# 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 |
| | Overall | 97,817 | 200 | 82.51 | 31.00 |
| 2005 | 1 | | 100 | 36.68 | 16.31 |
| | 2 | | 100 | 45.90 | 15.83 |
| | Overall | 106, 865 | 200 | 82.56 | 30.00 |
| 2006 | 1 | | 100 | 46.12 | 19.23 |
| | 2 | | 100 | 37.34 | 15.74 |
| | Overall | 97,991 | 200 | 83.44 | 33.00 |
| 2007 | 1 | | 100 | 45.50 | 19.82 |
| | 2 | | 100 | 48.14 | 16.37 |
| | Overall | 103,288 | 200 | 93.62 | 34.00 |

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).
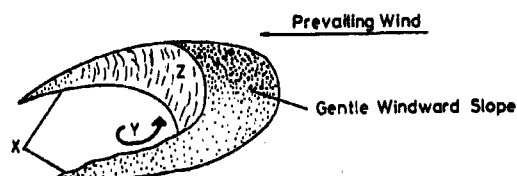


(a)   Name

(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).
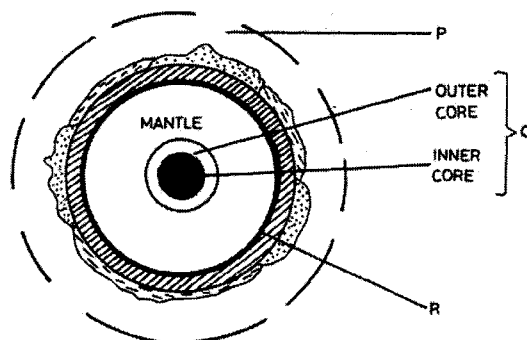


(a)     Name

     (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.

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**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"*.
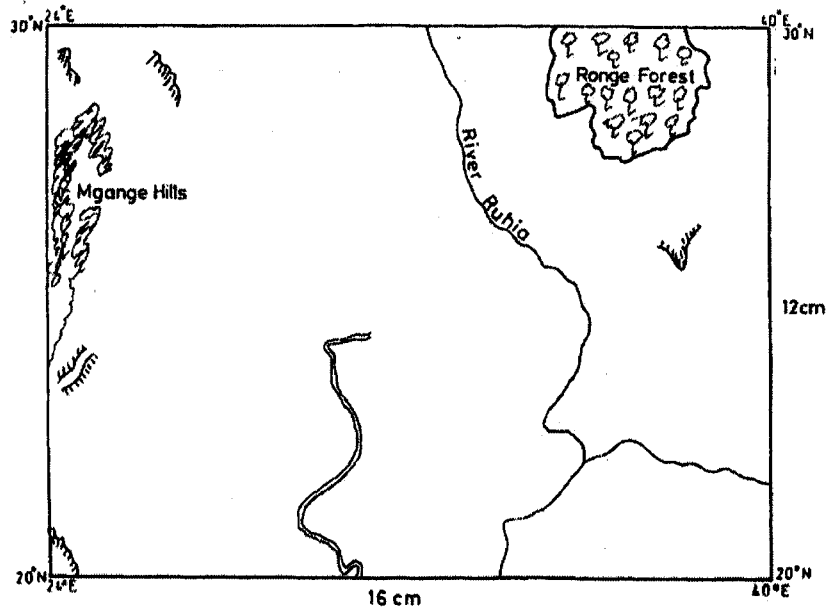
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**Expected Responses**

(a)

    (i) 134° (133°-135°)

    (ii) 14 km (13.9- 14.1 km)

(b)



**Key**

≈ All weather road bound surface

🌳🌳🌳 Forest

▨▨▨ Hill

⩲⩲⩲ Rock outcrop

〜 River

(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.

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- 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)
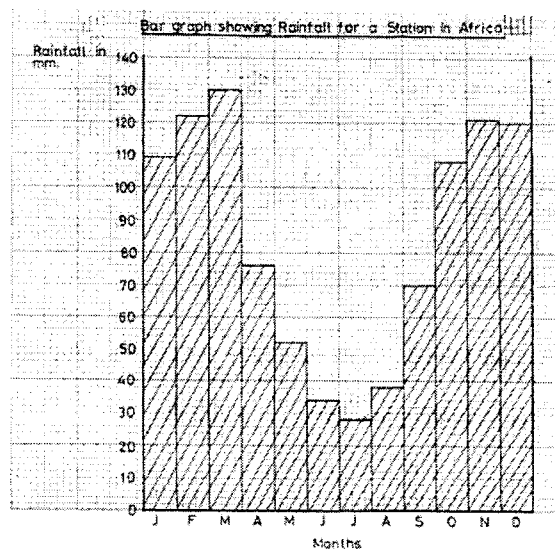


(ii)
- There is rain throughout the year/no dry month.
- The highest rainfall is received during the hot months/ from October to March/ the lowest rainfall occurs during the cool months/April to September.
- The wettest month is March with 130 mm of rainfall.

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- 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)



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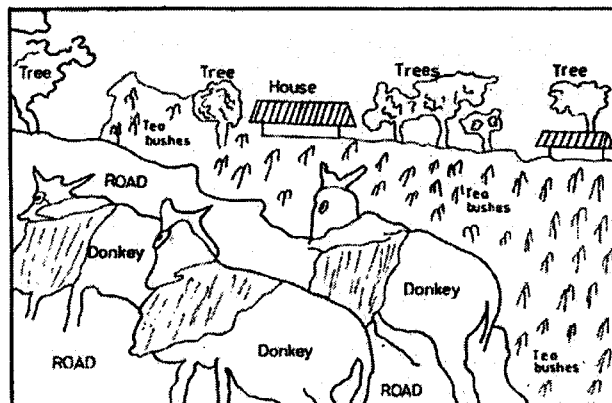
(iii)
- Simple houses/houses within the farm.
- The mode of transport by use of donkeys.
- Untrimmed edges of tea bushes.
- Presence of dry maize stalks near the houses.

(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

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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.

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- 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) Period of harvesting | Harvested throughout the year | Harvested in winter and early spring |
| (ii)Transportation | 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.

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- 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.

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