

312/1

GEOGRAPHY FORM THREE

END OF TERM TWO 2024 EXAMINATION

TIME: 2 ¾ HOURS

**MARKING SCHEME**Section A. answer all the questions in this section

1.(a) What is Geography?

(2marks)

- ✓ *Geography is the study of the distribution and interrelationships of natural and human phenomena in relation to the earth's surface/It is the study of the earth as a home of human kind.*

(1x2marks=2marks)

b) Give **three** proofs that the earth is almost spherical in shape.

(3marks)

- ✓ *Circumnavigation of the earth. When one sails or flies along a straight path without changing direction, he or she comes back to the starting point.*
- ✓ *The earth's horizon appears spherical when observed from a high point.*
- ✓ *Rising and setting of the sun, since people living in the east see the sun earlier than those in the west.*
- ✓ *When a ship is approaching the land from the sea, an observer standing on a high cliff first sees the smoke, then the mast and finally the rest of the ship's body.*
- ✓ *During the eclipse of the moon, (lunar eclipse), a spherical shadow of the earth is cast on the moon.*
- ✓ *All other planets are spherical, hence the Earth being a planet, is not an exception.*
- ✓ *Photographs of the earth taken from the space by satellites show that the earth has a spherical shape.*

(3x1mark = 3marks)

2. (a) Differentiate between weathering and mass wasting.

(2marks)

- ✓ *Weathering is the breakdown/disintegration/decomposition of rocks at or near surface of the earth in situ by physical/chemical processes while mass wasting is displacement/movement of weathered materials down a slope under the influence of gravity.*

(1x2marks=2marks)

(b) State **three** causes of landslides.

(3marks)

- ✓ *Steep gradient of the slope.*
- ✓ *Nature of the materials on the slope.*
- ✓ *High amount of precipitation.*
- ✓ *Occurrence of earth movements such as earthquakes.*

- ✓ *Rise in temperature in glaciated highlands.*
- ✓ *Clearing of vegetation cover on the steep slopes.*
- ✓ *Human activities on steep slopes such as mining and construction.*

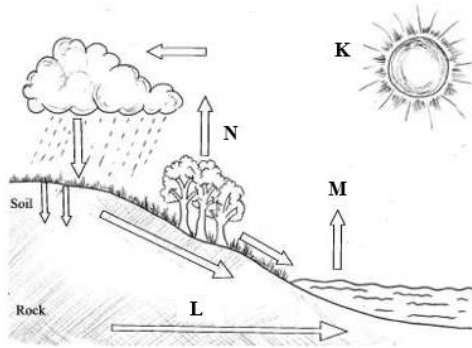
(3x1mark=3marks)

3. (a) Differentiate between a watershed and a catchment area. (2marks)

- ✓ *A watershed is a ridge line boundary separating drainage basins or rivers systems while a catchment area is a wetland which a river draws its waters from.*

(2 Marks)

(b) The diagram below shows the hydrological cycle.



What processes do the arrows labelled K, L and N represent?

(3marks)

- ✓ K - *Radiation/insolation/sun's rays*
- ✓ L - *Percolation*
- ✓ N - *Evapotranspiration*

(3x1mark=3marks)

4. (a) What is a mineral ore?

- ✓ *A rock bearing a valuable mineral within the rocks of the crust.*

(2 Marks)

(b) State **three** formations in which mineral ores occur in the crust.

(3marks)

- ✓ *Some occur in veins and lodes*
- ✓ *Some occur in seams and beds*
- ✓ *Some occur in alluvial deposits*
- ✓ *Some occur as weathered rock products*

(3x1mark=3marks)

5. (a) Name **two** types of earth movements that occur within the earth's crust.

(2marks)

- ✓ *Horizontal earth movement/ Lateral/ erogenic*

✓ Vertical earth movement/Epeirogenic (2 Marks)

(b) Describe the origin of continents according to the theory of continental drift. (3marks)

- ✓ There was initially one super continent/Landmass known as Pangaea. It was surrounded by large water mass known as Panthalassa.
- ✓ Later Pangaea broke into two continents namely Laurasia (Northern continent) and Gondwanaland (Southern continent). The two were separated by a narrow ocean called Tethys.
- ✓ Laurasia split into the current Northern continents: North America, Europe and Asia, while Gondwanaland split to the current Southern continents: Africa, South America, India, Australia, New Zealand and Antarctica.

(3x1mark=3mks)

NB: Follow the sequence. Last point must be mentioned to score 3 max points

### SECTION B

Answer question 6 and any other two questions in this section

6. Study the map of Kisumu East (1:50000) provided and answer the following questions.

a) i) What is the bearing of the trigonometrical station at Grid reference 081980 from the rock out crop at grid reference 071992. (2marks)

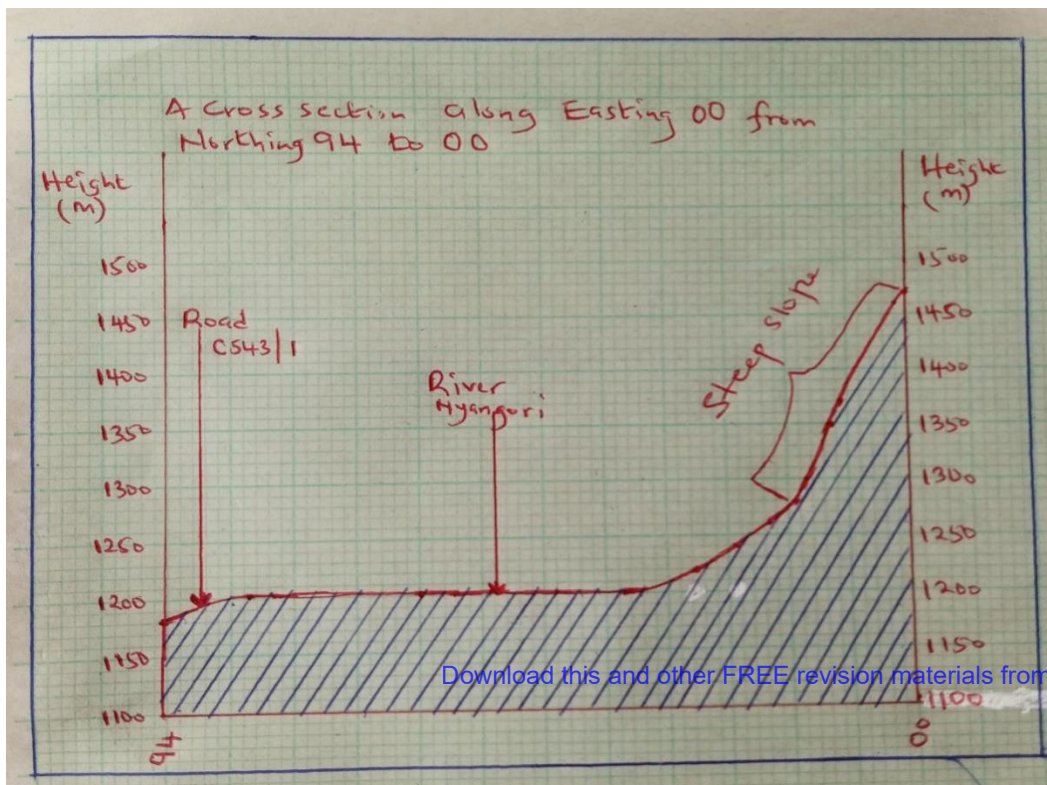
✓  $139^{\circ} \pm 1$  ( $138^{\circ} - 140^{\circ}$ ) (2marks)

(ii) What is the length of the section of railway line west of the easting 00 to Kisumu station? Give your answer in kilometres. (2marks)

✓  $6.6 \pm 0.1$  (6.5 - 6.7) km (2marks)

iii) Using a vertical scale of 1cm to represent 50 metres, draw a Cross-section to represent the area along Easting 00 from Northing 94 to Northing 00. (4marks)

On it mark and name;



- All weather road bound surface C543/1.

(1 mark)

- River Nyangori.

(1

mark)

- Steep slope.

(1 mark)

Title.....	1
VS.....	1
SP/EP.....	1
Trend.....	1
Road.....	1
River.....	1
Steep slope.....	1
<b>Total.....</b>	<b>7marks</b>

b) i) Describe the relief of the area covered by the map.

**(3marks)**

- ✓ *The highest area is Nandi escarpments/1872m above sea level.*
- ✓ *The lowest area is to the south west/1140m above sea level.*
- ✓ *The east is a plain/kano plain*
- ✓ *The northern area is covered by the Nandi escarpment*
- ✓ *Landscape on the northern area is dissected by rivers*
- ✓ *There are numerous river valleys that are steep in the highlands and broad in the lowlands (3 x 1= 3 Marks)*

c) Citing evidence from the map, give **three** economic activities carried out in the area covered by the map other than crop growing. **(6marks)**

- ✓ *Trade - trading/shops/markets/petrol station*
  - ✓ *Transports- many roads and railway lines*
  - ✓ *Quarrying - marram pit*
  - ✓ *Manufacturing/processing - Flour mill/ cotton ginnery*
- (Economic activities 3x1marks=3marks, evidences 3x1mark=3marks, total=6marks. NB: Activity can score a lone but evidence a lone no.)*

d) Students from the school at Mosongo (Grid square 0681) carried Out a field study of the course of the river Ombeyi.

i) State **two** findings they are likely to have come up with. **(2marks)**

- ✓ *The river has many meanders*
  - ✓ *The river has many tributaries/ confluence*
  - ✓ *The river disappears into a swamp*
  - ✓ *The river has a wide flood plain*
  - ✓ *The river is in its old stage*
- (2x1mark=2marks)*

ii) Give **three** advantages of studying rivers through fieldwork. **(3marks)**

- ✓ *It helps students relate what they've learnt in the classroom*
- ✓ *The students are able to put to use the skills of observation, data collection and recording learnt in class*
- ✓ *The students are able to discover for themselves the uses of the river*
- ✓ *It enables students to acquire appropriate attitudes towards the environment*
- ✓ *The students can gauge the impact of the river in the areas it passes.*
- ✓ *It breaks the classroom monotony for the students and the teachers*

**(3 x 1 = 3 Marks)**

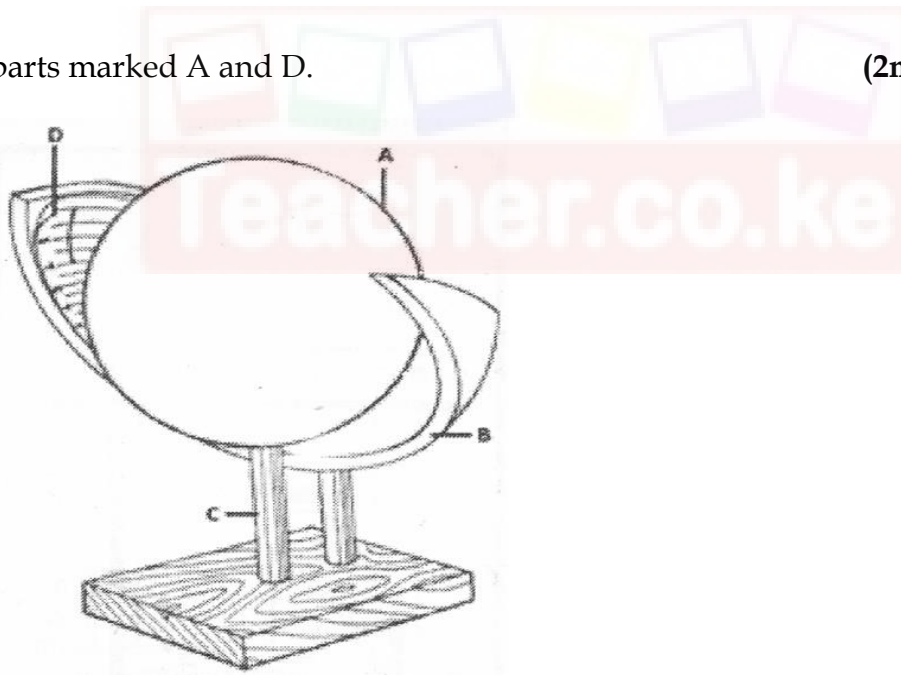
7.(a) Name **two** instruments kept in a Stevenson screen. **(2 marks)**

- ✓ *Hygrometer*
- ✓ *Maximum thermometer*
- ✓ *Minimum thermometer*
- ✓ *The six's thermometer*

**(2x1mark=2marks)**

(b) The diagram below shows a weather measuring instrument. Use it to answer the questions below.

i) Name the parts marked A and D. **(2marks)**



A - *Spherical glass lens*

D - *Sensitized card*



ii) Describe how the instrument works. (4marks)

- ✓ *The glass sphere focusses the sun's rays on a sensitized card which is graduated in hours and minutes.*
- ✓ *The heat burns the paper/card as the sun moves across the sky.*
- ✓ *The unburnt sections in the card indicates when there was cloud cover.*
- ✓ *At the end of the day, the card is removed and the number of hours that the sun shone are obtained by adding the burnt sections on the card.*

(4 x 1 = 4 Marks)

(c) The table below shows climatic figure for station Q. Use it to answer the questions that follow.

Months	J	F	M	A	M	J	J	A	S	O	N	D
Temp in °C	30	31	31	29	27	27	28	29	28	28	27	30
Rainfall in mm	257	246	231	234	207	201	218	227	234	240	235	230

i) Calculate the annual range of temperature for station Q. (2marks)

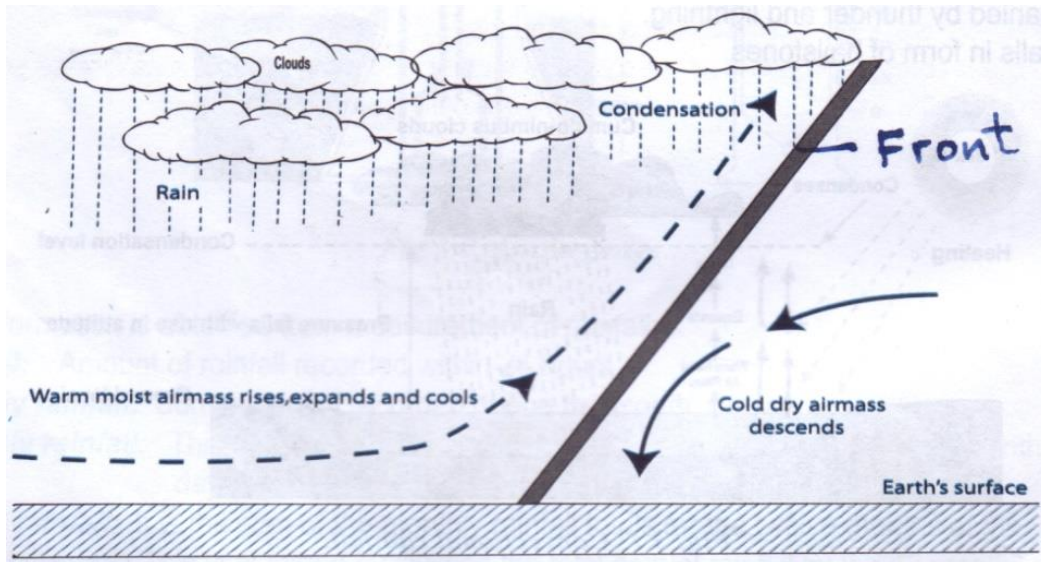
$$31 - 27 = 4^{\circ}\text{C} \text{ ( 2Marks)}$$

(ii) Outline **four** characteristics of climate in station Q. (4marks)

- ✓ *The station experiences high temperatures.*
- ✓ *Highest temperature is  $31^{\circ}\text{C}$ /the lowest temperature is  $27^{\circ}\text{C}$ .*
- ✓ *The annual range of temperature is  $4^{\circ}\text{C}$ /the station has a low range of temperature.*
- ✓ *The station experiences high rainfall/2760mm.*
- ✓ *The station experiences rainfall throughout the year/there is no dry month.*
- ✓ *Lowest rainfall is experienced in May and July when temperature is also lowest.*
- ✓ *The station has one rainfall maxima regime.* (4x1mark =4marks)

(d) With the aid of a well-labelled diagram, describe the formation of cyclonic rainfall. (6marks)

- ✓ *It occurs where two airmasses meet one warm and moist and the other cold and dry. (It is the meeting point of cold, heavy dry polar easterlies and warm, light and moist north/south westerlies.)*
- ✓ *When the two air masses meet along the front, the warm lighter (westerly), winds rises over the cold (polar) air.*
- ✓ *The warm moist cools and condenses forming clouds.*
- ✓ *The clouds become heavy enough, eventually falling as cyclonic rain through the cold air.*



Text - 4 mark Diagram - 2 marks TOTAL- (6marks)

(e) You intend to carry out a field study of a weather station in your school.

i) Give **two** methods of recording data that you are likely to use. (2 marks)

- ✓ *Filling in questionnaires*
- ✓ *Labelling of samples*
- ✓ *Note taking*
- ✓ *Taking photographs*
- ✓ *Sketching diagrams*
- ✓ *Tabulation*

(Any 2x1mk = 2mks)

(ii) State **three** reasons why the recording of data at a school weather station may be inaccurate.

(3marks)

- ✓ *Human error.*
- ✓ *Interference with the instruments by animals and people.*
- ✓ *Poor siting of a weather station.*
- ✓ *Extreme weather conditions.*
- ✓ *Natural calamities i.e. landslides.*
- ✓ *Use of defective instruments.*

(3x1mark = 3marks)

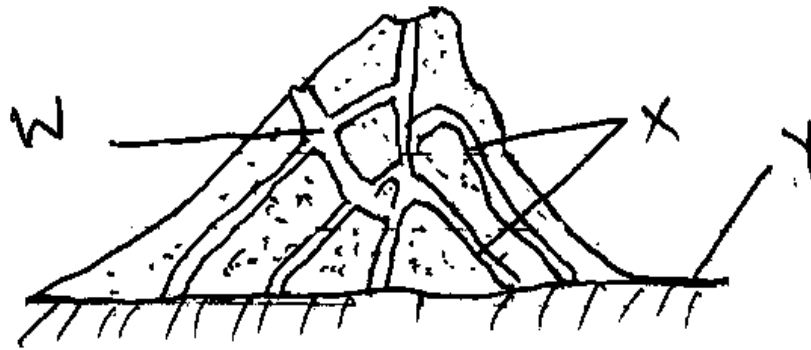
8.a) i) Differentiate between magma and lava.

(2marks)

- ✓ *Magma is the molten rock materials which originates from the interior of the earth and cools below the earth's surface (forming large crystals) while lava is the molten rock materials that reach the surface and solidifies (forming small crystals).*

(1x2marks=2marks)

ii) The diagram below shows a composite volcano



Name the features marked W, X and Y (3marks)

- ✓ W - Dyke or side vent
- ✓ X - Layers of lava
- ✓ Y - Earth surface (1 x 3 =3 Marks)

b) Describe how the following features are formed and for each give a example from Kenya

i) Crater (4marks)

- ✓ Eruption of lava through a central vent cause building up of a cone.
  - ✓ The lava in the vent cools and contracts.
  - ✓ The cool lava withdraws into the vent leaving a depression on top of the volcano called a crater.
  - ✓ E.g. Mt Longonot, Mt. Uswa, Mt. Marsabit, Menengai crater.
- (4x1mark=4marks)

ii) Lava plateau (5marks)

- ✓ It is formed when less viscous lava reaches the surface of the earth through a series of vents or fissures.
  - ✓ The lava spreads evenly over a large area filling all the former valleys and covers most of the landscape with exception of high hills.
  - ✓ The lava cools slowly and solidifies.
  - ✓ Several eruptions build up successive layers of lava that form an extensive highland with a flat surface known as a lava plateau.
  - ✓ E.g., Yatta plateau, Uasin Gishu plateau, Laikipia Plateau
- (5x1mark=5marks)

c) Explain **four** ways in which volcanic features influence human activities. (8marks)

- ✓ Volcanic highlands or mountains on the windward slopes receive a lot of rain and experience moderate temperature making them attractive to human settlement, suitable for agricultural activities.
- ✓ Volcanic features are tourist attractions hence promote tourism.



- ✓ *Volcanic mountains/highlands are sources of rivers which provide water for domestic or agricultural or industrial use.*
- ✓ *Volcanic rocks weather down to form fertile volcanic soils which support agriculture.*
- ✓ *Volcanic rocks are important building materials in the construction industry.*

*(4x2marks=8marks)*

d) i) What is an earthquake? (2marks)

*An Earthquakes is sudden/rappid movement/shaking of earthcrust caused by shock /seismic waves.*

*(1x2marks=2marks)*

ii) Identify the scale used to measure magnitude of an earth of an earthquake? **(1mark)**

- ✓ *Richter scale (1Marks)*

9.(a)(i) Define soil (2marks)

- ✓ *It is the accumulation of rock particles, minerals, organic matter, water and air found on the surface of the earth on which plants grow*
- ✓ *Soil is a thin layer of unconsolidated loose rock materials and decayed organic matter on the earth's surface in which plant grow* *(Any 1x2marks = 2marks)*

(ii) Explain how the following factors influence soil formation

- **Parent material** (4marks)
  - ✓ *Hard rocks are weathered slowly because they are more resistant. This slows down soil formation process. /Soft rocks are weathered faster because they are less resistant. These speeds up the soil formation process.*
  - ✓ *Large grained rocks are weathered down to form coarse soils. /Small grained rocks are weathered down to form fine soils.*
  - ✓ *The texture of the rocks determines the type of soil e.g. Sandy, loamy or clay.*
  - ✓ *Mineral of parent rock are transferred to the soil during weathering.*

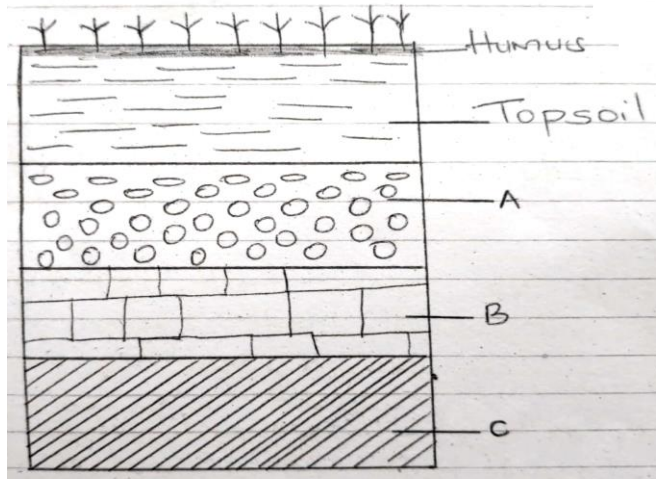
*(2x2marks =4 marks)*

- **Human activities** (2marks)

- ✓ *Human activities like grazing, cultivation, use of fertilizer and construction can change the nature of the soil.*
- ✓ *Human beings through activities like mining, construction works and quarrying aid in weathering processes which is the initial soil forming process.*

*(Any 1x2marks = 2marks)*

(b) The diagram below shows a soil profile. Use it to answer question (i) and (ii).



i) Name the parts marked A, B and C. (3marks)

- A - sub soil/horizon B
- B - weathered parent materials/ horizon C
- C - parent rock/ Horizon D

(3 x 1 = 3 Marks)

(ii) Describe the characteristics of the top soil (4marks)

- ✓ Some are dark in colour,
- ✓ Some are light in colour
- ✓ Contains humus,
- ✓ Has true soils - solum,
- ✓ A zone where leaching occurs - eluviation
- ✓ Divided into A<sub>00</sub>, A<sub>0</sub>, A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>

(4x1mark=4marks)

(c) Explain *three* causes of physical soil degeneration (6marks)

- ✓ *Overgrazing leads to removal of vegetation exposing soil to agents of erosion and excessive evaporation from soil (water loss)*
- ✓ *Overgrazing results in loose and fine textured soils due to rock pounding by animals.*
- ✓ *Frequent ploughing weakens soil structure making it easy for agents of soil erosion to carry away the top fertile soils.*
- ✓ *Heavy rainfall washes down the top soil leading to thin/ shallow soil,*
- ✓ *Heavy rainfall may also alter the structure of soils from crumb to blocky/ columnar which are unsuitable for cultivation on*
- ✓ *Heavy rainfall may result in water logging in flat and lowland areas making the soils unsuitable for plant growth.*
- ✓ *Prolonged drought causes the soils to lose water to become dry thus become susceptible to wind erosion.*

- ✓ *Prolonged drought causes the soil to lose water / moisture thus soil particles held together become loose / disintegrate.*

(3x2marks = 6marks)

(d) State *four* ways of conserving soils

(4marks)

- ✓ *Crop rotation*
- ✓ *Mixed farming*
- ✓ *Application of chemical fertilizers*
- ✓ *Creation of drainage ditches / trenches*
- ✓ *Intercropping*
- ✓ *Mulching*
- ✓ *Bush fallowing*
- ✓ *Ploughing along the contours*
- ✓ *Controlled grazing*
- ✓ *Strip cropping*
- ✓ *Construction of cut off drains*
- ✓ *Terracing on steep slopes*
- ✓ *Afforestation/reafforestation/agroforestry*

(4x1mark=4marks)

10.a (i) List **two** factors that determine the distribution of forests in Kenya (2marks)

- ✓ *Climate/rainfall/temperature*
- ✓ *Altitude*
- ✓ *Relief*
- ✓ *Aspect of slope*
- ✓ *Soils*
- ✓ *Human activities*
- ✓ *Environmental policy*

(2x1mark=2marks)

(ii) Give the differences in the exploitation of softwood in Kenya and Canada under the following subheadings

- Period of harvesting (2marks)
- Transportation (2marks)

- ✓ *In Kenya harvesting period is throughout the year while in Canada it is done during winter and early spring. (1x2marks=2marks)*

- ✓ *In Kenya transportation is mainly by road while in Canada it is mainly by water (1x2marks=2marks)*

b) Highlight the **three** ways in which the clearing of forests has affected the natural environment in Kenya (3marks)

- ✓ *Has led to reduced volume of water in the rivers/ caused drying up of rivers.*
- ✓ *It has led to the destruction of the natural habitat for the wildlife/it has endangered some of the wildlife species.*
- ✓ *It has interfered with the beauty of the environment/loss of the aesthetic value of the environment.*
- ✓ *It has disrupted the ecosystem.*
- ✓ *It has accelerated soil erosion*  
(3x1mark=3marks)

c) Explain **four** problems facing forestry in Kenya (8marks)

- ✓ *Rapid increase in population has led to encroachment into forest land hence destruction of forests.*
- ✓ *Occurrence of forest fires which have led to the destruction of large areas under forest.*
- ✓ *Illegal logging/indiscriminate cutting of trees whereby reducing/depleting indigenous tree species*
- ✓ *Attacks by pests/diseases have led to the destruction of valuable tree species*
- ✓ *Some wild animals through debarking/trampling/uprooting.*
- ✓ *At times, the government allocates land to private developers/thus reducing the land under forest.*
- ✓ *Prolonged drought leads to the drying of the trees.*  
(4x2marks=8marks)

(d) Explain **four** measures that the Kenya government is taking to conserve forestry in the Country (8marks)

- ✓ *Registering/recognizing the work of NGO's like the Green Belt Movement which mounted campaigns on tree planting.*
- ✓ *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 license/protecting indigenous trees.*
- ✓ *Establishing NEMA/ministry of environment and natural resources to co-ordinate environmental conservation activities.*
- ✓ *Setting aside national tree planting days to encourage the people to plant more trees.*
- ✓ *Advising people to practice agro-forestry to avoid cutting trees from the forests.*
- ✓ *Employing forest guards to protect forest from fires and other illegal human activities.*
- ✓ *Encouraging recycling of paper and other wood-based products/use other sources of energy to reduce demand on trees.*
- ✓ *Carrying out research through KEFRI and ICRAF in order to come up with ways of controlling diseases and pests and develop species for different ecological regions.*  
(4x2marks=8marks)