



## 10.0 GEOGRAPHY (312)

The year 2007 was the second time that the revised Geography syllabus was tested. Like in the previous year, two papers were offered, each with ten questions. The two papers provided an adequate sample of all the areas of the syllabus that candidates were expected to have covered over the four year period of their course.

The papers were developed to test a wide range of abilities including *comprehension, application, analysis and map interpretation skills, simple calculations and drawing* among others. *Paper 1 (312/1)* tested concepts in *Physical Geography* and *map reading skills* while *paper 2 (312/2)* tested concepts in *Human and Economic Geography, photograph interpretation skills and statistics*. In each paper, candidates were expected to answer all the questions in section A. In section B, question 6 was compulsory, then the candidates were to choose two other questions out of the remaining four.

### 10.1 GENERAL CANDIDATES' PERFORMANCE

The table below shows the overall performance in Geography over the period 2004 to 2007

Table 13: Candidates' Performance in Geography for the Period 2004 to 2007

Year	Paper	Candidature	Maximum Score	Mean Score	Standard deviation
2004	1		100	41.21	17.18
	2		100	41.34	15.91
	<b>Overall</b>	<b>97,817</b>	<b>200</b>	<b>82.51</b>	<b>31.00</b>
2005	1		100	36.68	16.31
	2		100	45.90	15.83
	<b>Overall</b>	<b>106,865</b>	<b>200</b>	<b>82.56</b>	<b>30.00</b>
2006	1		100	46.12	19.23
	2		100	37.34	15.74
	<b>Overall</b>	<b>97,991</b>	<b>200</b>	<b>83.44</b>	<b>33.00</b>
2007	1		100	45.50	19.82
	2		100	48.14	16.37
	<b>Overall</b>	<b>103,288</b>	<b>200</b>	<b>93.62</b>	<b>34.00</b>

The following observations can be made from the table above:-

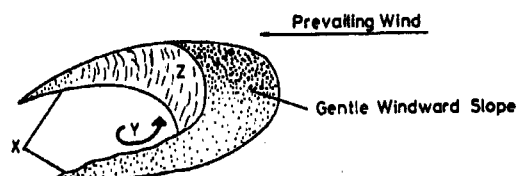
- 10.1.1 The candidature increased from 97,991 candidates in the year 2006 to 103,288 in the year 2007, a candidature increase of 5,297 candidates. However, the candidature was still less than it was in the year 2005 when 106,865 candidates sat for the Geography (312) examination.
- 10.1.2 There was a slight drop in performance in *paper 1 (312/1)* in the year 2007 as indicated by the mean. In the year 2006 the mean was 46.12 while in the year 2007 it dropped to 45.50.
- 10.1.3 The mean for *paper 2 (312/2)* indicates an improvement in performance. In the year 2006, the mean for the paper was 37.34 while in the year 2007 it rose to 48.14.
- 10.1.4 There was an improvement in performance in the subject with the mean rising from 83.44 in the year 2006 to 93.62 in the year 2007. This is the best performance recorded over the four year period.
- 10.1.5 The spread (standard deviation) for the two papers was reasonably good.

Performance in Geography in the year 2007 was quite good compared to the other years. However, there were a few questions in which candidates performed poorly. These were questions 3, 4, 6 and 8 in *paper 1 (312/1)* and questions 6, 8 and 9 (c) in *paper 2 (312/2)*. This report will highlight the possible reasons why performance in these questions was not as good as in the rest and also give suggestions on possible strategies as to how future performance in such questions could be improved.

## 10.2 PAPER 1 (312/1)

### Question 3

The diagram below represents a barchan. Use it to answer question (a).



- (a) Name
- (i) the feature marked X.
  - (ii) the air current marked Y.
  - (iii) the slope marked Z.
- (b) Give two ways in which wind transports its load.

### Weaknesses

Many candidates seemed not to understand what the diagram represented. They did not name the slope and some were not able to recognize the feature marked X.

### Expected Responses

- (a)
- |   |   |                     |
|---|---|---------------------|
| X | - | Horn.               |
| Y | - | Eddy current.       |
| Z | - | Concave/ slip face. |
- (b)
- By suspension.
  - By saltation.
  - By surface creep/rolling/ traction/dragging.

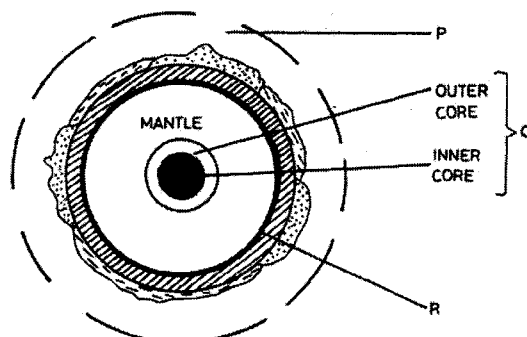
### Advice to Teachers

Teachers should use diagrams and the content in the text books concurrently to enable the students comprehend the various concepts that they have to learn. They should also avoid relying on a single text book. There is need to make use of the physical geography books that were in use in the 1990s and earlier

since they were more detailed than those written recently. Physical Geography does not change so much as Human Geography does. The old books are therefore very useful references in paper 1(312/1).

#### Question 4

The diagram below represents the structure of the earth. Use it to answer questions (a).



- (a) Name
- (i) the parts marked **P** and **Q**.
  - (ii) the discontinuity marked **R**.
- (b) State **three** characteristics of the mantle.

#### Weaknesses

The responses given by some of the candidates were an indication that they had not come across the diagram before. They also did not seem to understand the meaning of the term “*characteristics*” as used in part (b) of the question. This could be as a result of *poor tuition, inadequate revision or failure to have covered this part of the syllabus.*

#### Expected Responses

- (a)
- (i) **P** - Atmosphere.
  - Q** - Barysphere/centrospheres/core.
  - (ii) **R** - Moho Discontinuity/Mohorovicic.
- (b)
- The mantle is divided into two parts, namely; upper mantle and lower mantle.
  - The upper mantle has lower temperatures than the lower mantle.
  - The upper mantle is elastic solid/ semi-molten.
  - The lower mantle is viscous liquid.
  - On the average the mantle is about 2,900 km thick.
  - The mantle has an average density of 3.0 to 4.0 gms/cc.
  - Dominant mineral is ferro-magnesium silicate.

## Advice to Teachers

It is important for teachers to ensure that candidates revise work that is covered throughout the course including form one (1) work in preparation for the examination since questions are set from all the areas of the syllabus. Teachers should also use diagrams as they teach such abstract topics for students to comprehend the concepts.

### Question 6

Study the map of Taita Hills (1:50,000) sheet 189/4 provided and answer the following questions.

- (a) (i) What is the bearing of the peak of Mwatunga hill in grid square 3214 from the water tank in grid square 2619?
- (ii) What is the length in Kilometres of the section of the Mwatate-Voi railway line in the south-eastern part of the map?
- (b) Draw a rectangle measuring 16 cm by 12 cm to represent the area enclosed by the Eastings 24 and 40 and Northings 20 and 30.
- On the rectangle, mark and name the following features:
- Mgange hills
  - a rock out crop
  - All weather road, bound surface
  - River Ruhia
  - Ronge forest
- (c) Using evidence from the map, explain three factors that may have favoured the establishment of the Teita Sisal Estates in the southern part of the area covered by the map.
- (d) (i) Describe the distribution of settlements in the area covered by the map.
- (ii) Citing evidence from the map, give two economic activities carried out in the area covered by the map other than sisal farming.

The question required candidates to read and interpret the map of *Taita Hills*. The map reading skills tested were:

- Working out bearings.
- Reading grid references.
- Measuring distances.
- Sketch drawing and plotting features.
- Interpretation of features both physical and human using the key.
- Ability to distinguish the settlement features and describe them.

### Weaknesses

Just as in previous years, candidates did not perform well in this question. Many had no idea of how bearing is worked out. Though they were given specific measurements for the drawing of a rectangle, they failed to follow instructions and drew rectangles of diverse dimensions. This caused them to lose marks because if the rectangle was wrong then whatever was to be plotted in it would be wrong. In question (d) (i), many candidates described "*settlement patterns*" instead of "*distribution of settlements*".

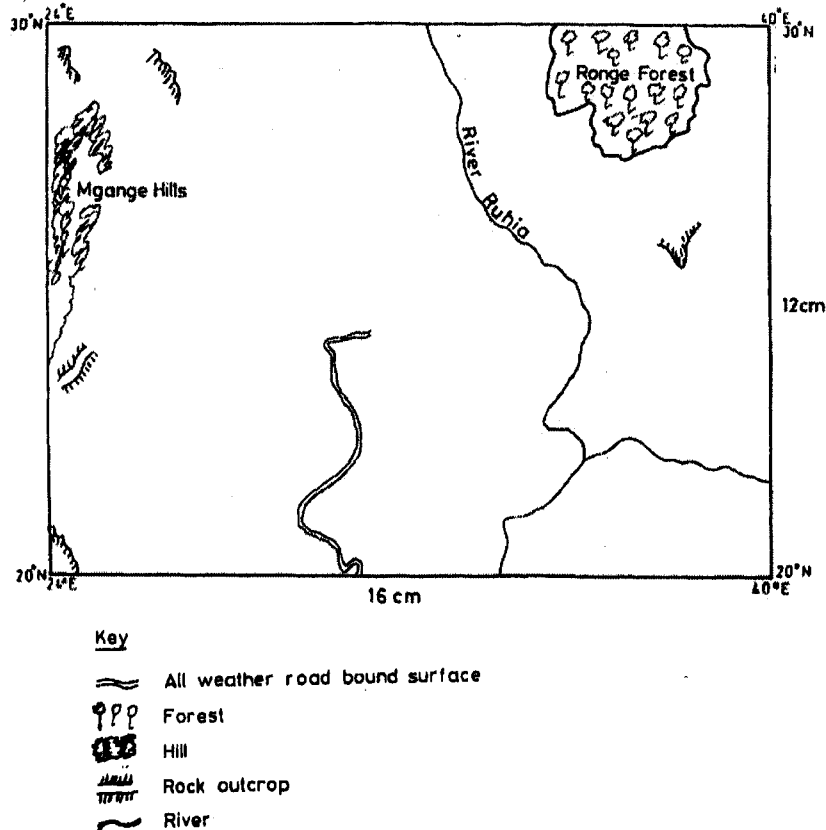
## Expected Responses

(a)

(i) 134° (133°-135°)

(ii) 14 km (13.9- 14.1 km)

(b)



(c)

- The area receives low/ moderate rainfall as evidenced by the presence of scrub / scattered vegetation. Low rainfall discourages growing of other cash crops.
- The area is sparsely populated as evidenced by sparse settlements especially to the eastern side of the estate. This may have encouraged the establishment of the Sisal Estate.
- The dense settlement near Mwatunge hill provides labor required in the sisal estate.
- The road and the railway line which pass close to the sisal estate provides transport for the sisal.
- The gently sloping land as evidenced by the widely spaced contours is ideal for establishing a large scale farm.

(d) (i)

- There are more settlements in the mid-western part of the area than in the other parts.
- There are clusters of settlements at the shopping centers/ markets.
- Gently slopping areas with scrub vegetation have few settlements.
- Escarpments/ steep slopes/ridges have few or no settlements.

- There are many settlements along the roads and motorable tracks.
- There are few settlements along the rivers.
- Forested areas have few/no settlements.
- The sisal estate has no settlements.
- There is sparse settlement in the south-east.

(ii) **Economic activity**

**Evidence**

- Trading/commerce - Shops/markets/Prison/Bank.
- Transportation - Roads/railway/main tracks.
- Cattle keeping - Cattle dips/scrub vegetation.
- Crop farming - Ministry of Agriculture.

**Advice to Teachers**

Teachers should ensure that they revise map work often throughout the four year period. The more students are exposed to map exercises in class the more confident they will become and will eventually acquire the skills to enable them perform better in the final examination.

The difference between “*population*”, “*settlement patterns*” and “*distribution of settlement*” in map reading among other map reading skills should be thoroughly taught and clarified for candidates to be able to understand and differentiate their meanings.

**Question 8**

(a) (i) What is climate?

(ii) Explain two effects of climate change on the physical environment.

(b) The table below shows rainfall and temperature figures of a station in Africa.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temperature in °C	24	24	23	22	19	17	17	18	19	20	22	23
Rainfall in mm	109	122	130	76	52	34	28	38	70	108	121	120

(i) On the graph paper provided, draw a bar graph to represent the rainfall figures. (Use a vertical scale of 1cm to represent 10mm).

(ii) Describe the rainfall pattern of the station.

(iii) Calculate the average monthly temperature for the station.  
(Show your calculations).

(c) You are supposed to carry out a field study on the weather within your school compound.

(i) Describe how you would use the following instruments during the field study:

- the hygrometer
- the rain gauge

(ii) State two ways in which the information collected during the field study would be useful to the local community.

The question expected the candidates to have knowledge of effects of climate change, have the skill of drawing simple graphs using figures given on the table and interpret information on climate from the data given on the table.

## Weaknesses

Many candidates were not able to give the effects of climate change on the environment. There were those who were not able to draw the required graph correctly because they failed to use the vertical scale provided. In part (c), it emerged that many candidates had no idea of how the instruments for recording weather work.

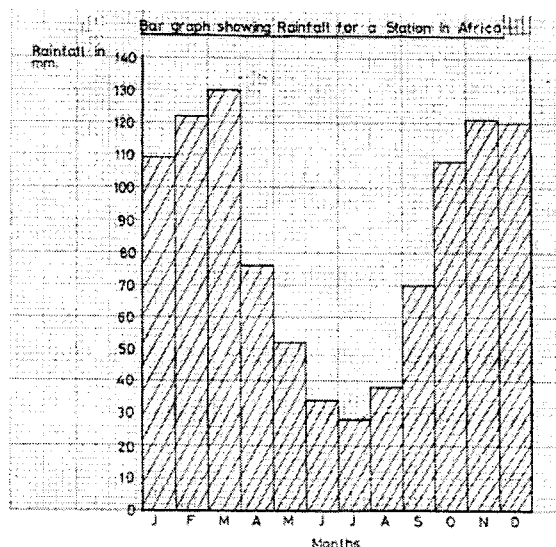
## Expected Responses

(a) (i) It is the average weather conditions of a place over a long period of time.

(ii) Candidates were expected to explain any two of the following listed effects:

- Increase in temperature which may lead to global warming that may cause high evaporation of ocean water. This may lead to increase in rainfall. Other effects of global warming include melting of ice caps, high rate of evaporation and stunted growth of plants.
- Decrease in temperature may lead to severe winters which in turn may cause stunted plant growth, decrease in rainfall and increase in areas under snow.
- Change in rainfall pattern has several effects, which include flooding, soil erosion, rise in sea level and drought.
- Change in wind pattern may lead to destruction of vegetation, destruction of man made features/structures, high and destructive sea waves, wind storms wind erosion and also flooding.

(b) (i)



(ii)

- There is rain throughout the year/no dry month.
- The highest rainfall is received during the hot months/ from October to March/ the lowest rainfall occurs during the cool months/April to September.
- The wettest month is March with 130 mm of rainfall.



- The driest month is July with 28 mm of rainfall.
- The total rainfall is 1008 mm .

(iii) Candidates were expected to add all the temperature figures from January to December, then divide by 12, showing the calculations. = 20.66° C.

(c) (i)

#### *Hygrometer*

- Take the readings on the wet bulb thermometer.
- Take the readings of the dry bulb thermometer.
- Work out the difference between the two readings.
- Interpret the readings.

#### *The rain gauge*

- Remove the water collecting jar from the metal holder.
- Pour the water into the measuring cylinder.
- Take the readings on the measuring cylinder.
- Interpret the readings.

(ii)

- It can be used for making weather charts.
- The data can be used in planning school activities.
- It can be used for planning agricultural activities.
- It can be kept as a school record for future reference.
- It can be used to determine the type of school uniform for the students.

#### **Advice to Teachers**

It is important for teachers to illustrate weather data using charts and graphs when teaching as this will bring out the relationship between statistical information and the diagrammatic representation of the same.

Climate change is a global phenomenon that has generated a lot of concern in the recent years. It must be emphasized during teaching and teachers should read widely from newspapers, journals and the internet so as to acquire current information to pass to their students. Relying solely on the text books is not advisable.

### **10.3 PAPER 2 (312/2)**

#### **Question 6**

Photograph for Question 6 (a) and (b)





The photograph provided shows a tea growing area in Kenya. Use it to answer questions (a) and (b).

- (a)
  - (i) What evidence in the photograph shows that this is a ground general-view type of photograph?
  - (ii) Draw a rectangle measuring 15cm by 10cm to represent the area of the photograph. On it sketch and label the main features shown on the photograph.
  - (iii) Identify **two** features from the photograph that show that this is a small scale tea farm.
- (b) Describe the stages involved in the cultivation of tea from land preparation to the stage shown on the photograph.
- (c)
  - (i) Name **two** districts in the Eastern Province where tea is grown.
  - (ii) Explain **four** ways in which the Kenya Tea Development Agency (KTDA) assists small scale tea farmers in Kenya.

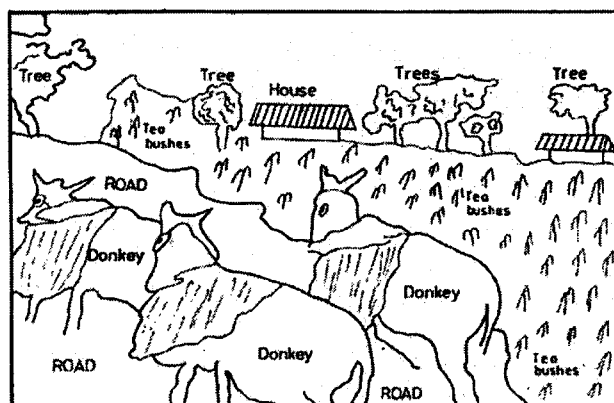
The question required candidates to interpret the photograph to identify features and sketch them as they appear on the photograph. Part (b) of the question required candidates to outline the stages involved in the tea growing process.

### Weaknesses

Some candidates were not accurate in the drawing of the rectangle. There are those who drew rectangles with an orientation of 10cm by 15cm instead of 15cm by 10cm as required so as to align with the shape of the photograph. Others drew rectangles without following the measurements. This distorted the location of the features in the sketch. In part (b) of the question, candidates lost marks because they missed or mixed some of the stages in the tea growing process. Others had only sketchy information on the role of KTDA in assisting small scale farmers.

### Expected Responses

- (a)
  - (i)
    - It does not focus on a particular object.
    - The objects become progressively smaller towards the background.
    - It captures the general appearance of the area.
  - (ii)



(iii)

- Simple houses/houses within the farm.
- The mode of transport by use of donkeys.
- Untrimmed edges of tea bushes.
- Presence of dry maize stalks near the houses.

(b)

- Land is cleared of vegetation.
- Land is ploughed/ tilled.
- Seedlings are planted in nursery and allowed to grow to 20cm.
- Seedlings are transplanted on to the cleared land at the beginning of a rainy season.
- Seedlings are planted in rows which are 1.5 meters apart.
- The plants are weeded and manure applied regularly.
- Once the bushes start growing, the tips of their branches are pruned regularly to encourage the plant to form more branches.
- The crop is harvested every two weeks once it attains maturity.
- After harvesting the tea leaves are transported to the factory within 24 hours.

(c) (i)

- Embu.
- Meru North.
- Meru Central.
- Meru South.

(ii)

- It establishes tea nurseries from where tea farmers buy tea seedlings.
- It organizes farmer education days/ provides extension services for the farmers to learn new ideas about tea growing.
- It buys farm inputs in bulk and sells to the farmers at low prices.
- It provides credit facilities to the farmers to enable them purchase farm inputs.
- It collects the green tea leaves and delivers them to the factory on behalf of the farmers.
- It establishes factories where the green tea leaves are processed.
- It undertakes the marketing of teas on behalf of the farmers.

#### Advice to Teachers

Teachers should ensure they use teachers' hand book to seek guidance on the depth to which they should tackle each topic. This way, they will avoid being too shallow or too detailed. Skills in photograph interpretation should be imparted through constant practice. Teachers should always ensure that students are given proper guidance especially where they may be left to cover a topic on their own.

#### Question 8

- (a) (i) What is forestry?
- (ii) Explain **three** factors that favour the growth of natural forests on the slopes of Mt. Kenya.
- (iii) State **five** factors that have led to the reduction of the area under forest on the slopes of Mt. Kenya.
- (b) Explain **four** measures that the government of Kenya is taking to conserve forests in the country.
- (c) Give the differences in the exploitation of softwood forests in Kenya and

Canada under the following sub-headings:

- (i) period of harvesting;
- (ii) Transportation.

The question expected candidates to have knowledge of forestry in Kenya and be able to apply knowledge of conditions of forest development to the physical conditions on the slopes of Mt. Kenya. They needed to remember that the slopes of Mt. Kenya receive high rainfall, experience cool temperatures and have volcanic soils, then apply these to forest growth. Candidates were also expected to display their knowledge of forest conservation as practiced in Kenya.

### Weaknesses

Nearly all the candidates were unable to define the term forestry. In part (a) (ii) of the question, candidates tended to explain factors in general giving points that were not relevant to Kenya. In part (a) (iii) of the question, some candidates spent time explaining yet they were only required to state the factors that have led to the reduction of the area under forest cover on the slopes of Mount Kenya, while in part (b) points were not explained but they were only stated leading to loss of marks. Part (c) of the question which required comparison between Kenya and Canada was poorly performed with many candidates only getting some points by chance. This was a clear indication of inadequate tuition in this area of the syllabus.

### Expected Responses

(a) (i) It is the science of planting, caring and using trees/forests and their associated resources.

(ii)

- The area receives heavy rainfall/ over 1000mm throughout the year which encourages growth of trees
- The area has deep fertile volcanic soils that allow the roots to penetrate deep into the ground to support the trees.
- The area has well drained soils thus there is no water logging which can choke plants and interfere with their growth.
- The area has moderate to cool temperatures which are ideal for a variety of trees.
- The area is a gazetted forest reserve hence settlement and cultivation are prohibited.
- The steep slopes discourage human activities thus enabling forests to thrive.

(iii)

- The government policy of degazettment has allowed encroachment of human activities.
- Increased population of elephants that destroy the trees.
- Illegal cultivation has led to clearing of parts of the forests.
- Prolonged droughts have caused drying of some trees.
- Plant diseases and pests which destroy some trees in the forest.
- Outbreak of forest fires destroys parts of the forest/ charcoal burning.
- Overexploitation of certain species of trees.

(b)

- Registering/recognizing the efforts of NGOs like the Green Belt Movement which have mounted campaigns on planting of trees.
- Gazetting the forested areas to reduce encroachment by the public.
- Creating public awareness through mass media/public barazas on the importance of conserving forest resources.
- Enacting laws to prohibit the cutting of trees without licenses/protecting indigenous tree species.

- Establishing NEMA/ Ministry of Environment and Natural resources to co-ordinate environmental management and conservation activities.
- Setting aside national tree planting days to encourage people to plant more trees.
- Advising people to practice agro-forestry so as to avoid cutting trees from the forests.
- Employing forest guards to protect forests from fires and other illegal human activities.
- Encourage recycling of paper and other wood-based products so as to reduce demand on trees.
- Carry out research through KEFRI and ICRAF in order to come up with ways of controlling diseases and pests/ develop species suitable for different ecological regions.

(c)

	Kenya	Canada
(i) <i>Period of harvesting</i>	Harvested throughout the year	Harvested in winter and early spring
(ii) <i>Transportation</i>	Mainly road transport	Mainly water transport

### Advice to Teachers

Teachers should use geography dictionaries to define basic terminologies whose meaning students need to know to enable them grasp concepts in the subject. Definitions act as building blocks of geographical concepts and determine the development and level of understanding of the concept by students. It is upon teachers to train the students on how to answer questions within the context in which they are asked to avoid giving information that is irrelevant.

### Question 9(c)

Explain why there are few rail links among African countries.

The question was popular although there was generally poor performance in part (c). This is the part that is discussed here below.

Question 9 (c) required candidates to be aware of the rail line pattern in Africa and the fact that most rail lines begin at the interior and end at sea ports at the coast. Candidates needed to have the historical knowledge of railway building by different colonial governments and how much has been developed after the countries attained their independence and give the reasons why so little has been achieved in this area.

### Weaknesses

Candidates did not seem to know much about the development of the railways in Africa and the physical and economic conditions that favor development of railways. Some of the correct points were simply stated with no explanations given.

### Expected Responses

- Most of the existing rail lines were constructed by the colonialists who had no interest in linking the colonies.
- The rail lines are different gauges making it difficult for countries to link them.
- Political differences/ political instability discourage attempts to link the lines.
- Inadequate capital limits the construction of new rail lines.
- Large areas of the continents are economically unproductive thus it would be uneconomical to link them by railway.
- Difficult terrain /thick forests make it expensive to construct railway lines.

- Limited trade links due to production of similar commodities makes it unjustifiable to construct rail links.

#### **10.4 GENERAL COMMENTS**

- 10.4.1 Teachers must use the local environment where applicable to handle some of the topics in Geography. (Examples of such areas are soils, agriculture, vegetation, rocks)
- 10.4.2 Revision work on areas where performance has always been poor should be a must to give students sufficient practice.
- 10.4.3 Teachers should insist on students following instructions when answering questions in examinations to avoid contravening the rubric as this will lead to loss of marks.
- 10.4.4 Teachers must keep abreast with current changes and expectations in education and specifically the areas of specialization to ensure that they give proper guidance to the students. For instance, fieldwork in paper 2 (312/ 2) caught most candidates by surprise yet this is clearly stated in the syllabus.
- 10.4.5 Human and economic Geography is a dynamic subject that requires that teachers are well informed especially on emerging issues so as to pass the same knowledge to the students in order for them to confidently attempt questions related to such. This calls for wide research to supplement the information in the text books.
- 10.4.6 Teachers should train the students to avoid using generalized approaches to answer questions that are based on case studies.

## 23.8 GEOGRAPHY

### 23.8.1 Geography Paper 1 (312/1)

312/1  
GEOGRAPHY  
Paper 1  
Oct./Nov. 2007  
2  $\frac{3}{4}$  hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL  
Kenya Certificate of Secondary Education  
GEOGRAPHY  
Paper 1  
2  $\frac{3}{4}$  hours

*This paper has two sections: A and B.*

*Answer all the questions in section A. In section B answer question 6 and any other two questions. All answers must be written in the answer booklet provided.*

**This paper consists of 6 printed pages**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.**

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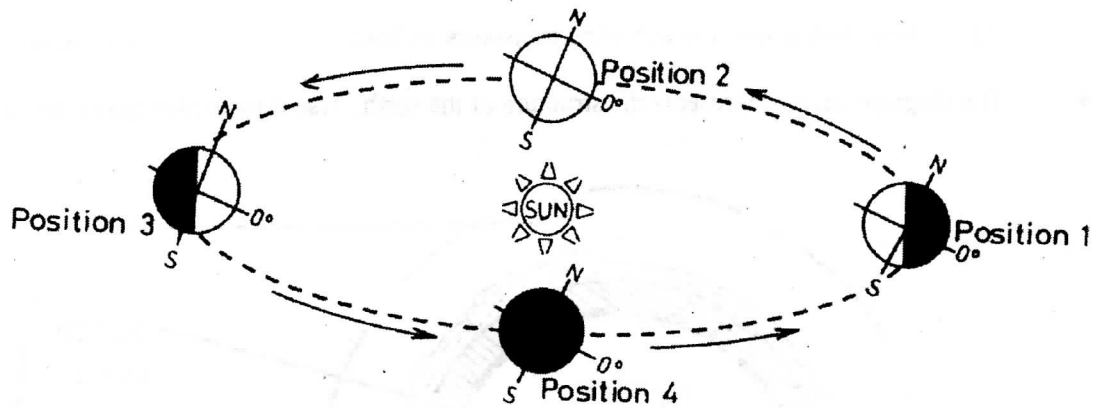
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**Turn over**

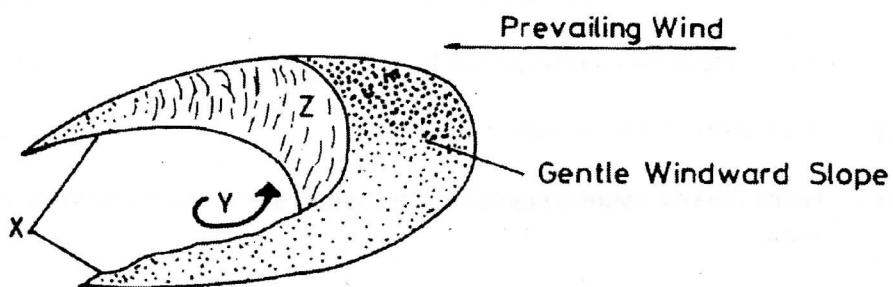
## SECTION A

*Answer all the questions in this section.*

- 1 (a) State **two** effects of the rotation of the earth. (2 marks)
- (b) Study the diagram below and answer the questions that follow.



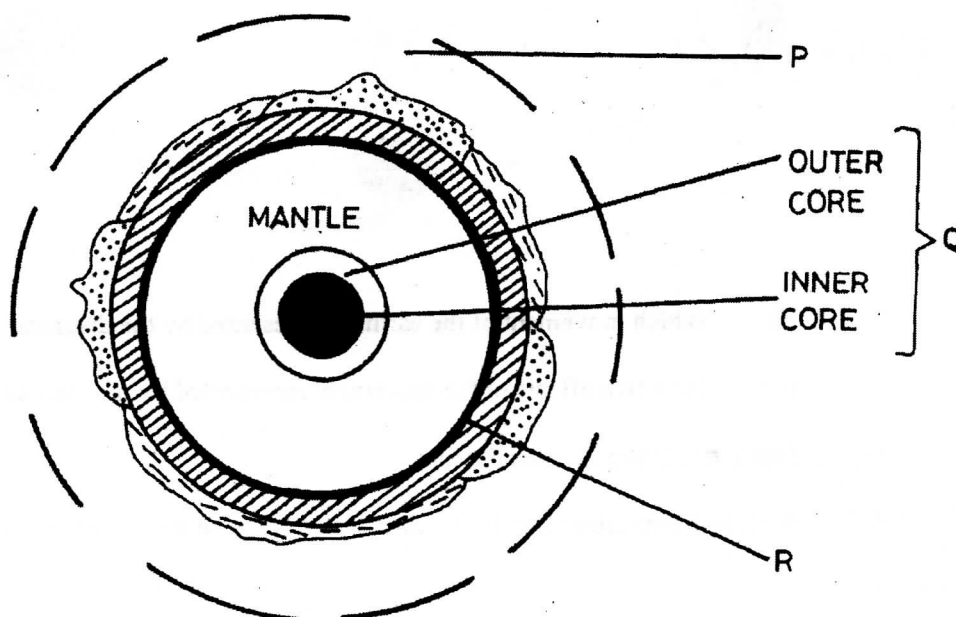
- (i) Which movement of the earth is represented by the diagram? (1 mark)
  - (ii) Give **two** effects of the movement represented by the diagram. (2 marks)
- 2 (a) Name **two** types of coastal deltas. (2 marks)
  - (b) State **two** conditions that lead to deposition of silt at the mouth of a river. (2 marks)
- 3 The diagram below represents a barchan. Use it to answer question (a).





- (a) Name
- (i) the feature marked X. (1 mark)
  - (ii) the air current marked Y. (1 mark)
  - (iii) the slope marked Z. (1 mark)
- (b) Give **two** ways in which wind transports its load. (2 marks)

4 The diagram below represents the structure of the earth. Use it to answer questions (a).



- (a) Name
- (i) the parts marked P and Q. (2 marks)
  - (ii) the discontinuity marked R. (1 mark)
- (b) State **three** characteristics of the mantle. (3 marks)
- 5 (a) Name the **two** major types of earth movements that occur within the earth's crust. (2 marks)
- (b) Describe the origin of the continents according to the Theory of Continental Drift. (3 marks)

## SECTION B

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

- 6 Study the map of Taita Hills (1:50,000) sheet 189/4 provided and answer the following questions.
- (a) (i) What is the bearing of the peak of Mwatunga hill in grid square 3214 from the water tank in grid square 2619? (2 marks)
- (ii) What is the length in Kilometres of the section of the Mwatate-Voi railway line in the south-eastern part of the map? (2 marks)
- (b) Draw a rectangle measuring 16 cm by 12 cm to represent the area enclosed by the Eastings 24 and 40 and Northings 20 and 30. (1 mark)
- On the rectangle, mark and name the following features:
- Mgence hills (1 mark)
  - a rock out crop (1 mark)
  - All weather road, bound surface (1 mark)
  - River Ruhia (1 mark)
  - Ronge forest (1 mark)
- (c) Using evidence from the map, explain three factors that may have favoured the establishment of the Teita Sisal Estates in the southern part of the area covered by the map. (6 marks)
- (d) (i) Describe the distribution of settlements in the area covered by the map. (5 marks)
- (ii) Citing evidence from the map, give two economic activities carried out in the area covered by the map other than sisal farming. (4 marks)
- 7 (a) Describe the following characteristics of minerals:
- (i) colour (2 marks)
  - (ii) cleavage (2 marks)
  - (iii) hardness. (2 marks)
- (b) (i) Give two types of igneous rocks. (2 marks)
- (ii) Explain three conditions necessary for the growth of coral polyps. (6 marks)

(c) State **four** uses of rocks. (4 marks)

(d) You are planning to carry out a field study on the rocks within your school environment.

(i) Give **two** secondary sources of information you would use to prepare for the field study. (2 marks)

(ii) State why you would need the following items during the field study:

- a fork jembe (1 mark)

- a polythene bag (1 mark)

(iii) Suppose during the field study you collected marble, sandstone and granite, classify each of these samples according to its mode of formation. (3 marks)

8 (a) (i) What is climate? (2 marks)

(ii) Explain **two** effects of climate change on the physical environment. (4 marks)

(b) The table below shows rainfall and temperature figures of a station in Africa.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temperature in °C	24	24	23	22	19	17	17	18	19	20	22	23
Rainfall in mm	109	122	130	76	52	34	28	38	70	108	121	120

(i) On the graph paper provided, draw a bar graph to represent the rainfall figures. (Use a vertical scale of 1cm to represent 10mm). (5 marks)

(ii) Describe the rainfall pattern of the station. (4 marks)

(iii) Calculate the average monthly temperature for the station. (Show your calculations). (2 marks)

(c) You are supposed to carry out a field study on the weather within your school compound.

(i) Describe how you would use the following instruments during the field study:

- the hygrometer (3 marks)

- the rain gauge (3 marks)

- (ii) State **two** ways in which the information collected during the field study would be useful to the local community. (2 marks)
- 9 (a) Give **three** processes that lead to formation of lakes. (3 marks)
- (b) (i) Describe how Lake Victoria was formed. (4 marks)
- (ii) Explain how Lake Victoria influences the climate of the surrounding areas. (6 marks)
- (c) (i) Apart from Lake Magadi, name **two** other lakes within the rift valley in Kenya that have a high level of salinity. (2 marks)
- (ii) Explain **three** causes of salinity in Lake Magadi. (6 marks)
- (d) Give **four** economic uses of lakes other than mining. (4 marks)
- 10 (a) (i) What is the difference between weathering and mass wasting? (2 marks)
- (ii) Apart from plants, give **three** other factors that influence the rate of weathering. (3 marks)
- (iii) Explain **two** ways in which plants cause weathering. (4 marks)
- (b) (i) List **two** types of mass wasting other than soil creep. (2 marks)
- (ii) Explain **three** factors that cause soil creep. (6 marks)
- (c) Explain **four** effects of mass wasting on the environment. (8 marks)

**23.8.2 Geography Paper 2 (312/2)**

**312/2**  
**GEOGRAPHY**  
**Paper 2**  
**Oct./Nov. 2007**  
**2½ hours**

**THE KENYA NATIONAL EXAMINATIONS COUNCIL**  
**Kenya Certificate of Secondary Education**  
**GEOGRAPHY**  
**Paper 2**  
**2½ hours**

*This paper has two sections: A and B.*

*Answer **ALL** the questions in section A. In section B answer **question 6** and any other **two** questions.*  
*All answers must be written in the answer booklet provided.*

**This paper consists of 6 printed pages**

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.**

**7038**

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**Turn over**

## SECTION A

*Answer all the questions in this section.*

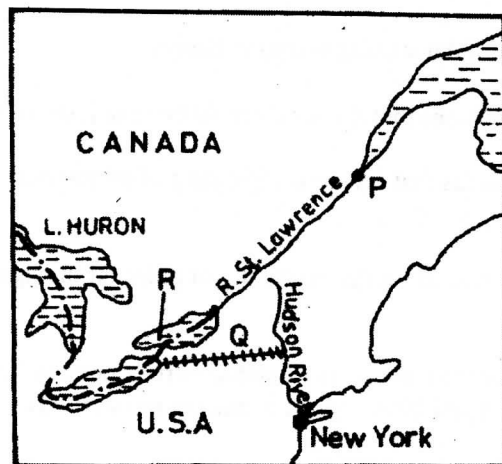
- 1 (a) Name **two** exotic breeds of dairy cattle reared in Kenya. (2 marks)
- (b) State **three** physical conditions that favour dairy farming in Denmark. (3 marks)
- 2 (a) State **two** climatic conditions that favour the growing of oil palm in Nigeria. (2 marks)
- (b) Give **two** problems experienced in the marketing of palm oil in Nigeria. (2 marks)
- 3 The table below shows petroleum production in thousand barrels per day for countries in the Middle East in **April 2006**. Use it to answer question (a).

Country	Production in '000' barrels
Iran	3800
Kuwait	2550
Qatar	800
Saudi Arabia	9600
United Arab Emirates	2500
Iraq	1900

- (a) (i) What is the difference in production between the highest and the lowest producer? (1 mark)
- (ii) What is the total amount of petroleum produced in April 2006 in the region? (1 mark)
- (iii) Calculate the average daily petroleum production for Kuwait for April 2006. (1 mark)
- (b) State **three** conditions that are necessary for the formation of petroleum. (3 marks)



- 4 Below is a sketch map showing part of the Great Lakes and St. Lawrence Sea Way. Use it to answer question (a).



**KEY**  
- - - - - International boundary

- (a) Name
- (i) the port marked P. (1 mark)
  - (ii) the canal marked Q. (1 mark)
  - (iii) the lake marked R. (1 mark)
- (b) State three ways in which the Great Lakes and St. Lawrence Sea Way has contributed to the growth of industries in the region. (3 marks)
- 5 (a) Apart from HIV and AIDS, give two other causes of mortality in East Africa. (2 marks)
- (b) State two ways in which the spread of HIV and AIDS in Kenya may slow down economic development. (2 marks)



312/2  
GEOGRAPHY  
Paper 2  
Oct./Nov. 2007

THE KENYA NATIONAL EXAMINATIONS COUNCIL  
Kenya Certificate of Secondary Education  
GEOGRAPHY  
Paper 2

Photograph for Question 6 (a) and (b)



7038

This paper consists of 1 printed page

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## SECTION B

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

- 6** The photograph provided shows a tea growing area in Kenya. Use it to answer questions (a) and (b).
- (a)
    - (i) What evidence in the photograph shows that this is a ground general-view type of photograph? (2 marks)
    - (ii) Draw a rectangle measuring 15cm by 10cm to represent the area of the photograph. On it sketch and label the main features shown on the photograph. (5 marks)
    - (iii) Identify two features from the photograph that show that this is a small scale tea farm. (2 marks)
  - (b) Describe the stages involved in the cultivation of tea from land preparation to the stage shown on the photograph. (6 marks)
  - (c)
    - (i) Name two districts in the Eastern Province where tea is grown. (2 marks)
    - (ii) Explain four ways in which the Kenya Tea Development Agency (KTDA) assists small scale tea farmers in Kenya. (8 marks)
- 7**
- (a) Name three agricultural food processing industries in Kenya. (3 marks)
  - (b) Explain how the following factors have favoured the development of industries in Thika town:
    - (i) proximity to Nairobi; (2 marks)
    - (ii) availability of water; (2 marks)
    - (iii) the hinterland. (2 marks)
  - (c) Explain four ways in which Kenya has benefited from industrialization. (8 marks)
  - (d)
    - (i) Name two towns in Kenya where motor-vehicle assembling plants are located. (2 marks)
    - (ii) Explain three factors which have favoured the development of car manufacturing industry in Japan. (6 marks)
- 8**
- (a)
    - (i) What is forestry? (2 marks)
    - (ii) Explain three factors that favour the growth of natural forests on the slopes of Mt. Kenya. (6 marks)
    - (iii) State five factors that have led to the reduction of the area under forest on the slopes of Mt. Kenya. (5 marks)

- (b) Explain **four** measures that the government of Kenya is taking to conserve forests in the country. (8 marks)
- (c) Give the differences in the exploitation of softwood forests in Kenya and Canada under the following sub-headings:
- (i) period of harvesting; (2 marks)
  - (ii) Transportation. (2 marks)
- 9 (a) (i) Name **three** international airports in Kenya. (3 marks)
- (ii) Give **four** advantages of air transport over road transport. (4 marks)
- (b) Explain **four** measures that should be taken to improve road transport in Kenya. (8 marks)
- (c) Explain why there are few rail links among African countries. (6 marks)
- (d) Give **four** reasons why there is limited use of river transport in Africa. (4 marks)
- 10 (a) (i) State **two** causes of water pollution. (2 marks)
- (ii) Give **two** effects of water pollution on the environment. (2 marks)
- (b) Explain **four** methods used to control floods on rivers in Kenya. (8 marks)
- (c) Explain how the following soil conservation methods improve the quality of soil:
- (i) contour farming; (2 marks)
  - (ii) Mulching; (2 marks)
  - (iii) Crop rotation. (2 marks)
- (d) You intend to carry out a field study on pollution in the local open air market.
- (i) State **three** reasons why it would be necessary for you to visit the market before the actual field study. (3 marks)
  - (ii) Give **two** methods that you would use to collect information on pollution. (2 marks)
  - (iii) Give **two** follow-up activities you would carry out after the field study. (2 marks)

## 24.8 GEOGRAPHY



MANYAM FRANCHISE  
Discover! Learn! Apply

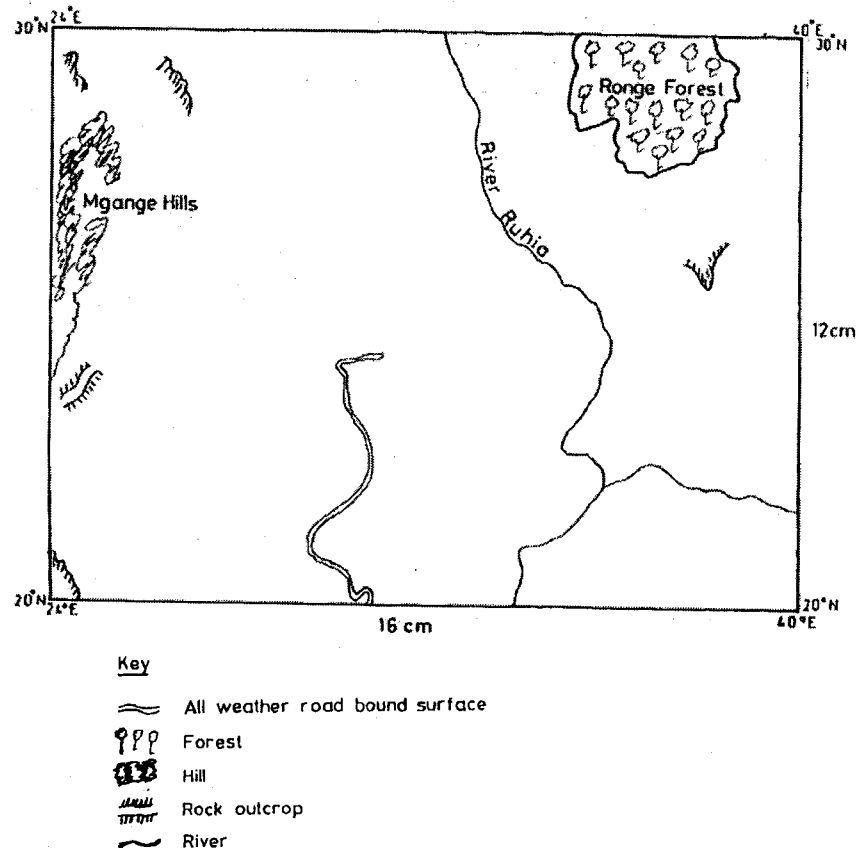
### 24.8.1 Geography Paper 1 (312/1)

1. (a)
- It causes the occurrence of day and night.
  - It leads to the rising and falling of tides/high and low tides.
  - It causes differences in time over the earth's surface/time difference at different longitudes.
  - It causes deflation of winds and ocean currents. **(Any 2 x 1 = 2 marks)**
- (b) (i) Revolution. **(1 mark)**
- (ii)
- It causes seasons.
  - It causes changes in the position of the mid-day sun.
  - It causes varying lengths of days and nights at different times of the year. **(Any 2 x 1 = 2 marks)**
2. (a)
- Arcuate.
  - Bird's Foot.
  - Estuarine.
  - Cuspate. **(Any 2 x 1 = 2 marks)**
- (b)
- Presence of large load/ample supply of silt.
  - Absence of strong waves or currents in the sea/lake.
  - Decrease in the velocity/speed of a river.
  - Presence of gentle gradient. **(Any 2 x 1 = 2 marks)**
3. (a) (i) The feature marked X: Horn. **(1 mark)**
- (ii) The air current marked Y: Eddy current. **(1 mark)**
- (iii) The slope marked Z: Concave/slip face. **(1 mark)**
- (b)
- By suspension.
  - By saltation.
  - By surface creep. **(Any 2 x 1 = 2 marks)**
4. (a) (i)
- |     |   |                     |                 |
|-----|---|---------------------|-----------------|
| ▪ P | – | Atmosphere.         | <b>(1 mark)</b> |
| ▪ Q | – | Barysphere.         | <b>(1 mark)</b> |
| ▪ R | – | Moho Discontinuity. | <b>(1 mark)</b> |
- (b)
- It is divided into two parts namely the upper mantle and the lower mantle.
  - The upper mantle has lower temperatures than the lower mantle.
  - The upper mantle is an elastic solid/semi-molten.
  - The lower mantle is viscous liquid.
  - On average the mantle is about 2,900 km thick.
  - The mantle has an average density of 3.0 to 3.3 gms/cc. **(Any 3 x 1 = 3 marks)**
5. (a)
- Lateral/horizontal/orogenic movement.
  - Vertical/ epeirogenic movement. **(2 marks)**
- (b)
- The earth was originally one huge land mass/pangea/super continent
  - Pangea was surrounded by a large super water body/sea called panthalassa.

- Pangea split into two sub-continents to form two other land masses called Laurasia and Gondwanaland.
- The two landmasses were separated by a sea called Tethys.
- Further split occurred on the two landmasses.
- Laurasia broke to form the continents in the northern hemisphere.
- Gondwanaland formed the continents in the southern hemisphere.
- The continents gradually drifted to their present position. *(Any 3 x 1 = 3 marks)*

6. (a) (i)  $134^{\circ}$  ( $133^{\circ} - 135^{\circ}$ ). *(2 marks)*  
(ii) 14 km ( $13.9 - 14.1$  km). *(2 marks)*

(b)



*(6 marks)*

(c)

- The area receives low rainfall as evidenced by the presence of scrub vegetation. Low rainfall discourages growing of other cash crops.
- The area is sparsely populated as evidenced by scattered settlements especially to the eastern side from the Estate. This may have encouraged the establishment of the estate due to availability of land.
- The dense settlement near Mwatunge hill provides labour required in the Sisal Estate.
- The road and the railway line which pass close to the Sisal Estate provide transport for the sisal.
- The gently sloping land as evidenced by the widely spaced contours is ideal for establishing a large scale farm. *(Any 3 x 2 = 6 marks)*

- (d) (i)
- There are more settlements in the mid-western part of the map than in the other parts.
  - There are clusters of settlements at shopping centres/markets.
  - Gently sloping areas with scrub vegetation have few settlements.
  - Escarpments/steep slopes/ridges have few or no settlements.
  - There are many settlements along the roads and motorable tracks.
  - There are few settlements along the rivers.
  - Forested areas have no settlements.
  - The Sisal Estate has no settlements. (Any 5 x 1 = 5 marks)

(ii)

**Economic activity**

**Evidence**

- |                    |   |                                 |
|--------------------|---|---------------------------------|
| ▪ Trading/commerce | - | Shops/markets/Prison/Bank.      |
| ▪ Transportation   | - | Roads/railway/main tracks.      |
| ▪ Cattle keeping   | - | Cattle dips/scrub vegetation.   |
| ▪ Crop farming     | - | Ministry of Agriculture office. |

(Any 2 x 2 = 4 marks)

7.

(a)

- (i) **Colour:** Different minerals display different colours, for example: minerals that have iron have dark colours. (2 marks)
- (ii) **Cleavage:** Minerals have patterns in which they break. Some minerals break into thin layers while others break along layers. (2 marks)
- (iii) **Hardness:** This is the measure of resistance of a mineral to disintegration. Some minerals such as diamond have a high resistance while others such as talc are soft. (2 marks)

(b)

(i)

- Intrusive rocks/ plutonic rocks.
- Extrusive rocks/ volcanic rocks.
- Hypabyssal rocks/ intermediate rocks. (Any 2 x 1 = 2 marks)

(ii)

- They require warm water/20-30°C in order to live.
- They require well oxygenated water for them to grow fast.
- They require water that is free from sediments because silt interferes with their ability to gather food.
- They require enough light in the water for the growth of plankton which is the food for polyps.
- They require saline water from which the polyps extract lime to construct their skeletons. (Any 3 x 2 = 6 marks)

(c)

- Rocks weather down to form soil which supports agriculture.
- Rocks are water reservoirs.
- Rocks provide raw materials for the building and construction industry.
- Rocks are sources of minerals.
- Some rocks act as Tourist attraction.
- Some rocks are used in sculpturing/carving industry to make ornaments.
- Study of rocks provides information about the past. (Any 4 x 1 = 4 marks)

(d)

(i)

- Text books.
- Magazines.
- Class notes.
- Internet/information recorded on CDs. (Any 2 x 1 = 2 marks)

(ii)

- A fork jembe: for digging up the rocks. (1 mark)
- A polythene bag: for carrying rock samples. (1 mark)

(iii)

- **Marble** : Metamorphic rock.
- **Sandstone**: Sedimentary rock.
- **Granite**: Igneous rock.

(3 marks)

8.

(a)

(i)

It is the average weather conditions of a place for a long period of time.

(2 marks)

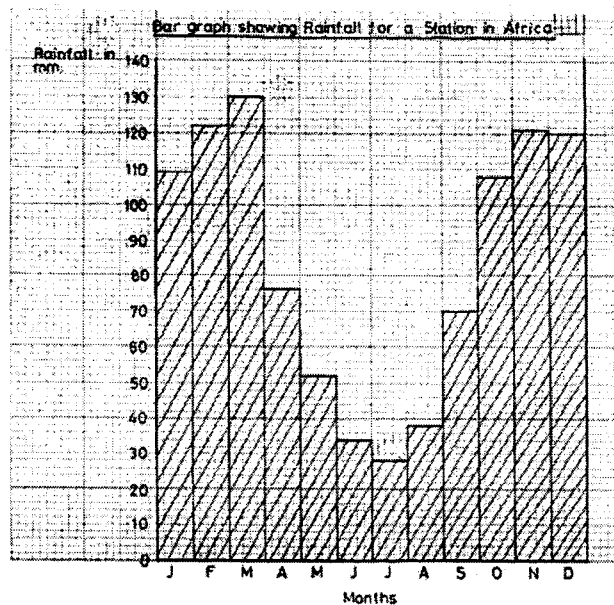
(ii)

- Global warming/increased temperature may lead to increased evaporation of ocean water which may cause heavy rainfall in some areas.
- Increased temperature may lead to the melting of ice caps/ice sheets and glaciers leading to rising sea level.
- Increased temperature may lead to high evaporation causing drought.
- Climate change may cause changes in rainfall patterns in different parts of the world.

(Any 2 x 2 = 4 marks)

(b)

(i)



(5 marks)

(ii)

- There is rain throughout the year/no dry month.
- The highest rainfall is received during the hot months/from October to March/ the lowest rainfall occurs during the coolest months/April to September.
- The wettest month is March with 130mm. The driest month is July with 28mm.
- The total annual rainfall is 1008mm.

(Any 2 x 2 = 4 marks)

(iii)

$$24 + 24 + \dots + 24 + 12 = 20.66^{\circ}\text{C}$$

(2 marks)

(c)

(i)

**The hygrometer**

- Taking the readings on the wet bulb thermometer.
- Taking the readings on the dry bulb thermometer.
- Working out the difference between the two readings.
- Interpreting the readings.

(Any 3 x 1 = 3 marks)

**The rain gauge**

- Remove the water collecting jar from the metal holder.



- Pour the water into the measuring cylinder.
    - Take the readings on the measuring cylinder.
    - Interpret the readings. *(Any 3 x 1 = 3 marks)*
  - (ii)
    - It can be used for making weather charts.
    - The data can be used to plan for school activities.
    - It can be used to plan for agricultural activities.
    - It can be kept as a school record for future reference.
    - It can be used to determine the type of uniform for the students. *(Any 2 x 1 = 2 marks)*
- 9.
- (a)
- Crustal warping.
  - Volcanic activity.
  - Erosion.
  - Deposition.
  - Human/organic activity. *(Any 3 x 1 = 3 marks)*
- (b)
- (i)
- Earth movements led to crustal down warping.
  - A shallow depression was created.
  - The areas around the depression underwent uplifting.
  - The uplifting reversed the direction of rivers such as R. Kagera.
  - Water from the rivers and from rain eventually filled the depression.
  - The resulting feature became a lake. *(Any 4 x 1 = 4 marks)*
- (ii)
- Evaporation from the Lake increases moisture in the atmosphere. This moisture condenses to form conventional rainfall.
  - Evaporation from the Lake leads to high relative humidity in the area.
  - The Lake encourages formation of lake breezes which have a cooling effect on the shores of the Lake.
  - Regular land and lake breezes modify the temperatures, keeping the diurnal range low. *(Any 3 x 2 = 6 marks)*
- (c)
- (i)
- Lake Nakuru.
  - Lake Elmentaita.
  - Lake Bogoria. *(Any 2 x 1 = 2 marks)*
- (ii)
- The Lake lacks an outlet to the sea, thus mineral salts accumulate in its water.
  - Presence of salt-bearing rocks on the lake bed leads to mineral salts dissolving in the water in the lake.
  - The high temperatures in the area lead to high evaporation from the lake resulting in high concentration of mineral salts in the water.
  - Mineral salts are deposited into the lake by surface run-off increasing the concentration of salts in the water.
  - Underground seepage of the water that is rich in mineral salts adds to the salt in the lake. *(Any 3 x 2 = 6 marks)*
- (d)
- Lakes are scenic sites which promote tourism/recreation.
  - They provide water for irrigation/domestic use/industrial use.
  - They are reservoirs for water used for generating HEP.
  - They are used for transport.
  - They are used as fisheries.
  - Some lakes have sand that is harvested for building and construction. *(Any 4 x 1 = 4 marks)*

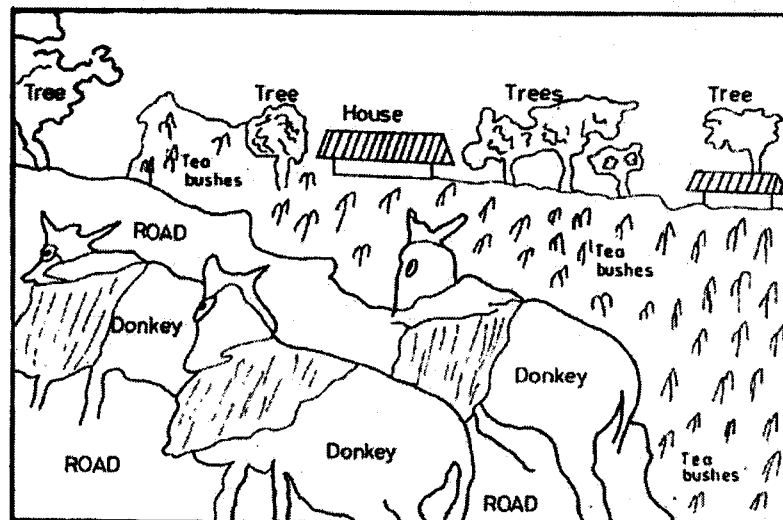
10. (a) (i) **Weathering** is the breaking down and decomposition of rocks at or near the earth's surface by physical or chemical processes while **Mass Wasting** is the displacement or movement of weathered materials downslope under the influence of gravity. (2 marks)
- (ii)
- Nature of the rock.
  - Climate.
  - Human activities/animals.
  - Time.
- (Any 3 x 1 = 3 marks)
- (iii)
- As plants grow, their roots penetrate into rock cracks/joints causing them to widen and eventually the rock disintegrates.
  - Plants absorb minerals from rocks and this weakens the rocks causing them to disintegrate.
  - As plants rot on rocks, they release organic acids which then react with some minerals in the rocks leading to disintegration of the rocks.
- (Any 2 x 2 = 4 marks)
- (b) (i)
- Earth flows.
  - Mud flows.
  - Land slides.
  - Rainwash/downwash.
- (Any 2 x 1 = 2 marks)
- (ii)
- Temperature change causes soil particles to expand and contract, hence they shift position downslope. Moisture/ rainwater causes soils to become wet and compact. On drying, the particles loosen and may shift from the original position down the slope.
  - Human activities and the action of barrowing animals may cause the removal of soil on the lower part of a slope. This has a trigger effect on soil particles on the upper part of a slope which may then shift downslope.
  - Freezing of soil water expands the spaces between soil particles. Once the water thaws, the particles fall by gravity and may shift position downslope.
  - Moisture acts as lubricant to soil particles causing their movement downslope.
  - External forces such as moving vehicles and earth tremors have a trigger effect which causes downward movement of soil particles.
- (Any 3 x 2 = 6 marks)
- (c)
- Mass wasting leads to formation of derelict land. As a result scars are left on the landscape when rock materials break away from a hillside. This spoils the beauty of the land.
  - As the materials move over the land they facilitate the loosening of the top soil thus increasing soil erosion.
  - Materials from a landslide may create a barrier across a river valley thus leading to eventual formation of a lake.
  - Landslides may cause rivers to change their courses reducing the volume of water downstream.
  - Mass movement/landslides causes damage to property when materials cover structures such as roads, farms or homes. This obstructs normal life.
  - Some form of mass movement lead to loss of life when people/animals are buried under large quantities of rock waste.
  - Mass movement may create sceneries that may become tourist attractions.
- (Any 4 x 2 = 8 marks)

## 24.8.2 Geography Paper 2 (312/2)

1. (a)
- Friesian.
  - Ayrshire.
  - Guernsey.
  - Jersey.
  - Alderney.
  - Brown swiss.
  - Holstein.
- (Any 2 x 1 = 2 marks)*
- (b)
- The landscape is gently sloping which is suitable for grazing.
  - The climate has warm and sunny summers that allow outdoor grazing.
  - There is cool climate suitable for pasture growing.
  - The moderate rainfall that supports growth of grass/fodder crops.
  - Soils are fertile to support high quality pasture.
- (Any 3 x 1 = 3 marks)*
2. (a)
- High temperatures throughout the year/23°C to 30°C.
  - High rainfall that is evenly distributed throughout the year (1500 to 2100mm).
  - High relative humidity of 80% to 90%.
  - Plenty of sunshine during the ripening season.
- (Any 2 x 1 = 2 marks)*
- (b)
- Competition from other vegetable oils.
  - Poor transport network.
  - Production of low quality oil.
  - Reduced production which has lowered the amount of oil exported.
- (Any 2 x 1 = 2 marks)*
3. (a)
- (i) 8,800,000 barrels. *(1 mark)*
  - (ii) 21,150,000 barrels. *(1 mark)*
  - (iii)  $2,550,000 \div 30 = 85,000$  barrels. *(1 mark)*
- (b)
- Deposit of remains of flora and fauna over a long period of time.
  - Presence of non-porous rocks underneath the deposits of the flora and fauna.
  - Deposit of other layers of rocks over the remains of flora and fauna.
  - Compression of the remains of flora and fauna due to folding of the layers of rocks.
- (Any 3 x 1 = 3 marks)*
4. (a)
- (i) **The port marked P:** Quebec. *(1 mark)*
  - (ii) **The canal marked Q:** New York State Barge Canal/ Erie Canal. *(1 mark)*
  - (iii) **The lake marked R:** Lake Ontario. *(1 mark)*
- (b)
- It has increased internal and external trade.
  - It has facilitated the transportation of raw materials and finished products.
  - It has reduced the cost of transportation of bulky products.
  - The dams along the sea way provide HEP for industrial use.
  - It has led to the development of lake ports and towns which provide market/labour/housing facilities.
  - The reservoirs provide water for industrial use.
- (Any 3 x 1 = 3 marks)*

5. (a)
- Natural calamities.
  - Low nutritional standards/famine.
  - Conflicts.
  - Other epidemics/diseases.
  - Inadequate medical facilities.
- (Any 2 x 1 = 2 marks)*
- (b)
- The sickness leads to absenteeism from work.
  - Money spent in treating the sick could be used for other economic activities.
  - Deaths resulting from the disease lead to loss of economically productive population.
  - Care-takers at family level use more time caring for the sick/orphans instead of engaging in economic activities.
- (Any 2 x 1 = 2 marks)*

6. (a) (i)
- It does not focus on a particular object.
  - The objects become progressively smaller towards the background.
  - It captures the general appearance of the area.
- (Any 2 x 1 = 2 marks)*
- (ii)



*(5 marks)*

- (iii)
- The type of houses.
  - The mode of transport.
- (2 marks)*
- (b)
- The land is cleared of vegetation.
  - Land is ploughed/ tilled.
  - Seedlings are planted in nursery and allowed to grow to 20 cm.
  - Seedlings are transplanted on to the cleared land at the beginning of the rainy season.
  - Seedlings are planted in rows, which are about 1.5 metres apart.
  - The plants are weeded and manure applied regularly.
  - Once the bushes start growing, the tips of their branches are pruned regularly to encourage the plant to form more branches.
  - The crop is harvested every two weeks once it attains maturity.
  - After harvesting, the green tea leaves are transported to the factory within 24 hours.
- (Any 6 x 1 = 6 marks)*
- (c) (i)
- Embu.
  - Meru North.
  - Meru South.
  - Meru Central.
- (Any 2 x 1 = 2 marks)*

- (ii)
- It establishes tea nurseries from where tea farmers buy tea seedlings.
  - It organizes farmer education days/provides extension services for the farmers to learn new ideas about tea growing.
  - It buys farm inputs in bulk and sells to the farmers at low prices.
  - It provides credit facilities to the farmers to enable them purchase farm inputs.
  - It collects the green tea leaves and delivers to the factory on behalf of the farmers.
  - It establishes factories where the green tea leaves are processed.
  - It undertakes the marketing of tea on behalf of the farmers.

(Any 4 x 2 = 8 marks)

7. (a)

- Tea processing.
- Coffee processing.
- Milk processing.
- Sugar refining.
- Fruit canning.
- Brewing.
- Bakeries.
- Meat canning.

(Any 3 x 1 = 3 marks)

(b) (i) ***Proximity to Nairobi***

- Nairobi provides some inputs required by the industries in Thika.
- There is industrial interdependence among the industries in Nairobi and Thika.
- The rail and road connection between Nairobi and Thika provides easy movement of goods and services for the industries in Thika.

(Any 1 x 2 = 2 marks)

(ii) ***Availability of water***

- River Chania which passes through Thika town provides fresh water for industrial use especially for the coffee processing and fruit canning industries.
- Water for use in the industries is available throughout the year since river Chania is permanent.

(Any 1 x 2 = 2 marks)

(iii) ***The hinterland***

- Thika town has a rich agricultural hinterland which provides raw materials for the industries.
- The hinterland is densely populated hence provides cheap labour for the industries.

(Any 1 x 2 = 2 mark)

(c)

- Kenya exports industrial goods, thus earning foreign exchange which is then used to develop other sectors of the economy.
- It has created employment opportunities hence raising the standard of living of the people.
- It has led to the development of transport and communication networks thus facilitating the development of other sectors of the economy.
- It has facilitated the establishment of social amenities in the areas where industries are located.
- It has led to increased agricultural production since some industries use agricultural raw materials.
- It has led to the acquisition of management and technical skills which are also used in other sectors of the economy.

- It has led to the diversification of the economy thus reducing reliance on the agricultural sector.
- It has led to the improvement in the balance of trade since there is added value to the export products.
- It has led to the reduction of the importation of some industrial goods thus saving foreign exchange.
- It has led to the growth and expansion of settlements and urban centres as labour migrates to the industrial centres.

*(Any 4 x 2 = 8 marks)*

(d) (i)

- Nairobi.
- Mombasa.
- Thika.

*(Any 2 x 1 = 2 marks)*

(ii)

- The country has adequate capital to invest in the industry.
- Advanced technology and research has led to efficient methods of production of high quality cars which are competitive in the world market.
- Japan produces fuel-saving vehicles leading to a high demand for them in the world market.
- Japan has a highly skilled and industrious work force which enhances efficiency in production.
- Japan has many sea ports which makes the importation of raw materials and exportation of cars possible.
- The government policy/ peace and stability has encouraged Industrialization which has led to rapid development of industries.
- Japan has highly developed hydro-electric power projects which provide power needed for the industries.
- The presence of a large population with a high purchasing power provides a large local market for the cars.
- Japan's terrain is not suitable for development of agriculture and thus industries provide an alternative source of income to be used for buying food and other requirements.
- The strategic position of Japan in relation to other countries encourages trade thus promoting production of vehicles/Japan is accessible from all directions through the sea.

*(Any 3 x 2 = 6 marks)*

8. (a) (i) It is the science of planting, caring and using trees/forests and their associated resources.

*(2 marks)*

(ii)

- The area receives heavy rainfall/over 1000mm throughout the year, which encourages growth of trees.
- The area has deep fertile volcanic soils that allow the roots to penetrate deep into the ground to support the trees.
- The area has well drained soils thus there is no water logging which can choke plants and interfere with their growth.
- The area has moderate to cool temperatures which are ideal for the growth of a variety of trees.
- The area is a gazetted forest reserve hence settlement and cultivation are prohibited.
- The steep slopes discourage human activities thus enabling forests to thrive.

*(Any 3 x 2 = 6 marks)*

(iii)

- The government policy of degazettement has allowed encroachment of human activities.
- Increased population of elephants that destroy the trees.
- Illegal cultivation has led to clearing of parts of the forests.

- Prolonged droughts have caused drying of some trees.
- Plant diseases and pests which destroy some trees in the forest.
- Outbreak of forest fires destroy parts of the forest/charcoal burning.
- Over exploitation of certain species of trees. **(Any 5 x 1 = 5 marks)**

(b)

- Registering/recognizing the efforts of NGOs like the Green Belt Movement which have mounted campaigns on planting of trees.
- Gazetting forested areas to reduce encroachment by the public.
- Creating public awareness through mass media/public barazas on the importance of conserving forest resources.
- Enacting laws to prohibit the cutting of trees without a licence/protecting indigenous tree species.
- Establishing NEMA/Ministry of Environment and Natural Resources to co-ordinate Environmental management and conservation activities.
- Setting aside national tree-planting day to encourage people to plant more trees.
- Advising people to practice agro-forestry so as to avoid cutting trees from the forests.
- Employing forest guards to protect forests from fires and other illegal human activities.
- Encouraging re-cycling of paper and other wood-based products so as to reduce demand on trees.
- Carrying out research through KEFRI and ICRAF in order to come up with ways of controlling diseases and pests/develop species suitable for different ecological regions. **(Any 4 x 2 = 8 marks)**

(c)

	<b>Kenya</b>	<b>Canada</b>
<i>(i) Period of harvesting</i>	Harvested throughout the year.	Harvested in winter and early spring.
<i>(ii) Transportation</i>	Mainly road transport.	Mainly water transport.

**(4 marks)**

9.

(a) (i)

- Nairobi/ Jomo Kenyatta airport.
- Mombasa/ Moi International airport.
- Eldoret International airport. **(3 marks)**

(ii)

- Air transport is faster.
- It is better in transporting perishable goods.
- It does not experience traffic congestion.
- Helicopters can land in remote areas.
- Planes can be used for activities like spraying of farms.
- There are fewer accidents in air transport. **(Any 4 x 1 = 4 marks)**

(b)

- Construction of by-passes to reduce congestion in the large towns.
- Construction of highways/dual-carriage ways to accommodate more traffic/improve traffic flow.
- Repair/maintain the roads in good state to reduce road accidents.
- Educate road users on road safety precautions/ discipline on roads to ease traffic on roads.
- Control the amount of load carried by large lorries and trucks to reduce damage on road surfaces.
- Enforce traffic rules to regulate traffic flow.
- Provide paths for cyclists and pedestrians to reduce congestion on roads/ improve road safety. **(Any 4 x 2 = 8 marks)**



- (c)
- Most of the existing rail lines were constructed by the colonialists who had no interest in linking the colonies.
  - The rail lines are of different gauges making it difficult for the countries to link them.
  - Political differences/political instability discourages attempts to link the lines.
  - Inadequate capital limits the construction of new lines and maintenance of railways.
  - Large areas of the continents are economically unproductive thus it would be uneconomical to link them by railway.
  - Difficult terrain/thick forests makes it expensive to construct rail lines.
  - Limited trade links due to production of similar commodities does not justify construction of rail lines. (Any 3 x 2 = 6 marks)
- (d)
- Some rivers have rapids/water falls/cataracts.
  - Some rivers have seasonal regime/varying volume.
  - Some rivers have shallow water/silted river mouths.
  - Some have floating vegetation that choke the courses.
  - Some rivers have narrow channels unsuitable for sailing vessels. (Any 4 x 1 = 4 marks)
10. (a) (i)
- Oil leaks from ships/ trucks.
  - Industrial effluents when discharged into rivers/ lakes.
  - Washing away (into rivers and lakes) chemicals/ fertilizers/ pesticides/ insecticides.
  - Dumping of solid waste into water courses.
  - Washing/bathing/watering animals in rivers/lakes.
  - Disposing of raw sewerage into rivers/lakes. (Any 2 x 1 = 2 marks)
- (ii)
- If may cause death of aquatic life.
  - It destroys beaches.
  - It leads to spread of water-borne diseases. (Any 2 x 1 = 2 marks)
- (b)
- Dykes are constructed on raised banks/levees of rivers to increase their height in order to prevent water from overflowing.
  - Dredging of river channels to deepen and widen them to make it possible for them to accommodate excess water.
  - Dams are built across the rivers to control the amount of water discharged downstream.
  - Training/re-directing a river/Straightening of a river to control its wild flow.
  - Planting of trees in the catchment area to reduce surface run off and increase infiltration.
  - Diverting tributaries to other rivers to reduce the volume of the main river. (Any 4 x 2 = 8 marks)
- (c) (i) **Contour farming:** It helps to trap water, thus preventing the formation of gullies and removal of top soil from a slope. (2 marks)
- (iii) **Mulching:** The mulch adds humus in the soil as it decomposes thus enriching the soil. It enhances the retention of water in the soil by preventing it from direct sunlight/ wind. It increases the rate of infiltration by holding the rain water and releasing it gradually. It controls/stops run-off/speed of surface run-off by acting as a cover to the soil. (Any 1 x 2 = 2 marks)
- (iii) **Crop rotation:** Since different crops utilize different minerals, rotation helps in balancing/ replacing the mineral content in the soil. (2 marks)

- (d) (i)
  - To get permission from the relevant authority.
  - To be able to formulate the objectives.
  - To familiarize with the area of study.
  - To be able to prepare a working schedule/decide on the appropriate methods of data collection.
  - To determine the respondents/resource persons. *(Any 3 x 1 = 3 marks)*
- (ii)
  - Interviewing.
  - Taking photographs.
  - Observation.
  - Measuring the extent of polluted area.
  - Administering questionnaires.
  - Tape recording. *(Any 2 x 1 = 2 marks)*
- (iii)
  - Analysing the data.
  - Writing a report.
  - Giving relevant advice to the stake holders. *(Any 2 x 1 = 2 marks)*