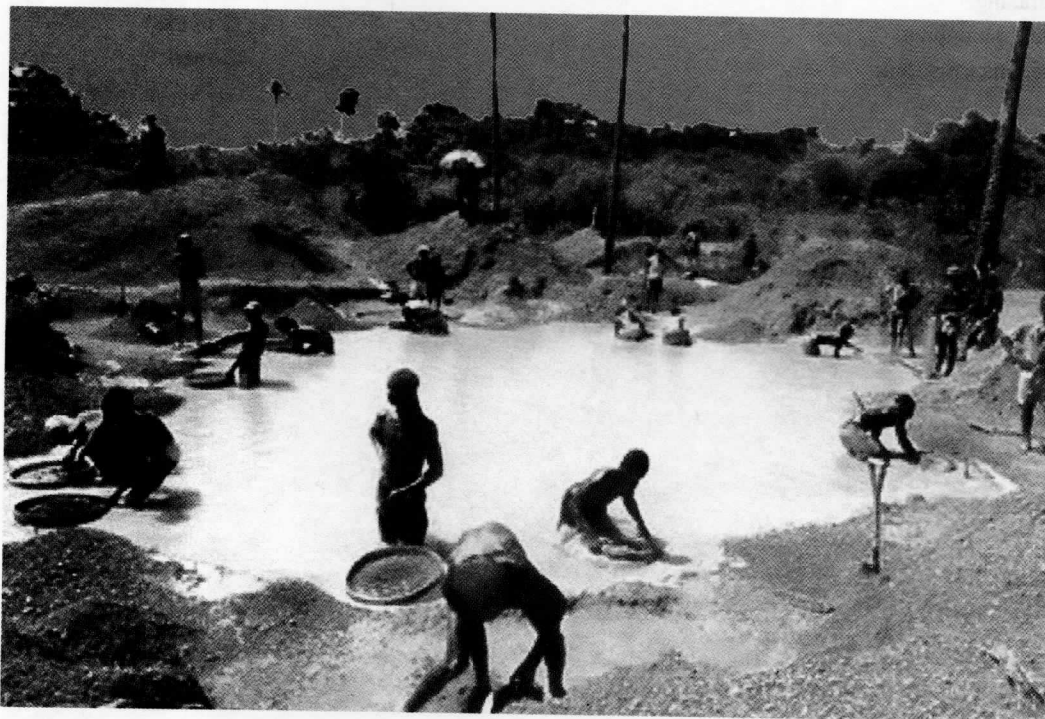
Answer **all** the questions in this section.

1. Give **three** reasons why it is important to study Geography. (3 marks)
2. (a) What is mixed farming? (2 marks)
(b) State **four** physical conditions that favour cocoa growing in Ghana. (4 marks)
3. (a) Name **two** forest reserves found in the coastal region of Kenya. (2 marks)
(b) State **three** ways in which the clearing of forests has affected the natural environment in Kenya. (3 marks)
4. (a) Why is Kenya's petroleum refinery located at Mombasa? (2 marks)
(b) State **four** characteristics of the cottage industry in India. (4 marks)
5. (a) Name **two** proposed major highways in Africa. (2 marks)
(b) Give **three** reasons why it is **not** possible to transport goods by road directly between Mombasa and Lagos. (3 marks)

SECTION B

Answer question 6 and any other **two** questions from this section.

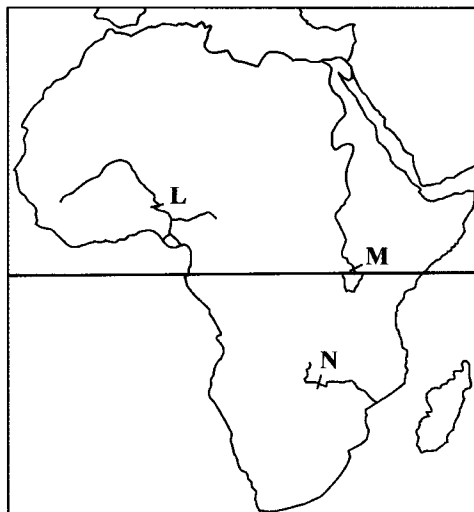
6. Study the photograph below and answer questions (a) and (b).



(a) Name:

- (i) the mining method shown in the photograph; (1 mark)
- (ii) **two** minerals that may be mined using the method shown in the photograph. (2 marks)

- (b) (i) Using evidence from the photograph, give **four** indicators that show that the weather was hot when the photograph was taken. (4 marks)
- (ii) Describe how minerals are obtained using the mining method shown in the photograph. (5 marks)
- (iii) Citing evidence from the photograph, explain **two** ways in which the mining method shown has affected the environment. (4 marks)
- (iv) Apart from the method shown in the photograph, name **three** other mining methods. (3 marks)
- (c) Explain how the following factors influence the occurrence of minerals:
- (i) evaporation; (2 marks)
 - (ii) vulcanicity; (2 marks)
 - (iii) metamorphism. (2 marks)
7. (a) (i) Apart from draining swamps, give **two** other methods through which land has been reclaimed in Kenya. (2 marks)
- (ii) Give **two** methods that are used to drain swamps in Kenya. (2 marks)
- (b) (i) Name **two** rivers that supply water to the Mwea Tebere Irrigation Scheme. (2 marks)
- (ii) Explain how the following factors influenced the establishment of the Mwea Tebere Irrigation Scheme:
- topography; (2 marks)
 - soils; (2 marks)
 - population density; (2 marks)
 - government policy. (2 marks)
- (c) (i) Name **three** areas which make up the Zuider Zee reclamation project in the Netherlands. (3 marks)
- (ii) Give **four** differences between land reclamation in Kenya and the Netherlands. (8 marks)
8. (a) (i) Apart from uranium, give **two** other non-renewable sources of energy. (2 marks)
- (ii) State **two** advantages of using uranium as a source of energy. (2 marks)
- (b) (i) What is energy crisis? (2 marks)
- (ii) Explain **three** ways in which energy crisis affects the economy of Kenya. (6 marks)
- (c) Use the map of Africa below to answer question (c) (i).



- (i) Name the dams marked **L**, **M**, and **N**. (3 marks)
 - (ii) State **four** ways in which Kenya has benefited from the development of geothermal power. (4 marks)
 - (d) Explain **three** physical factors that influence the establishment of hydro-electric power dams. (6 marks)
- 9.
- (a) (i) Distinguish between a game sanctuary and a national park. (2 marks)
 - (ii) Draw a map of Kenya and on it mark and name Sibiloi National Park, Maasai Mara National Reserve and Tsavo National Park. (4 marks)
 - (b) (i) Give **three** factors that favour the establishment of national parks in the semi-arid areas of East Africa. (3 marks)
 - (ii) Explain **two** effects of drought on wildlife in Kenya. (4 marks)
 - (c) Explain **four** measures that the government of Kenya has taken to conserve wildlife other than establishing national parks and reserves. (8 marks)
 - (d) State **four** ways in which wild animals are of significance to the economy of Kenya. (4 marks)
- 10.
- (a) (i) Differentiate between internal and regional trade. (2 marks)
 - (ii) List **three** major exports from Kenya to the European Union (EU). (3 marks)
 - (b) Give **four** reasons why the Southern African Development Cooperation (SADC) was formed. (4 marks)
 - (c) Explain **four** problems facing trade in Kenya. (8 marks)
 - (d) Explain how the future of international trade in Kenya can be improved. (8 marks)



SECTION A

1.

- The sun
- The planets
- Asteroids
- Meteors/meteorites/meteoroids
- Comets
- Natural satellites

Any 3 x 1 (3 marks)

2.

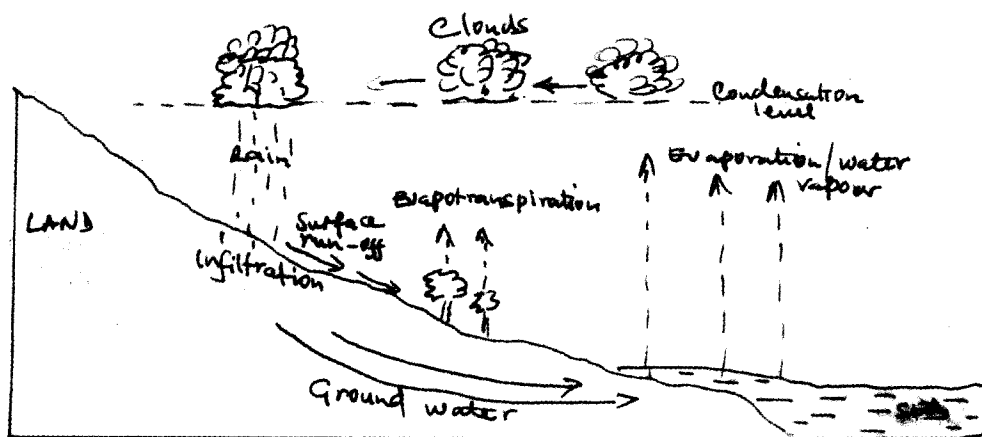
(a)

- Cirrus
- Cirro – cumulus
- Cirro – stratus

any 2 x 1 (2 marks)

(b)

Draw a well labelled diagram of a hydrological cycle.



Correctly drawn diagram.

(1 mark)

- Clouds – 1 mark
- Rain – 1 mark
- Infiltration /Surface run-off – 1 mark
- Land/ocean /water body – 1 mark
- Evaporation/evapotranspiration 1 mark
- Condensation 1 mark

max (4 marks)

3.

(a)

- gravitative pressure
- Divergence/ convergence/collision/shearing of tectonic plate boundaries
- movement of magma within the earth's crust/volcanic eruption
- folding/faulting
- isostatic adjustment
- blasting of rocks /bomb explosions/construction of large reservoirs
- energy release within the mantle

any 3x1=3 marks

(b)

- The Circum – Pacific belt
- the Tethyan/Mediterranean belt
- the Great Rift Valley belt
- Mid-Atlantic Ocean belt

any 2 x 1 (2 marks)

4. (a) Any naturally formed (solid) mineral aggregate/ a naturally occurring solid material that is composed of one or more minerals (2 marks)

(b)

- some sedimentary rocks contain fossils-
- The rocks have cleavage/are foliated/have bedding planes.
- The rocks form horizontal layers/are stratified.
- the rocks are non-crystalline

Any 3 x 1 (3 marks)

5. (a) P – Headland (1 mark)
Q – Spit (1 mark)
R – Stack (1 mark)

(b)

- Presence of abundant supply of materials to be deposited.
- Presence of a shallow shore/continental shelf.
- A relatively weak long shore current.
- A weak backwash strong swash/constructive waves
- Gently sloping land at the sea shore.

Any 2 x 1 (2 marks)

6. (a) • 7Km 100m /7100m (2 Marks)
• $2250 \pm 1^0 / 224^0 - 226^0$ (2 marks)
• $15 \text{ Km}^2 \pm = \frac{1}{2} \text{ Km}^2$ ($14\frac{1}{2} \text{ Km}^2 - 15\frac{1}{2} \text{ Km}^2$) (2 marks)

(b)

- J – Lala Dam
K – Magare School
L – Dry weather road/All weather road –loose surface
M – Forest

(4 marks)

(c) (i)

- There are many settlements in the Eastern part of the area because the land is gently sloping which makes construction easy.
- There are clusters of settlements where there are markets/urban centres such as Homa Bay because there are social amenities and economic activities that attract settlements.
- The hilly areas around Run have few or no settlements because the land is steep/ rugged which makes construction difficult/costly.
- There are no settlements to the south-west because the area is set aside as a national reserve and it is forested.
- Some shores of Lake Victoria have no settlement because they are poorly drained/ marshy which discourages human activities.

- Homa Bay Municipality area is the most densely settled because it has a dense road network and water transport for ease of movement.
- There are few settlements in the area, west of Easting 50 and North of the National Reserve due to less rainfall which discourages agriculture.

Any 3 x 2 (6 marks)

(ii)

- Cereal farming - flour mills/maize control store.
- Cotton growing - Cotton experimental farm/ginnery.
- Sisal farming - sisal factory.

(4 marks)

(d)

- The main drainage feature is Lake Victoria.
- The main river is River Akech/Rangwe and they drain into Lake Victoria.
- There are many; short; streams; originating from Ruri Hills.
- Rivers flowing from Ruri Hills form radial drainage pattern.
- Some rivers form parallel pattern.
- Many streams disappear underground/end abruptly.
- River Akech and its tributaries form dendritic pattern.
- The area has dams/boreholes/water holes.
- There are few seasonal streams.
- Most rivers are permanent
- River Akech flows northwards.
- There are papyrus swamps along the shores of Lake Victoria.

Any 5 x 1 (5 marks)

7. 5

(a) (i)

- D - Prairies
- E - Steppes
- F - Downs

(3 marks)

(ii)

- The forests consist of mixed variety of tree species.
- The trees shed their leaves at different times of the year/forests are evergreen.
- The trees are tall straight with large trunks.
- The trees have broad leaves/drip-tipped leaves.
- The trees take long to mature.
- The trees species are mainly hardwood.
- The trees grow close to each other.
- The forests have little or no undergrowth.
- The trees have smooth bark
- The forest has numerous lianas/climbing plants/epiphytes.
- Some of the trees have buttress roots.
- The forests have canopies.
- The forest crowns form three distinct layers.

(6 marks)

(b)

(i) Desert vegetation

- The area has scarce stunted/vegetation because it receives low rainfall.
- High temperature/High rate of evaporation experienced in the area leaves the ground dry, leading to scarce vegetation.

- The long periods of drought causes some seeds to exist in a dormant state only to germinate during the short rains/causes scarce/stunted vegetation.
- The higher rainfall along the margins of the region leads to more luxuriant vegetation in the areas.
- Strong winds may uproot some of the plants leaving the ground bare/strong winds disperse seeds from one part of the region to another leading to establishment of plant species far and wide in the region.

Each climatic condition to score only one

(4 marks)

(ii) Coniferous forest.

- The long cold winter and short summers make trees grow at a slow rate/make the vegetation types to consist of a limited variety of species of plants.
- The low rainfall received in the area/permanently frozen subsoil makes the trees develop shallow roots that spread widely to utilize the moisture in the top soil.
- Precipitation in the region is mainly in form of snow. This makes the trees to be in shape/to have flexible branches. (allow snow to slide to the ground)
- Strong winter winds make the trees to have flexible trunks.

(6 marks)

(c)

- Collecting samples of plants
- Measuring distances
- Estimating heights of plants
- Drawing sketches/transects
- Recording/taking notes
- Taking photographs of plants
- Counting plants

Any 3x1 = 3 marks

(i)

- By their appearance
- By their leaf size/pattern/type
- By their age
- By the texture of the leaves
- By the system of leaves
- By their flowers
- Observing the system of the roots.

Any 3x1 = 3 marks

(ii)

- It can be used to plan agricultural activities
- It can be used to help in the conservation of land/wildlife/soil/water
- It can be used to help in the rationalization of land use
- It can be used for future reference
- It can be used to determine the economic uses of plants/herbal medicine.

Any 2 x 1 = 2 marks

8. (a)

- pressure from the overlying mass of ice cause freeze – thaw action.
- melting water fills the cracks/joints in the bed rock.
- as water freezes it exerts pressure on the cracks enlarging them.
- the enlarged cracks lead to disintegration of the rock.
- the rock debris are scoured/pulled off the mother rock by the moving ice.
- The disintegrated rock eventually gets embedded within the mass of ice.
- As the ice moves; it pills out/gorges out the embedded rock from the mother rock.

(4 marks)

(b)

- rising temperatures lead to melting of ice thereby causing the ice to deposit its load.
- change of gradient to relatively flat surface will reduce the velocity of the glacial movement which will subsequently lead to deposition of fluvial-glacial materials.
- alternating warm and cold periods lead to seasonal melting of ice which allows materials embedded in the ice to be released and deposited.
- stagnation/accumulation of glacier leads to pressure at the base of the glacier which in turn leads to melting of ice at the base.
- friction at the base and sides of a glacier and a rough surface leads to melting of ice, causing the ice to deposit its load.

Condition 5 marks x 3

Explanation 5 marks x 3

(6 marks)

(c)

(i)

- X – Drumlins
- Y – A river/melt water
- Z – Kettle lake/lake

Any 3x1 = 3 marks

(ii)

- Moving ice carries solid materials
- Moving ice stagnates
- Ice at the snout melts
- melting ice releases its load
- Gradually the load piles into a ridge
- Over time the ridge forms a horse-shoe shape/block of solid materials called terminal moraine.

Any 4x1 = 4

(d)

- Glacial till provides fertile soils which are suitable for arable farming.
- Ice sheets in their scouring effect reduce the surface which may expose the minerals making them easy to extract.
- Out wash plains comprise of sand and gravel which are used as building materials.
- Glacial lakes found in lowland areas can be exploited for various economic uses such as fishing/transportation.
- Glaciation forms features such as drumlins/eskers which are tourist attractions.
- Glaciated lowlands are generally flat and ideal for establishment of settlements/development of transportation network.

Any 4x2 = 8 marks

9. (a)

River rejuvenation is the renewal of the river's erosive activity while river captures is the diversion of the head waters/beheading of one river into the system of an adjacent more powerful river.

(2 marks)

(b) (i)

- Knick point/waterfall
- River terraces
- incised meanders/entrenched/ingrown meanders
- Rejuvenation gorges
- Valley within a valley
- meander scar
- Abandoned meander (cut off meander)

Any 3x1 = 3 marks

(ii)

- Wind gap
- Elbow of capture/knick point
- Pirate stream
- Beheaded stream/misfit/captured river.

Any 3x1 = 3 marks

(c)

- The fine particles such as silt are carried in suspension because they are light and can be maintained within the turbulence of the water. Some of the light materials float on the surface of the water.
- The fairly heavy particles/pebbles are lifted and bounce over short distances by the turbulence of the water. This process is known as saltation/hydraulic lift.
- The large and heavy particles are rolled/slide along the river bed. The process is known as traction.
- Soluble materials are dissolved in water and carried in form of solution.

Each point 2 marks = 8 marks

(d) (i)

- to help identify the direction to follow
- to help prepare a work schedule
- to help identify location of features for study
- to help estimate distances to be covered
- To help estimate the time the field study is likely to take. Any 3x1 = 3 marks

(ii)

- the river flowing at a low speed
- the river carrying silt in suspension/the water is brown
- river has braids
- the river meandering in the flood plain
- river has distributaries
- river has deferred tributaries/deferred junctions.

Any 3x1 = 3 marks

(i)

- Reaching more on the top
- Displaying photographs/items collected
- Asking/answering questions
- Writing reports
- Discussing with the rest of the class
- Analyzing/Assessing the information collected against the hypothesis.
- Drawing diagrams
- Modeling the flood plain.

Any 3x1 = 3 marks

10. (a)

(i)

- It is the accumulation zone for leached minerals from horizon A
- The soil texture is clay in nature – generally soils are dark in colour.
- Podzol soils are red/brown in colour.
- The zone sometimes forms the hard pan/murram/lateritic duricrust
- Is sub-divided into B₁, B₂ & B₃

Any 3x1 = 3 marks

(ii)

- Air/soil air
- Water/soil water
- Rock particles/weathered materials/mineral particles
- Living organisms.

Any 3x1 = 3 marks

(iii)

- It helps improve soil texture
- It provides essential minerals to the soils from the decomposed plant matter/humification and nitrification
- It enables soil to retain moisture
- It facilitates aeration of the soil
- Humus is a source of food for the microorganisms in the soil.

(a) (i)

- Soil structure is the way the individual soil particles are arranged into aggregate compound particles while soil texture is the degree of fineness or coarseness of the soil particles. (2 marks)

(ii)

- **Topography**
 - Valley bottoms encourage formation of deep fertile soils due to deposition/accumulation of weathered materials/encourages formation of leached soils
 - Steep slopes encourage rapid removal of the top soil thus slowing down formation of soil/they have thin soil/have poorly developed soils
 - Flat areas/may form peat. Gently sloping areas have well developed soils because they are well drained.
 - Slope influences the arrangement/sequence of soil/soil catena causing variation in the types of soil profiles at different parts of the slope.
 - Some slopes are more exposed to the sun/rain/aspect which enhances the rate of weathering on the parent rock/soil formation

Any 3x2 = 6 marks

- **Time**
 - Where soil formation processes takes a short duration the soils are generally immature/where the process has taken a long period of time, soils are generally well developed/mature.
 - Young soils retain the characteristics of the parent rock because they have not been exposed to the factors that may cause change/mature soils may not display the characteristics of the parent rock.

8 marks

(b)

(i) **Overgrazing**

It leads to removal of vegetation cover thereby exposing soil to agents of erosion (which remove the top fertile soil).

2 marks

(ii) **Frequent ploughing**

- This weakens soil structure making it easy for agents of soil erosion to carry it away. (the top fertile soil)
- It increases oxidation which results in loss of organic matter.

Any 1 x 2 = 2 marks

(iii) **Continuous irrigation**

It causes leaching of soil nutrients making the top soil deficient of soluble minerals/it causes salinity.

2 marks

SECTION A

1.

- It provides knowledge about the immediate and the wider environment/It makes us to understand the earth on which we live.
- It creates awareness about the country and the rest of the world/ Promotes international understanding.
- It promotes awareness on the sustainable use of resources.
- It promotes development of skills and critical thinking.
- It prepares one for career opportunities.

Any 3 x 1 = 3 marks

2. (a)

Mixed farming is the growing of crops and rearing of livestock on the same farm.

(2 marks)

(b)

- High temperatures/temperatures of 24°C to 30°C.
- High rainfall/1,200mm - 1,500mm/high well distributed rainfall throughout the year.
- Deep, well drained fertile soils/Loamy soils/light clays/volcanic soils.
- High relative humidity / 70% - 80%. Shade from strong sun rays for the seedlings.
- Shelter from strong winds.
- Undulating lowlands/0 to 750 m above sea level.
- Sunshine for ripening of the pods.

Any 4 x 1 = 4 marks

3. (a)

- Shimba hills forest
- Arabuko - Sokoke foresi reserve
- Boni/Dodori forest
- Mangrove forests
- Kaya foests

Any 2 x 2 (2 marks)

(b)

- It has led to reduced volume of water in the rivers/caused drying up of rivers
- It has led to the destruction of the natural habitat for the wildlife/it has endangered some of the wildlife species it has led to changes in the rainfall pattern/desertification
- it has interfered with the beauty of the environment/lowered the aesthetic value of the environment.
- It has disrupted the ecosystem
- It accelerates soil erosion.

Any 3 x 1 (3 marks)

4. (a)

It is easier to transport refined petroleum products than crude hence the need to process crude oil at the port of entry/Crude oil-the raw material for the refinery comes by sea/cheaper to transport to the port of Mombasa/Nearness to the source of raw material/Mombasa - is the only port of entry.

Any 3 x 2 = (2 marks)

(b)

- It requires little capital to set up and run
- it is labour intensive
- it relies on simple equipment/machines
- Different establishments are owned by individuals/families
- It uses locally available raw materials
- The products are mainly for local market
- The industrial establishments are widespread in the country/located in homes
- Labour is provided by members of the family/individual owners.
- Craftsmen are highly skilled

Any 4 x 1 (4 marks)

5.

(a)

- Ndjamena – Djibout
- Dakar - Lagos
- The Trans-Africa Highway /Lagos - Mombasa
- The Great North Road/Cairo - Gaborone
- The Trans-Sahara Highway/Algiers – Lagos
- Cairo – Dakar
- Tripoli – Capetown (Windhoek)
- Beiro - Lobito

Any 2 x 1 = 2 marks

(b)

- In some of the countries between the two ports, there are alternative modes such as railway and water which are cheaper than road transport.
- Some of the countries have not developed proper road links with their neighbours due to political difference/Neglected maintenance of highways.
- Most parts of the route have difficult terrain making movement of heavy commercial vehicles difficult/Construction of roads expensive/internal/external conflicts.
- There is insecurity along some parts of the road between the two ports.
- The bulky goods that may be transported between the two ports may be costly to transport by road.

6.

(a) Panning/alluvial mining/placer mining

1 x 1 = 1 mark

- Gold
- Diamond.
- Platinum/Tin

2x1=2 marks

(b) (i)

- Almost all the miners have removed shirts/are bare chested
- Some miners are wearing hats/headscarfs
- The sky is clear
- The short shadows indicate that the sun is almost overhead.
- Use of an umbrella by a person at the middle ground.
- Glistening/sweaty bodies
- Reflection of the sun's rays on the water surface.

Any 4 x 1 = 4 marks

(ii)

- A mixture of water, sand/mud and mineral particles is scooped from the river bed using a pan.
- Water is added if the mixture is thick/if the water is excess it is decanted.

- The material scooped is swirled in the pan. This separates the lighter material from the heavier particles which contain the mineral particles.
- The lighter material is removed/ Poured out.
- The heavier materials are sorted to display mineral particles.
- The mineral particles are collected from the pan. *Any 5 x 1 = 5 marks*

(iii)

- The scooping of materials has led to water pollution as indicated by the brown colour/ stagnant water which may make it unfit for people to use.
- The continuous scooping and dumping of the waste has led to land dereliction as indicated by the depression and heaps of waste material.
- The method has led to destruction of vegetation as miners cleared the land to access the area with the mineral as indicated by absence of vegetation in the foreground/bare middle ground.
- The method has led to loss of biodiversity/destroyed the ecosystem as indicated by the absence of plant life where mining is taking place.

Any 2 x 2 = 4 marks

(iv)

- -Opencast/quarrying/stripping method.
- -Deep shaft/underground method/Solution.
- -Adit/drift/horizontal/tunnel method/slope mining.
- -Drilling method.

Any 3 x 1 = 3 marks

(c)

- Evaporation

High temperatures in arid and semi arid areas cause evaporation of water in lakes/seas. This leads to high concentration of mineral salts in the water. Continued evaporation causes further recrystallization of the salts /Re-deposition of salts near the surface which may thereafter be extracted as minerals such as soda ash and common salt.

(2 marks)

- Vulcanicity

When molten magma intrudes into rock joints minerals contained in the magma are embedded in the joints called veins. Such minerals as tin and copper occur in this form/Hot spring/Geysers/fumaroles bring minerals to the Earth's surface.

(2 marks)

- Metamorphism

High pressure and heat cause recrystallization and hardening of certain rocks causing them to change their nature to become minerals such as diamond.

(2 marks)

7.

(a)

(i)

- irrigation
- tsetse fly control
- planting of trees/afforestation
- flood control

Any 2 x 1 = 2 marks

(ii)

- constructing drainage pipes
- digging open ditches /canals
- pumping out the water

Any 2 x 1 = 2 marks

(b) (i)

- Thiba river
- Nyamindi river
- Murubara

Any 2 x 1 = 2 marks

(ii)

- **topography**

The gently sloping land makes it possible for water to flow by gravity into/ out of the irrigated fields.

The gently sloping land allows for mechanization which allows large areas to be put under cultivation .

Any 1 x 2 = 2 marks

Soils

- Presence of black cotton soil which is suitable for cultivation of rice/which retains water for along time.

(2 marks)

Population

- The area was originally sparsely populated which enabled large areas to be put under cultivation/very few people were displaced thus it was cheap to start the scheme.

(2 marks)

Government policy

There was need to keep political detainees busy/To provide free labour. This made the colonial government to set up the scheme at Mwea where there was a large detention camp.

(2 marks)

(c)

- Marlarkerwaard
- South Flevoland
- East Flevoland
- North-Eastern Polder
- Wieringer Meer Polder.

Any 3 x 1 = 3 marks

- In Kenya, the area that is reclaimed is relatively small while the areas reclaimed in the Netherlands are large.
- In Kenya, land is mainly reclaimed from swamps and marginal areas while in Netherlands reclamation is from the sea.
- In Kenya the methods used for draining water from marshy areas is digging of canals/ditches while in the Netherlands the methods are advanced/use of wind pumps to drain sea water from the polders.
- In Kenya, irrigation is used as a means of reclaiming dry areas while irrigation in the Netherlands is used to lower the salinity of the soil in the reclaimed lands.
- The methods of land reclamation are simple/like digging canals/ditches to drain water from the land while in the Netherlands the methods used are highly advanced like reclaiming land from the sea/creation of polders.
- In Kenya dykes are used to control river floods while in Netherlands, dykes protect the reclaimed land from invasion by the sea.

Any 4 x 2 = 8 marks

8. (a)

- Coal
- Petroleum
- Natural gas

Any 2 x 1 = 2 marks

- It occurs in huge reserves
- It produces large amounts of energy compared to other sources/a relatively small amount of uranium generates large quantities of energy
- It has a longer lifetime than the other non-renewable sources of energy.

Any 2 x 1 = 2 marks

(b)

(i)

It refers to a situation where the prices of fossil fuels rise uncontrollably as a result of short supply relative to demand. (2 marks)

(ii)

- The increase in the prices of crude oil makes Kenya to spend a lot of foreign exchange in importation. This lowers the foreign currency reserve / brings about unfavourable balance of trade / slows down the rate of economic growth.
- Increase in oil prices triggers the increase in the prices of commodities/inflation leading to low standards of living/high costs of living.
- Increase in oil prices leads to increase in the prices of farm inputs which in turn leads to reduced agricultural production/leads to food crisis.
- The high cost of fuels increases the cost of production slowing down industrial growth.
- Oil crisis leads to scarcity of by-products of oil leading to shortage of raw materials for certain industries/high prices of products.
- Increase in fuel prices leads to increased transport costs which trigger price increase in almost all the sectors of the economy.

Any 3 x 2 = 6 marks

(c)

(i)

- | | | |
|---|---|--------------------------|
| L | - | Kainji dam |
| M | - | Owen falls dam/Nabubaale |
| N | - | Kariba dam |

(3 marks)

(ii)

- It has provided alternative source of energy
- It has increased Kenyas energy output
- It has helped stabilize the cost of electricity for consumers.
- It has helped in opening up of formerly remote areas.
- It has increased employment opportunities
- It has led to the reduction of importation of hydro-electric power from Uganda/has saved foreign exchange.

Any 4 x 1 = 4 marks

(d)

- presence of a hard basement rock which provides a foundation for the dam.
- large volume of water/constant supply of water to enable continuous production of electricity.

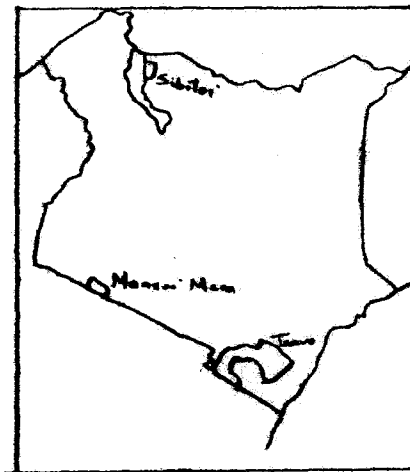
- presence of a narrow gorge behind the dam which minimizes the cost of construction of the dam/Deep gorge for a reservoir.
- presence of a steep river gradient/water fall/rapids/head of water to provide sufficient hydraulic force to turn the turbines.
- Presence of impervious rocks to prevent seepage.

Any 3 x 2 = 6

9. (a) (i)

- A game sanctuary is a specific area established to give protection to a specific animal community which is either threatened with extinction only found in a particular area while a national park is a large area set aside for the propagation, protection and conservation of wild life in their natural habitat and in which hunting is prohibited. 2 marks

(ii)



(b)

- (i) Give **three** factors that favour the establishment of national parks in the semi-arid areas of East Africa.

- Availability of large tracts of land /sparsely populated land.
 - Availability of a wide variety of vegetation which provides food for the Wild animals.
 - The harsh climatic condition that discourage farming and settlement/makes wildlife conservation the best alternative land use.
- The type of vegetation found in such areas provide suitable habitat for wild animals.

Any 3 x 1 = 3 marks

- (ii) Explain two effects of drought on wildlife in Kenya.

- It leads to shortage of pasture and water causing loss of life of animals/ drying up of plant species.
- Prolonged drought leads to migration of animals to areas that have sufficient supply of food/water/some animals migrate to the neighbouring countries reducing the number of wild animals.
- Forest fires break out during drought causing environmental degradation and destroying the habitat for wild life.

- Wild animals invade farmlands destroying crops/some are killed as they search for food-

Any 2x2 = 4 marks

(c)

- Establishment of national parks and game reserves to protect wildlife from human interference.
- Enacting laws and regulations to curb poaching/game trade.

- Educating the general public on the need to conserve wildlife/to support conservation practices/encouraging joint ownership of parks with local authorities/Local communities who also benefit from the proceeds.
- Enhancing international cooperation to help enforce the existing laws and conventions which protect wildlife especially the endangered species.
- Promoting ecotourism to reduce tourism related environmental damage that may lead to extinction of species.
- Constructing electric fences around the parks to minimize human-animal conflict.
- Establishing the ministry of wildlife to oversee the conservation process/creating of the anti-poaching unit to track down and arrest poachers/Forest guards to protect forests.
- Encouraging individuals to set up game ranches for controlled hunting.
- Provision of veterinary services to treat animals/translocating of game/research by KWS.

Any 4 x 2 = 8 marks

(d)

- They are a major tourist attraction/earn foreign exchange.
- They create employment opportunities.
- They promote research activities.
- They promote agricultural development since tourism creates a large demand for food/leading to agricultural development.
- Some provide raw materials for industries.
- They provide game meat.
- The government earns revenue.

Any 4 x 1 = 4 marks

10.

(a)

(i)

- internal trade is the buying and selling of goods and services within a country's borders while regional trade is trade between countries that are found within the same geographical region.

(ii)

- Coffee
- Tea
- Fluorspar
- Horticultural products/flowers/fruits/vegetables
- Soda Ash/Pyrethrum Extracts.

Any 3 x 1 = 3 marks

(b)

- To promote regional integration among member countries.
- To promote sustainable economic growth in the region.
- To establish a common market for member states/wider market.
- To liberalize trade within the region/to lower tariffs for member states.
- To strengthen the bargaining power in international trade.
- To foster peace, stability and democracy among member states.
- To eradicate poverty in the region
- To encourage free movement of labour.

Any 4 x 1 = 4 marks

(c)

- Cheap imported goods create unfair competition for some local products leading to reduction in the production of such goods/closure of some industries.
- Exports are mainly raw agricultural products which are lowly priced, hence

earning little revenue for the country.

- The fluctuation of prices in the world market varies the earnings from exported goods making it difficult to plan.
- Unexpected trade restrictions are sometimes imposed on Kenya's exports thus lowering production of such commodities/causing losses to the exports.
- Inadequate transport and communication facilities in some areas delay delivery of products to the market/delivery of raw materials to the industries/Spoilage of products/limiting trade.
- Slow clearance of goods at the port of Mombasa delays delivery of some goods/increases the cost of goods.
- Some traders smuggle goods out of neighbouring countries/import goods through improper channels thereby denying the government revenue from taxes.
- Poor/Inadequate capital for some traders make them unable to expand their trading activities.
- The high fuel prices increase production/transport costs leading to increased prices of goods /low demand for goods.
- insecurity/discourages investors in the country/traders incur heavy losses.

Problem 1 mark

Explanation 1 mark

Any 4 x 2 = 8 marks

(d)

- Kenya is exploring new markets in the Far East countries to avoid over reliance on the European market. This is likely to increase the quantity of Kenya's exports.
- Kenya has signed trade agreements with various countries in Africa and in America which will help improve trade-Kenya's trade with African countries is likely to improve through the membership in trade blocs such as COMESA and EAC.
- Some Kenyan entrepreneurs are setting up branches of their industries in the neighbouring countries in order to expand trading activities.
- Implementation of vision 2030 will lead to increased production hence increased trade.
- Kenya is undertaking partial processing of some of the agricultural products before export in order to add value to increase earnings.
- Kenya should diversity her export products to attract a wider market for her goods.
- Kenya should aggressively advertise her products to attract more buyers
- Kenya should improve her International transport and communication links for efficient transactions.

Any 4 x 2 = 8 marks