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1. (a)(i) What is nomadic pastoralism?

Nomadic pastoralism involves constant or seasonal movement/migration of nomads and their livestock (cattle, goats, sheep, donkeys and camels) from one place to another in search of green pastures and water.

(ii) Name four nomadic communities in Africa.

- Maasai
- Fulani
- Nubia
- Hottentots
- Tuareg

(b) State five characteristics of nomadic herding.

- Seasonal movement of nomads and their livestock
- Cattle are kept as a sign of wealth
- Large herds of cattle with uncontrolled breeding are kept
- There are high incidences of diseases
- Poor marketing of the animals and their products
- Many kinds of animal (cows, goats sheep, donkeys etc.) are grazed together
- Little or no crop is grown as much attention is turned to animals
- Lack of organized land tenure where land is communally owned

(c) Give four problems facing nomadic pastoralism.

- Extensive droughts cause water shortages and lack of pasture leading to deaths of livestock
- Wild animals may attack the nomads and their livestock
- Lack of proper shelters expose the pastoralists to the hazards of bad weather such rainstorms
- Floods may destroy pastures for the nomads
- Cattle rustling leads to loss of livestock and endanger the lives of the nomads
- Overstocking leading to overgrazing and consequent land degradation and soil erosion
- Pests and diseases affect the health of animals lowering their productivity or causing death

(d) Highlight five undertakings by the government of Kenya aimed at improving the livestock industry.

- Introduction of exotic breeds/cross breeding with indigenous breeds. This ensures high quality production and hardiness
- Provision of extension officers who offer or are supposed to offer necessary pieces of advice to the farmers
- Dams and water reservoirs have been built to ensure steady supply of water required for animal production
- Funding research in animal disease control and management
- Government have at times subsidized fertilizer prices used to improve pasture
- Farmers are encouraged and taught to adopt modern methods of rearing and breeding beef cattle
- The government has decentralized prices of meat to enable farmers maximize profits
- The creation of the now defunct Kenya meat commission

(e) Discuss how cattle ranching contribute to the economy of Kenya.

- Earns foreign exchange when livestock products e.g. hides, skins, milk etc. are exported
- Promotes the development of industries such as Kenya co-operative creameries (KCC), leather industries (e.g. Bata Shoe Company etc)

- Creation of employment opportunities in the ranches, industries and other related sectors
- Promote improvement of transport and communication network
- Supply high quality stock for beef/food, thus contributes to the improvement of health
- Contributes to increased standard of living

2. (a) ***State at least three features of ranching.***

- Little or no migration.
- Ranches are scientifically managed.
- Continuous cover of green pastures of either native or re-sown selected grasses e.g. alfalfa, lucern and clovers.
- The animals are raised for sale.
- Commercial grazing supports the development of towns and communication systems.

(b) ***Give at least two problems facing pastoral communities in Kenya today.***

- Limited grazing land.
- Animal diseases and pests
- Multiplicity of political boundaries.
- Epidemics
- Lack of better management skills.
- Poor marketability
- Harsh climatic conditions.

(c) ***Differentiate between floriculture and viticulture.***

Floriculture refers to the planting, caring and marketing of flowers like roses while viticulture refers to a very intensive form of farming requiring not only good conditions of moisture, temperature and soil, but also much personal care if the grapes are to be of high quality.

3. ***List five problems facing cotton farmers in Kenya.***

- Cotton plants are attacked by pests and diseases
- Unpredictable climatic conditions
- Increased soil infertility
- Sub-standard production methods
- Production is very demanding making cotton unpopular
- Low cotton prices, thus lack of incentives for farmers
- Co-operatives which market it have managerial problems
- Importation of second hand clothes causes cotton to lose market

4. (a) ***Explain how any two climatic factors influence crop farming in Kenya.***

- **Temperature:** The degree of warmth, duration and intensity of sunshine affect crop maturity. Many garden crops and crops, for example, are not able to withstand extreme diurnal temperature variations. Sunshine accelerates ripening and improves the quality of the final products. The quality of pyrethrum decreases as temperature increases. Temperature is also important in determining the water content of soil and influences the rate of photosynthesis and the general growth of plants.

- **Moisture:** Moisture refers to the water available either from the atmosphere or from the ground. The distribution and actual availability of moisture is important for crop farming. Different crops have different moisture requirements. For example, while cotton is supported by about 750mm of rainfall, this amount is inadequate for tea growing. In cases of inadequate moisture crops adapt themselves through various mechanisms including having thick barks to prevent excessive loss of water, long taproots and needle like leaves.
- **Winds:** Strong winds may be detrimental to farming of some crops e.g. coffee. Winds also accelerate evaporation directly from the soil and also affect transpiration. In West Africa, for example, winds have a marked effect on the cocoa plantations as they always threaten the pods that hung precariously on the plants. Conversely, sea breezes and light winds are advantageous to plants like coconuts and coffee. Where winds are a hazard to crop growth, shorter crops like cotton stand better chances of attaining maturity.

(b) Differentiate between horticulture and market gardening.

Horticulture refers to the intensive cultivation of vegetables, fruits and flowers for sale while market gardening is the intensive cultivation of vegetables and fruits for sale.

5. (a) Explain the factors that have led to the increasing demand for fresh fruits and vegetables in Kenya.

- The growth of towns in Kenya. Market gardening is now widely practiced to meet the demands of urban centers. As urban centers expand the local demand for fresh fruits and vegetables also increases.
- The temperate lands in Western Europe offer good market for Kenyan horticultural products, especially during winter when tropical vegetables, fruits and flowers are in high demand.
- There is increased awareness among the population on the importance of good health, which go hand in hand with good diet.
- Increased population in Kenya as a whole and in the urban centres in particular leads to a higher demand as there are many mouths to be fed.

(b) (i) Outline the steps followed in cultivation of paddy rice in Mwea.

- Rice seeds are planted in nursery beds
- Plots with bunks/ridges are prepared. The canals from the main canal lead water into the plots
- The paddy fields are flooded to a depth of 10cm
- Tractors hired from National Irrigation Board (NIB) are used for ploughing
- Seedlings 15cm long are transported into the flooded fields
- The fielded seedlings are cultivated and weeded as the rice continues to grow
- The field are then drained to allow the rice to ripen up
- When the rice is ripe, it is then harvested

(ii) What has led to the sound economic position of the scheme?

- Assistance from the German government has helped to increase acreage under irrigation. They have provided technical know-how and machinery
- The two tributaries of River Tana (Thiba and Nyamindi) ensure regular and reliable supply of water

- Due to the shape of Mwea plains/slope of the land, 4,000 hectares can be irrigated from the runoff of River Thiba eliminating the need for expensive storage facilities
- Sound/good management has ensured high standards of discipline among tenants necessary for the success of the scheme
- Agricultural research officers who carry out research regarding the crop and advise farmers accordingly

(c) Explain five factors that have contributed to the Prairies becoming an important wheat production area.

- **Extensive tracts of land:** Canada has a total land area of 9,221,000km square supporting an estimated population of 26, 104,000 people. Out of these 76% live in urban centers with only 6.5 million people in the vast countryside. This situation has enabled large-scale mechanized wheat cultivation.
- **Elaborate transport network:** Canada has an elaborate railway network that criss-crosses the prairies. This has enhanced the region's ability to offer mass transport services of wheat and labour to urban markets and coastal ports.
- **Climate:** The Canadian wheat belt lies in the temperate belt with summer temperatures of 15 degrees centigrade and a mean annual precipitation of about 450mm. These are ideal conditions for wheat cultivation. Furthermore, light rains are experienced during germination. The weather is sunny when the crop ripens and harvesting is in autumn, just before the severe winter conditions of the northern hemisphere.
- **Markets:** The large urban population of Canada offers a sizeable domestic market to the wheat produced. What is delivered to these urban centers by means of elaborate road and railway network. Surplus produce is exported to other countries such as the former Soviet Union and the less developed countries of the world.
- **Soils:** The sparse countryside population means that the carpet of prairie grass has not been disturbed for long. Thus, humus has accumulated over a long period of time and has led to fertile soils rich in phosphorous and potassium necessary for the growth of wheat.
- **Topography:** The undulating topography of the prairies has offered well-drained soils, which are suitable for wheat cultivation. It has also provided ideal conditions for mechanized agriculture.
- Use of modern technology and machinery has enabled the production of high yields.

6. (a) Give three attributes of Commercial livestock farming.

- There is little or no migration. This is because food supplies are permanent or are supplemented by fodder crops. The ranches may be large but the ranchers live on permanent farms.
- The ranches are scientifically managed and high quality animals are reared through selective breeding and shortage of pasture is arrested by cultivation of feedstuffs.
- There is continuous cover of green pastures of either native grass or re sown selected grasses for example alfalfa, Lucern and clovers.
- The animal products are usually for sale – both domestic and foreign markets.
- Commercial ranching leads to growth of towns which act as slaughtering, processing and packing centers. Transport network as roads and railways are set up to link the ranches to the towns.

(b) State five reasons why sheep farming is receiving government support in Kenya.

- The sheep supplement beef for local needs and export
- It is a source of income for the farmers
- There is dire need to be self reliant on local wool supplies
- Earns the country foreign exchange when products are exported
- Sheep rearing creates employment to the fast growing population

(c) Account for the high population of sheep in Australia.

- Most of the human population in Australia lives in towns/urban centers. Thus, there are large tracts of land in the countryside suitable for sheep farming.
- Favourable climatic conditions: Most of the sheep farming is concentrated in the better-watered areas, where rainfall totals are between 380 and 625 mm.
- Australia has both local and international markets for her wool for example in Japan, Britain and other European countries.
- Advance in technology has introduced refrigeration facilities that have made it possible to for Australia to export lamb and mutton in chilled (frozen) form.

(d) State three problems facing sheep farming in Kenya.

- Extensive and abrupt droughts lower production. This has restricted sheep farming to the Kenyan highlands
- Disease outbreaks that kill sheep
- Poor market of sheep farming produce
- Farm inputs are very expensive for small-scale farmers. This has minimized mechanization of sheep farming
- Inadequate land parcels/pieces of land due to high population growth rate

(e) (i) State three similarities between dairy farming in Kenya and Denmark.

- The dairy animals kept in both countries are similar i.e. Ayrshire, Jersey and Friesian.
- Artificial insemination is used in both countries
- Dairy farmers in both countries have been selling their products to the co-operatives although the trend is changing in Kenya with market liberalization
- Both countries market their products both locally and in foreign countries
- Milk processing in both countries is similar. Dairy products are also similar including liquid milk, cheese and butter

(ii) State three differences between dairy farming in Kenya and Denmark.

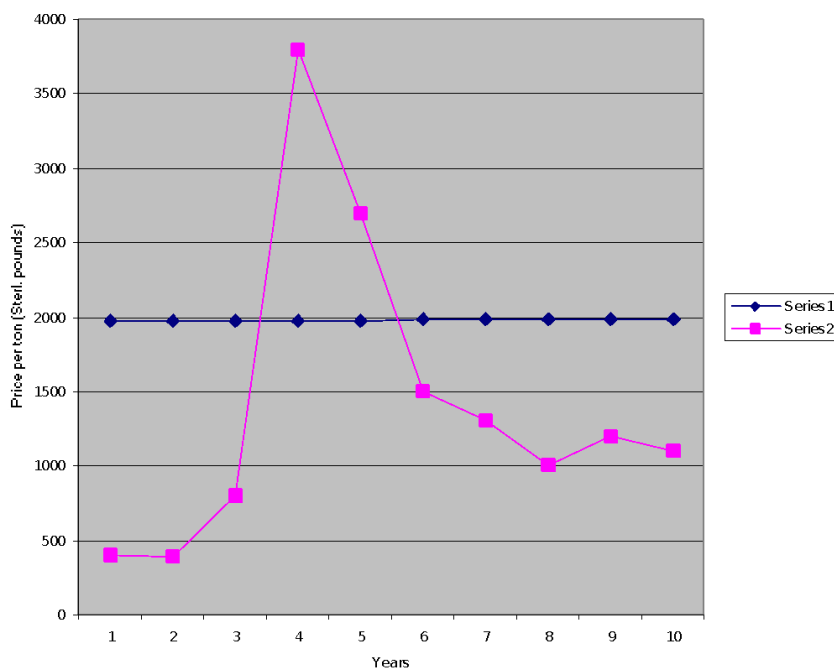
- Dairy farming in Kenya is outdoor throughout the year. Even when zero grazing is practiced, the cattle can be fed or tethered outdoor. In Denmark, climatic conditions in winter and autumn force farmers to keep their cattle indoor for about six months.
- Dairy farming is heavily mechanized in Denmark while in Kenya mechanization is lacking in most places.
- Major dairy farming in Kenya is restricted to the highlands while in Denmark it is evenly distributed all-over the country.
- Dairy farming in Kenya depends mainly on grass pasture while in Denmark it is mostly dependent on fodder.
- Dairy products form major foreign earner for Denmark while in Kenya most of the dairy products are consumed locally.
- Dairy yields are low in Kenya during unfavourable climatic conditions while in Denmark high yields are realized throughout the year.
- Danish dairy farmers are specialized unlike Kenya where the farmers practice mixed farming
- Dairy co-operatives are highly developed in Denmark as compared to Kenya.

7. The table below shows Kenya's coffee sale (prices) in the World market from 1974 – 1983. Study it and answer the following questions.

Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Price per tonne in £	400	390	800	3800	2700	1500	1300	1000	1200	1100

(a) (i) Draw a line graph to represent the data.

Kenya's Coffee Sale in World Market Between 1974 - 1983



(ii) What are

the advantages of a line graph?

- Gives a good visual impression of the continuity of data
- It is simple and easy to interpret
- It is easy to construct

(b) Give reasons why coffee prices in the market have not been stable.

- The production of coffee has not been steady due to climatic hazards
- Overproduction at other times have lowered the prices
- Attacks by pests and diseases which thrive in tropical conditions
- The quota system

(c) Explain why there was a sharp increase in coffee prices during 1976/77 period.

The sharp increase in coffee prices during the 1976/77 period can be attributed to the fact that during this period coffee in Brazil which is a major producer was destroyed by frost causing a shortage in the World market.

(d) (i) Describe how coffee is handled from planting to marketing.

- The land is prepared and the seedlings from the nursery are transplanted in rows
- The young plant is shaded from the sun and watered regularly
- Mulching is done around the roots to reduce evaporation of water

- Fertilizers are applied and spraying done to protect the plant from diseases and pests
- The coffee bush produces after 3-4 years and the red ripe berries are picked by hand
- In the factory, the coffee berries are weighed and sorted out to keep the farmer's records
- The skin is then removed during the processing and the beans are fermented and washed. They are later dried under the sun for two weeks and the beans are bagged and sent to the market
- Coffee is then sold by auction.

(ii) Name two districts in Kenya which are major producers of coffee.

Kiambu, Murang'a, Meru, Embu, Nyeri, Kisii and Kakamega.

(iii) Name any two diseases that affect coffee.

The common diseases that attack coffee include: Leaf rust, Coffee berry disease and root rot.

8. (a) (i) Differentiate between Shifting cultivation and Plantation farming.

Shifting cultivation is a farming system where a farm is cleared and cultivated and when the soils are exhausted the farmer moves to another piece of land while plantation farming is a system involving the cultivation of a large piece of land often more than 4 hectares and mainly grows one type of crop.

(ii) Why is Shifting cultivation discouraged in modern times?

- It is environmentally damaging since it involves clearing and burning of bushes/forests
- It is an inefficient system since its produce can only support a relatively small number of people
- It is a wasteful method as land is left to lie fallow for up to two decades
- The people practicing it usually live low standards of living since yields drop drastically after three to four years of continuous cultivation
- Creates unemployment to the farmer most of the year hence a waste of human resources
- It is a labour intensive method and consumes labour and energy which could be used more productively elsewhere
- It requires large tracks of land which are increasingly becoming unavailable to the ever increasing population

(b) (i) Name two districts where sugarcane is grown on commercial scale.

- Nyando (Muhoroni)
- Migori district
- Mumias

(ii) Explain five geographical conditions that favour Sugarcane growing in Kenya.

- **Rainfall:** The sugarcane growing areas receive adequate amount of rainfall annually. Sugarcane requires abundant rainfall of at least 1, 270 mm, if it is to be grown without irrigation. It can also be grown successfully under irrigation in areas receiving moderate rainfall.
- **Soils:** Sugarcane needs deep fertile soils, which can retain water. The soil must be well drained thus dump areas with stagnant water are to be avoided. Sugarcane growing areas in Kenya have deep and well-drained soils favouring the cultivation of the crop.

- **Temperature:** Sugarcane requires hot temperatures of between 21 and 27 degrees centigrade throughout the year. Sugarcane growing areas in Kenya do experience generally high temperatures most of the year. This supports the cultivation of sugarcane.
- **Topography:** The areas also have flat topography, which allows for mechanization of farming and irrigation.
- **Infrastructure:** A good infrastructure is needed for transporting cane to the factories. The flat terrain makes transportation to the factories easier.

(iii) Briefly outline the processing of Sugarcane in the factories.

- Cane is crushed between the rollers
- It is then boiled with lime
- Juice is passed over filters to remove any impurities
- Water from the juice is removed by boiling in the evaporators
- The juice forms a syrup
- The syrup is concentrated in a vacuum where it results into sugar crystals
- Crystals are put in Centrifugal machine which consists of perforate drum which separates molasses from the sugar
- The sucrose/sugar is then dried, packed and weighed ready for market

(iv) What are the problems that affect sugarcane farmers in Kenya?

- Attack by pests and diseases e.g. smut ratoon stunting
- Occasionally unfavourable weather which delays sugarcane maturation
- Fire outbreaks during dry season, which destroys sugarcane
- Low prices which discourages farmers
- Inadequate transport services especially in rainy seasons
- Stiff competition from imported sugar
- Mismanagement of sugar companies
- High cost of farm inputs
- Delay in payments

9. (a) State at least three physical conditions necessary for the growth of cloves.

- Hot climate throughout the year
- High temperatures, between 27 – 30 degrees centigrade
- High rainfall amounts, between 1500 – 2500mm well distributed throughout the year
- High humidity throughout the year
- Deep fertile soils

(b) State at least four common features of market gardening and horticulture farming.

- Plots are intensively farmed
- Require nurseries, greenhouses and irrigation
- Require expertise advise
- Farms are generally small
- They are market oriented
- Require fertile soils and constant manuring
- Seeds are selected and spraying of insecticides and pesticides done
- Mainly fruits and vegetables are grown

10. (a) (i) Name two climatic factors which influence agricultural practices.

- Temperature
- Moisture

- Rain/precipitation
- Winds

(ii) Give an example of a fibre crop apart from cotton.

- Sisal
- Flux

(iii) State three problems facing cotton farmers in Kenya.

- Attack by pests such as boll weevil/boll worm/stainers
- Unpredictable climatic conditions/drought and sometimes excessive rainfall
- Expensive land inputs such as fertilizers and pesticides
- Poor production/farming methods
- Lack of incentives for farmers as the cotton prices have remained low
- Farmers experience marketing problems as the co-operative societies are laced with managerial problems
- The farmers also face storage problems
- It is labour intensive leading to high cost of labour
- There are delays in deliverance of pay to farmers

(iv) Outline four advantages that have made Southern States to overtake New England's position in cotton growing.

- Southern states have the advantage of large supplies of cheap labour
- Presence of vast power supplies in form of coal and H.E.P.
- Easy and better communication with the rest of the country
- The South possessed many pulp mills where cellulose which is used for production of synthetic fibre was produced
- Proximity of the cotton industry to the cotton belt

(b) (i) Explain three ways through which the German Agricultural Team (GAT) has supported the Kenyan government in carrying out horticultural development.

- Through carrying out horticulture related research
- Through conducting of in-service courses to horticultural farmers at training institutions
- GAT assists in the National Horticultural Development programme (NHDP) with a focus in western Kenya, Coast and Taita hills. The programme includes establishment wholesale markets in Nairobi, Kisumu and Mombasa
- It helps in the propagation of improved planting material and establishment of observation and commercial orchards

(ii) Explain why Kenyan farmers are able to supply fruits to the markets in Europe throughout the year.

- Most of the tropical fruits grown in Kenya do not do well in Europe due to climatic variations
- Kenyan farmers produce a variety of fruits all year round due to warm climate from the coast to the highlands
- Some fruits in Kenya mature when fruits in Europe are in short supply, thus, there is high demand
- There is availability of ready market for the Kenyan fruits in Europe due to balanced diet awareness thus promoting fruit growing in Kenya
- In Kenya fruit production is relatively cheap due to the availability of cheap labour – low labour wage

- Europe has a high purchasing power due to industrialization, thus, Kenyan horticulture farmers earn a lot of profit from their produce

(iii) What is the significance of horticultural farming to the economy of the Netherlands?

- It is a major agricultural export earning the country a lot of income.
- Farms provide flowers and food to the local population
- Horticultural success has led to reclamation of land from the sea.

(c) (i) Give two uses of cloves.

- Clove is used to make vanilla flavouring
- Clove and the oil obtained from it is rolled with tobacco to make cigarettes
- Clove oil is used in making perfumes/soap/medicine
- They are also chewed as stimulant

(ii) State one disadvantage of Kenyan top bar bee hive.

- They have lower occupancy rate
- They expensive to purchase and maintain

(iii) What are the advantages of pig keeping to small-scale farmers in Kenya?

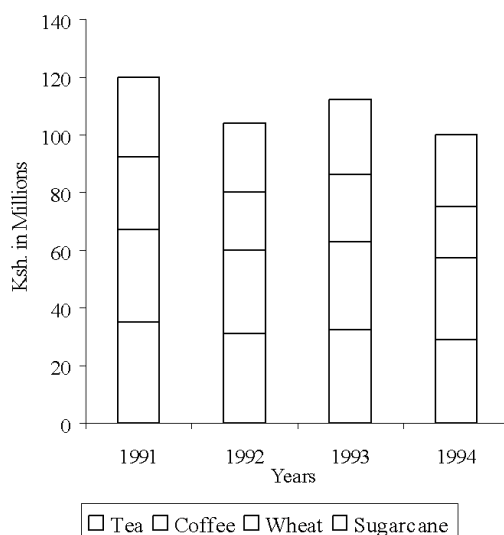
- Pigs are scavengers and can feed on food leftovers and farm wastes
- Pigs mature quickly, thus provide abundant pork meat
- Pigs produce many piglets at ago and the production rate is high
- Pig keeping occupies relatively smaller land area
- They are a source of income when sold

11. The table below shows Kenya's exports between 1991 and 1994 in million shillings.

Crop	1991	1992	1993	1994
Tea	35	31	32	29
Coffee	32	29	31	28
Wheat	25	20	23	18
Sugarcane	28	24	26	25

(a) (i) Draw a cumulative/compound bar graph to represent the above data

Kenya's Agricultural Produce Exports Between 1991 and 1994



(ii) Apart from the above named bar graph, name two other types of bar graphs.

- Simple bar graphs
- Comparative group bar graphs
- Divergence bar graphs

(b) Explain why Kenya imports sugar and wheat yet she is a producer of the same commodities.

- Cane sugar produced in Kenya is sold at higher price than beet sugar, hence Kenya makes a profit by importing beet sugar
- Crop failure due to droughts/unreliable rainfall leads to shortages necessitating importation to supplement the locally produced wheat
- Increasing costs of farm inputs leads to low production, hence need to import the commodities
- Mismanagement of industries leads to their collapse and hence need to supplement local supplies
- Pests and diseases reduce the amount of commodities produced hence need for importation
- Sub-divisions of the former large-scale farms due to land pressure has led to a reduction in production
- Liberalization of trade encourages exports and imports
- Delayed payments and low price of sugarcane has discouraged small-scale farmers
- Kenya is not self-sufficient in these commodities because of high population hence need for importation
- Illegal exports/imports/smuggling/hoarding commodities create artificial shortage necessitating importation

(c) Give three reasons that have made pyrethrum industry successful in Kenya.

- The payment is on cash terms. This may be fortnightly or monthly on arrangement
- The extensive services are very elaborate
- There is free collateral guarantee to the farmers
- Free technical advice is offered to the farmers
- There is emphasis on high quality production
- There is rising demand for natural pyrethrene as it has proved more effective than the artificial pyrethrene

(c) **Why has production of Brazilian coffee continued to decline in the recent years?**

- Diversification – introduction of new crops which fetch very high prices
- Increased competition from other coffee producing countries
- Climatic hazards, particularly frost has made coffee estates to be replanted with sugarcane and soya beans which are less risky to the farmer
- The falling profit accruing from coffee

(e) **State five systematic stages in the processing of tea in a factory.**

- Leaves are withered/dried in the sun to remove moisture
- Leaves are mechanically rolled to break fibres
- Leaves are baked/dried over charcoal fire or dried in the sun
- Leaves are fermented to reduce the acid
- Leaves are roasted/dried over fire until turns black
- Leaves are sieved
- Processed tea is graded, tested and packed for market – domestic or export

12. (a) (i) **Name three main varieties of cotton grown in the world.**

- Long staple cotton
- Medium staple cotton
- Short staple cotton

(ii) **How is cotton processed?**

- Open balls are picked and taken to the ginnery
- At the ginnery, cotton fibre is separated from the seeds
- The fibre is then washed
- The fibre is combed or carded to form a rope-like mass called sliver
- Sliver is fed to spindles to make cotton yarn
- Yarn is the dyed and made into material
- The seeds are crushed to yield oil and the residue is used as fodder

(b) **State two main physical problems facing horticulture in the Netherlands.**

- Poor drainage due to the very flat topography resulting from long periods of moraine deposition by ice
- Incursions of the North sea giving rise to increased salt content in the soil

(c) (i) **What is Apiculture?**

- The practice of raising bees in a hive for the production of honey for commercial and subsistence use.

(ii) **What factors should be considered in establishing an Aprary?**

- A considerable distance from homes because bees can sting and kill
- A quiet place away from human noise and roads
- Shade from direct sunlight as much heat melts the wax
- Safety of bees from predators such as honey badgers, ants and birds

(d) (i) Name three main types of birds raised on large-scale in Kenya.

- Chicken
- Turkeys
- Ostriches

(ii) State three economic benefits of poultry farming in Kenya.

- Farmers get a steady income, thus raise their living standards
- Feeds and drugs needed on the farm lead to industrial development
- A locally available source of animal protein, thus, cheaper for consumers
- Provides employment to many rural people

(e) What role is played by pyrethrum growing in the development of Kenya?

- Pyrethrum is a very important earner of foreign exchange
- The crop diversifies Kenya's exports, thus, stabilizes the economy
- Provides employment to many small-scale farmers
- A cheap source of pesticides and insecticides, thus saving Kenya the much needed foreign currency

13. (a) Name any three methods of irrigation.

- Basin irrigation
- Overhead irrigation/drip
- Trickle irrigation
- Canal irrigation
- Shadoof Archimedean screw, sakia waterwheel

(b) What are the advantages of irrigation over natural water supplies?

- Irrigation ensures a steady and reliable supply even in arid areas while rainfall may fail in a given year
- River water used for irrigation may bring in silt which makes soil fertile and leads to more yields unlike pure rain water
- Enables cultivation throughout the year maximizing use of land while rainfall could be seasonal
- Water drawn for irrigation may also be used for other purposes in the farm

(c) Explain four physical conditions that favoured the establishment of Mwea Irrigation Scheme.

- Availability of reliable water supplies from river Thiba
- Presence of fertile black cotton soils with high water retaining ability
- Gently sloping land making it easy to mechanize and cheaply irrigate by gravity flow
- Presence of high temperatures favouring rice growing
- The unreliable nature of the rainfall made it necessary to irrigate
- The soils were impervious thereby reducing the need to build concrete canals hence lowering costs

(d) Identify any two bodies involved in the running of Gezira scheme.

- The government of Kenya
- The Gezira irrigation board
- The local government council
- The tenants
- The social development fund

(e) Describe any three problems facing the Gezira scheme.

- Waterborne diseases kill and weaken farmers
- Pest and diseases as well as some species of birds lower productivity
- Low payment to farmers due to fluctuation of world prices
- Hiring of labour is expensive lowering the profits accruing to farmers
- Siltation of dams lowering water level for irrigation as well as raising costs through dredging
- Damming of Nile has lowered amount of silt that used to be deposited lowering yields

14. (a) Describe how the Bunyala Scheme was reclaimed.

- Digging of drainage channels to collect excess water and direct it to the main river
- Building of river barrages to control flood and regulate water flow
- Water from the streams has been used to irrigate the rice
- Through construction of dykes

(b) Give any three benefits of the Bunyala Scheme.

- Floods in the flood plain of Yala and Nzoia have been controlled
- Land which was initially swampy has been turned into agricultural land
- Employment is available for the local people
- Has achieved some control over water-borne diseases

C Describe how land is reclaimed and prepared in the Netherlands.

- Construction of ring canals to drain water out
- Construction of ditches within each polder which leads water to a pumping station
- Drying of land through planting of trees/plants
- Desalination of the soil through chemical, flushing and planting hardy plants
- Dividing of land into economic units
- Laying down of good infrastructure
- Settling of people in villages
- Spreading of soils to improve fertility
- Addition of fertilizers

d) Give any three benefits of the delta plan.

- Control of floods of the area to the South West
- Improved control and distribution of the region's fresh water
- Damming has cut off salination and pollution of inland waters. This has also led to the reduction of salinity of soil hence high yields
- Islands that were isolated are now within easy reach of developed areas
- The area is a good site for industry and a tourist resort

(e) Stating the methods, explain the problems hindering the effectiveness of reclamation in the Lambwe Valley.

- Clearing of bushes to destroy the natural habitat of tsetse flies is hindered by the fact that it can result to serious soil erosion
- In spraying, the tsetse flies have become resistant
- Using of traps is difficult as the traps are easily spoilt making it expensive
- Retaining the wild animals which act as hosts to the disease vector in parks as killing them would affect tourism
- Sterilization of males to reduce the reproduction of tsetse fly

15. (a) Give three examples of hardwood species found within the tropical regions of West African Coast.

- Mahogany
- Iroko
- Sapele
- Iron wood
- Ebony
- Rosewood

(b) ***Explain the factors that have hindered commercial exploitation of forests in Gabon.***

- Inadequate transport facilities for transporting logs to the coast especially from newly opened up areas situated far away from river Ogoou'e – the only navigable river in the country
- Lack of pure stands hence difficulty in harvesting for they mature at different times
- Stiff competition from other World major exporters like Canada and Scandinavian countries
- Over dependence on timber products makes the country be hard hit by world price fluctuations

16 (a) ***What is agro-forestry?***

Agro-forestry is the kind of farming where the farmer grows crops and plants trees besides raising livestock on the same piece of land.

(b) ***State three advantages of agro-forestry.***

- Trees act as wind breakers to plants/crops
- Shades provided by trees reduce/lowers weed growth
- Trees reduce water and wind erosion by reducing the impact of raindrops and by reducing surface run-off
- Trees enrich the soil by adding humus and helps in the nitrogen fixation
- Timber and poles may be sold to earn income to the farmer
- Trees provide timber for construction of farm structures and fencing
- Agro-forestry ensures maximum use of soil nutrients
- Animals provide manures to both trees and crops
- Trees and crops provide animal feeds/fodder for livestock farming

17. (a) ***Define the following terms.***

- i) **Afforestation:** Planting of trees where there was none before.
- ii) **Re-forestation:** Replacing trees in a place where some others have been cut.
- iii) **Agro-forestry:** The growing of crops and tree plants on the same piece of land.

(b) ***What two problems face forestry in Canada?***

- Frequent fires and diseases
- Harsh cold climatic conditions which slow down tree growth despite reforestation
- Inaccessibility of some forests during winter and due to ruggedness (steep slopes)

18. (a) ***State at least two characteristics of softwoods.***

- They grow in pure stands
- They have straight trunks and are cone shaped
- They have needle shaped leaves
- They are ever green

(b) Give reasons to show why temperate hardwoods have been overexploited.

- They are easy to exploit since the number of species in a unit is less compared to the tropics
- They are durable and strong like the tropical hardwoods but they are not as bulky thus making them easier to transport and thus easier to exploit.

19. (a) Apart from the Maritime provinces, name two other major lumbering areas in Eastern Canada.

- Ontario
- Quebec

(b) State any four characteristics of coniferous forests.

- The trees are light in weight and therefore easy to cut and transport
- The trees are evergreen
- The trees occur in pure stands
- The trees are tall, about 30 metres in height and have straight trunks
- The forests have little undergrowth
- The trees have a conical shape which prevents accumulation of snow upon the branches, thus allowing snow to slide off easily to the ground
- Trees have thick barks which have a lot of resin to protect the trunks and branches from frost
- Trees have needle-shaped leaves which help to reduce transpiration
- Trees take along time to mature because of extreme cold conditions in most parts of the year

20. (a) (i) List any three valuable indigenous hardwoods in Kenya.

- Camphor
- Elgon Olive
- Mvule
- Meru oak
- Muringa
- Mahogany
- Ebony
- Mahugu
- Cape chestnut

(ii) Which steps have been taken to realize effective management of forests in Kenya?

- Public campaign on the value of forests through mass media
- Research on soil suitability and effects of pests and diseases on forests
- Establishment of training institutions dealing with forestry e.g. Forestry School at Londiani, Forest Industrial training at Nakuru, Presidential commission on tree planting, Forestry research institute at Muguga
- The involvement of Non Governmental Organizations such as Greenbelt which are strong in advocacy
- Introduction of energy saving jikos and cooking pots to reduce usage of wood-fuel
- Improvement of cutting practices/reforestation – ones trees are cut they should be replaced
- Laws have been enacted to govern the management of forests
- Creation of forest reserves
- Introduction of alternative fuels to wood e.g. petroleum, biogas etc.
- Recycling of wastes in forestry industry
- Agroforestry

(iii) What are the problems facing forestry in Canada?

- Outbreak of fires that destroy forests
- Frozen rivers during winter halts transportation of logs
- Difficulty in accessing forests in the northern parts due to cold conditions and land ruggedness
- Replacement of harvested trees take long due to extremely cold climatic conditions

21. (a) *The number of foreign tourists visiting Kenya has been on the decline in the recent past. Give five reasons to explain this decline.*

- Deterioration of transport infrastructure making travel treacherous and uncomfortable
- Insecurity due to politically instigated tribal clashes
- Negative publicity externally by the international/foreign media
- Poor management of wildlife resources which have been a major tourist attraction
- Competition from alternative tourist destinations/countries
- Unfavourable climate e.g. due to the El-Niño weather phenomenon
- Shortage of well trained personnel in the tourism industry
- Harassment of tourists by robbers or thieves while they are on expeditions
- Rising cost of holiday making
- Inadequate promotional activities abroad
- Economic recession/poor performance of economies in Europe making people unable to afford tours
- Recent killings of tourists e.g. near Aberdare's and Maasai Mara national parks
- Opening up of new destinations in Tanzania, South Africa and Uganda

(b) *What are the likely effects of the decline in the number of foreign tourists on the Kenyan economy?*

- Reduced foreign exchange earnings
- Increased unemployment/loss of employment opportunities
- Loss of business by tourism related industries like hotels and handicrafts
- Reduced earnings for farmers who supply food to tourists
- Reduced earnings for traders who sell curios to tourists
- More money is used to maintain under utilised facilities e.g. hotels

22. (a) *State three benefits that Kenya derive from establishment of game ranches.*

- Animals provide food in form of meat
- Animals provide skin and other products when slaughtered
- Some animals provide meat for export earning foreign exchange
- Game ranches are useful in environmental conservation

(b) *Account for the small number of tourists coming to Kenya from Canada.*

- Insecurity in the Kenyan parks
- Lack of advertisement/poor marketing strategies on Kenya's touristic features in Canada
- Poor road and information infrastructure in Kenya leading to uncomfortability

(c) *Identify the steps that were taken to make the Great lakes and St. Law seaway accessible to ocean going vessels.*

- Construction of locks and ship channels
- Construction of dams
- Dredging and blasting to remove lock shoals
- Deepening and widening the river to ease congestion in the bottleneck
- Construction of canals e.g. welland canal and Soo canal

(d) How does political stability encourage tourism?

Political stability ensures the security of tourists while civil wars discourage tourism.

(e) Name two animals which make lake Nakuru a major tourist attraction.

Flamingos and Rhinos/Rhinoceros.

(f) State three reasons why domestic tourism should be encouraged in Kenya

- It makes the people aware of their environment/country
- Makes the people use the hotel facilities which are under-patronized during the low season
- Enables people to appreciate their rich cultural heritage
- It may enhance a better understanding of local communities as a result of interaction
- It may lead to an increased consumption of varied local products
- Increases employment opportunities/enhances income generation
- It may enhance understanding for the need to conserve and preserve the environment.

(g) State three factors that could affect the future development of tourism in Kenya

- a. Conservation of wildlife which will attract tourists into Kenya
- b. Development of hotels, transport and communication networks to attract more tourist into the country
- c. Maintaining sound economic climate to attract more tourists
- d. Developing more tourist attraction sites
- e. Maintaining existing tourist attraction centers
- f. Maintaining political stability

23. (a) Name two examples of game reserves in Kenya

- Maasai Mara
- South Kitui
- Shimba hills
- Buffalo springs
- Nasolot
- South Turkana
- Samburu
- Tana River
- Rahole
- Boni
- Bisnadi

(b) State three ways through which the Kenya government conserves wildlife.

- Protection of endangered species in sanctuaries
- Establishing national parks
- Culling of old/sick animals
- Training personnel/manpower in wildlife management and conservation
- Perimeter fencing of game parks and game reserves to prevent the wild animals from roaming about
- Relocation/transfer of some wild animals from where they face more danger
- Establishing of anti-poaching unit/squad to combat poaching
- Banning of trade on some wildlife products such as elephant tusks

- Banning/prohibition of hunting of wild animals
- Providing medical care to wild animals in the animal orphanage
- Establishing of research centre in wildlife management and conservation
- Offering mass education on wildlife conservation and management

24. (a) List any two main inland attractions to tourists in Kenya.

- Wildlife in natural parks and game reserves
- Kenya's beautiful sceneries e.g. the great rift valley, mount Kenya, highlands, lake Victoria etc
- Historical and archaeological sites e.g. Olorgesali, Kariandusi and museums
- Varied traditions and cultures in Kenya of Kenya (dances, way of dress, handicrafts, Bomas of Kenya etc.)

(b) Define domestic tourism.

A type of tourism whereby the local people/citizens of a particular country visit certain attraction sites within that country.

(c) State at least two negative effects of tourism on Kenya.

- Luxury goods are imported to provide for the needs of tourist's hotel facilities. This drains the country of its foreign exchange
- Tourist facilities are developed at the expense of other development projects like roads, airstrips, health facilities etc.
- Presence of tourists can lead to moral degradation/decay and interfere with the societal fabrics
- Most tourists pay for their upkeep abroad causing the country to lose some of the profits
- Some of the tourists could be agents to spread some diseases like the HIV/AIDS

25. (a) (i) Explain any three ways in which human factors have favoured the existence of wildlife in Kenya.

- Creation of national parks and game reserves to help halt the disintegration of wildlife
- Laws have been enacted to protect wildlife e.g. against poaching
- Creation of animal orphanage homes where some sick wildlife can be taken care of

(ii) Describe the uses of Wildlife to Kenya's Economy.

- Promotes the development of tourism industry
- Provides food fruits and meat
- Wildlife conservation has led to creation of jobs e.g. for foresters and rangers
- Game meat can be sold to earn income
- Has led to the development of hotel industry in some sections of the country

(iii) Explain any three factors in which the future of Kenya's tourism largely depends on.

- Conservation of wildlife by maintaining the existing national parks and game reserves
- The development and maintenance of suitable facilities e.g. transport infrastructure and hotel facilities
- Enhancement of political stability and government projections. This will increase the number of tourists
- Conservation of the rich traditions and cultural practices of the Kenyan communities
- Preservation and maintenance of tourist attraction site like fort Jesus in Mombasa

- Portraying good picture of the country and its touristic sites in major cities of tourists' origin by opening offices in such cities

(b) (i) What is the role of culture and tradition towards the development of tourism in Switzerland?

- The use of a variety of languages – French, German and English – facilitates the development of tourism
- Cottage industry, especially handicrafts is part of Swiss Peoples' traditions and it attracts tourists
- Traditional dances and dressing is an attractive feature to tourists

(ii) What efforts has Switzerland made in order to develop her tourism industry?

- Advertisement of tourist attractions sites and sceneries abroad
- Expansion and maintenance of facilities like transport and hotels
- Efficient banking and policy of neutrality attracts financiers e.g. France and Germany
- Maintenance of transport and communication facilities e.g. electrified rails and excellent roads

26. (a) Explain three factors that influence the exploitation of minerals.

- The economic value of the mineral
- Size of the mineral deposits or reserves
- Accessibility of the reserve and transport costs.
- The method of mining to employed
- The world market conditions/availability of markets
- The level of technology existing in a given country.
- Grade of the ore to be extracted
- The prevailing political atmosphere

(b) What are the advantages of the mining sector to the Kenyan economy?

- Leads to industrial development
- Promotes improvement in infrastructure – road network extensions and widening of communication network
- Creates employment opportunities
- Stimulates growth of towns and urban centres
- Earns foreign exchange for the country
- Leads to improved standards of living due higher incomes
- Leads to general development of the country due to accumulation of capital.

27. (a) State two ways in which minerals may occur.

Minerals may occur as:

- Veins and lodes
- Alluvial deposits
- Seams and layers

(b) State two problems associated with export of copper from the copper belt of Zambia.

- Congestion at the port of Dar-Es-Salaam delays the export of copper

- Frequent world price fluctuations of copper
- Smuggling of copper often occurs along the territorial borders hence loss of revenue for the Zambian government
- Stiff competition from other producers
- Political instability especially in Angola due to civil wars provide security risks in the exportation of copper
- Transportation of copper is difficult due to its bulkiness
- Landlockedness increases transportation cost due to payment of passage fees through other countries
- The escalated transportation costs through distant routes make Zambia to earn low profits from her copper

28. (a) Name two types of mining.

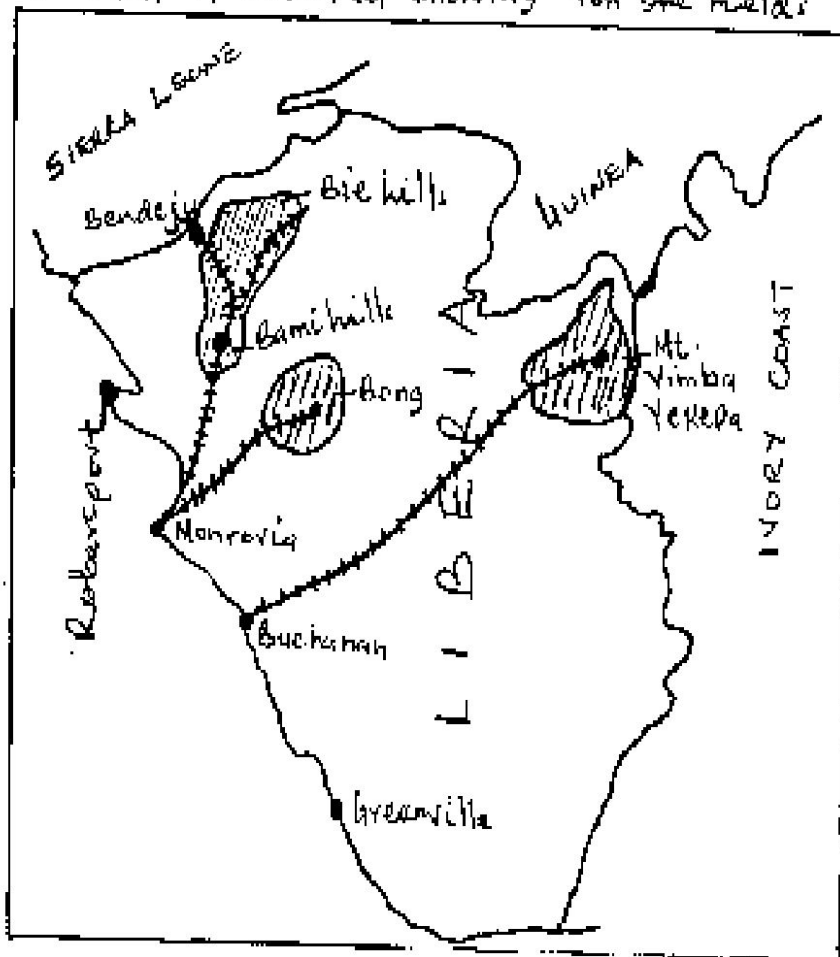
- Alluvial/placer mining/panning
- Open-cast method
- Underground method
- Drift mining
- Solution mining
- Dredging method
- Hydraulic mining

(b) State three negative effects of mining on the environment.

- Leads to creation of derelict/useless/damaged land i.e. leaves behind open craters
- It causes air/water/land pollution
- Could lead to soil erosion
- Derelict land may cause accidents to children i.e. deep open pits pose danger to travellers
- Deep shaft mining causes death to miners when mines collapse
- Destruction of biodiversity (destruction of plants and animals)
- Derelict land erodes the aesthetic value of land
- Water collects in open craters/deep open pits forming breeding grounds for mosquitoes and pests
- Dumping of heaps of rock wastes litter the earth's surface
- Mining is a robber industry i.e. takes place from the earth's surface and does not replace hence mineral exhaustion
- Derelict land wastes potential agricultural land

29. (a) Draw a sketch map of Liberia and on it mark and name three iron ore fields.

A sketch of Liberia showing iron ore fields



(b) Describe how iron ore is mined in Liberia.

- (i) Bulldozers remove the top soil and the vegetation
- (ii) Machine is used to drill a hole for blasting. Blasting then is done
- (iii) After the blasting, a mechanical shovel scoops out the ore and loads it on to a truck to carry the ore to the plant
- (iv) In the plant it is crushed into small pieces then conveyed down the mountain side to the rail head for conveyance to the port

(c) Explain four ways through which Liberia has benefited from iron ore exploitation.

- Creation of employment opportunities for the local people
- Generation of income/revenue for the government through tax collection
- The money accruing is used for general development in the country e.g. development of modern ports like Buchanan
- Trains returning from the port carry imported goods to the interior
- Trains are bought from the iron-ore export revenues
- Development of related industries e.g. palletising plants
- The need to exploit the iron-ores has led to the construction of roads, railways and ports

(b) (i) Name two main uses of Bauxite.

- Used for the construction of modern aircraft/ motorcars/railway coaches/engines and household utensils
- Used in the manufacture of abrasives
- Used in the manufacture of heat resistant materials
- Used in cement and chemicals
- Aluminium is extracted from it

(ii) Describe how bauxite is processed in Ghana.

- Bauxite is first crushed and washed then dried in the kiln at 982.2 degrees centigrade
- It is then treated to remove Silica and concentrate bauxite into alumina/white chalky substance
- Alumina is dissolved in selected chemicals to form a solution called an electrolyte. An electric charge is passed through the mixture separating aluminium and oxygen
- Aluminium sinks to the bottom and is siphoned out

30. (a) (i) Name two countries in Africa which are over-dependent on the exports of metallic minerals.

- Zambia over-relies on copper
- Liberia over-relies on iron ore

(ii) Explain how over-dependence on minerals affects the economy.

- **Positively:** When sale prices of the commodity rises a country receives a lot of revenue and can develop other sectors of the economy, can import those goods it is not able to produce cheaply locally, it can lead to specialization as the country concentrates on what it can produce best and cheaply. It can lead to industrialization and create employment opportunities to many.
- **Negatively:** When world market prices fall, over-reliance can lead to depletion of foreign exchange, inability to import, inability to develop other sectors of the economy and can lead to unemployment among others.

(b) (i) Name two places where Gold is mined in Tanzania.

- Musoma
- Mpanda
- Lupa
- Geita
- Iramba-Sekenke
- South West Mwanza

(ii) Describe how South Africa has benefited from Gold mining industry.

- Paying of external debts
- Foreign exchange earning
- Provides employment for many
- Led to the development of conurbation
- Provides market for secondary industries
- Benefits other industries e.g. engineering, footwear
- Attracts secondary industries like banking
- Lead to the development of transport network and communication infrastructure
- Has led to modern planning of towns

(iii) What problems have been encountered in South Africa's Gold mining industry?

- Increased mining costs as mines become deeper
- Cheap labour no longer available
- Competition for processing water with the increasing population
- Mines become deeper increasing costs and dangers to the miners
- Mining also expensive due to the provision of cooling and ventilation in mines
- Quality of gold becoming poorer as mines get deeper

31. (a) Explain four conditions necessary for fishing.

- **Nature of the Coastline:** Unindented coastlines discourage deep-sea fishing and development of fishing ports. Deep and wide continental shelves host a lot of fish because they harbour plenty of plankton. Many edible fish species live in shallow water and a few beyond the continental shelf. Sheltered inlets are suitable as they provide breeding places, usually free from natural enemies of the fish like predators. Thus, a lot of fish would be found where upwelling of the ocean water occurs as a result of near confluence of two ocean currents e.g. the west coast of Africa. The upwelling of water brings to the surface fish nutrients and the water is readily oxygenated providing oxygen for the fish.
- **Presence of planktons:** Planktons constitute the major source of fish food. Planktons exist in water but just under certain conditions. Fish feed on small marine organisms (zoo plankton) and small vegetable substances (phyto plankton). Thus, the availability of fish would depend on the availability of food. Plankton thrives in areas where water is less than 180m deep because it is up to this depth that the sunshine, which is necessary for the growth of plankton is able to penetrate water. Scarcity of plankton could lead to migration of fish in search of food.
- **Accessibility:** Fish are very perishable and can go bad in a matter of hours. Even though refrigeration facilities help in the preservation of fish products, an efficient transport network is essential to transport the catch fast enough to the markets. Moreover many fishermen especially the small-scale ones do not have access to such refrigeration facilities. In Kenya for example, the tarmacking of Kitale – Lodwar road up to Kalokol on the Ferguson Bay of lake Turkana has led to commercial exploitation of fish from this lake. Traders from as far as Nairobi have now been attracted to the lake.
- **Level of Technology:** Large-scale fishing as an economic activity requires high capital input and sophisticated fishing equipments like boats, nets, refrigerators and processing plants.
- **Ready market:** Fishing is more extensive in areas where there is a high population. High population provides both a high demand for fish and labour force required for the industry to thrive. In places where the population is sparse, the catch is limited, unless transport to ready markets is available.
- **Presence of cold ocean currents:** Optimum temperature conditions are necessary for the growth of plankton. In areas of warm temperatures, especially those influenced by warm ocean currents, like the Mozambique current, the plankton get killed. This reduces fish food availability and hence fish population. Fish flourishes well in coasts that are washed by cold ocean currents like Namibia, Labrador (Canada) and Peru (South America).

(b) What is meant by the following?

- Pelagic fish:** Are fish communities that live near the surface or at the shallow depth of the seas. Examples include herring, mackerel, sardines and tuna.
- Demersal fish:** These are fish communities that live at or close to the bottom of seas. Examples include cod and cat (mud) fish. Cod usually preys on other fish, whereas the catfish feeds on organisms buried in sediments. Fresh water bodies such as swamps and slow moving rivers are common breeding places for the catfish.

- (iii) **Anadromous fish:** These are migratory fish moving either moving up or down a river course. Examples include the salmon and pilchard. Fishermen who depend on the anadromous varieties of fish are seasonal, since the fish move only during certain times of the year, either to mature or breed in a new environment.

(c) (i) Define fish farming.

Refers to the rearing of fish in ponds. The ponds are built in areas of heavy clay or loamy soils which are usually impervious. The ponds are usually located near rivers to ensure constant supply of water. They must have inlets and outlets to allow the entry and exit of water. The water therefore remains fresh providing the natural environment for fish. Fish farms are mainly found in Nyanza, Western, Central and Coast provinces and parts of Rift Valley province.

(ii) State four measures that the government of Kenya is undertaking to encourage fish farming.

- Encouraging farmers to set up fish ponds
- Sending extension officers to advise the farmers on the need to set up ponds and introduce fish in their diets
- Setting up fish ponds and hatcheries as demonstration farms
- Fisheries department provides technical and at times offers financial assistance to fish farmers
- Campaign by the government on food policy has made communities that previously never ate fish to set up fish farms for both subsistence and commercial purposes

32. Describe five environmental problems affecting fishing in Kenya.

- **Pollution:** Pollution of water bodies by industrial effluent or chemicals used in agriculture or oil spills from ocean vessels or disposal of sewage drastically upset the ecological balance of the water bodies. If unchecked environmental pollution can be disastrous. This calls for great caution in the application of fertilizers and the disposal of industrial chemical wastes. Wastes from industries should be carefully treated before being allowed to flow back into rivers and lakes. Laws should be enacted to control the pollution of fresh water bodies through waste material discharged from the industries. An example of badly polluted water bodies in Kenya includes the Tiebia dam in Limuru.
 - **Waterweeds:** Growth of water weeds e.g. the water hyacinth, which has infested lake Victoria make the lake hard to navigate and lead to the disappearance of some fish species.
 - Deep continental shelf discourages flourishing of fishing
 - Warm Mozambique current also discourages flourishing of fish
 - Strong sea tides are a menace to local fishermen venturing into the sea

33. Study the table below and answer the questions that follow.

World Fish catches (Figures in thousand tons)

Countries	1975	1978	1983
Kenya	27.0	46.0	98.0
Uganda	188.0	224.0	172.0
Tanzania	212.0	211.0	273.0
Japan	9895.0	1080.0	1125.0
Norway	2485.0	2590.0	2822.0

USA	2842.0	3418.0	4143.0
Others	50051	62586.0	67837
World Total	65700.0	70155.0	76470.0

(a) (i) Draw a divided circle (pie chart) of a radius 5cm to represent the quantity of fish catch for 1975. Show your calculations.

Calculations

$$\text{Kenya} = 27/65700 \times 360 = 0.1 \text{ degrees}$$

$$\text{Uganda} = 188/65700 \times 360 = 1.0 \text{ degrees}$$

$$\text{Tanzania} = 212/65700 \times 360 = 1.2 \text{ degrees}$$

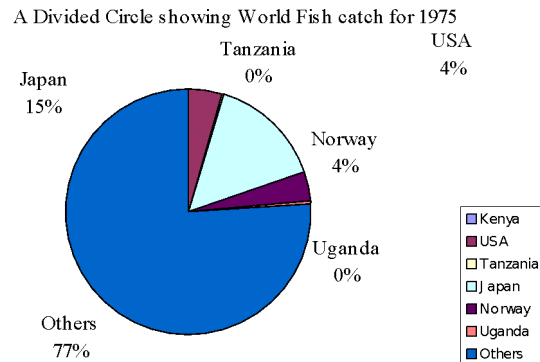
$$\text{Japan} = 9895/65700 \times 360 = 54.2 \text{ degrees}$$

$$\text{Norway} = 2485/65700 \times 360 = 13.6 \text{ degrees}$$

$$\text{USA} = 2842/65700 \times 360 = 15.6 \text{ degrees}$$

$$\text{Others} = 50051/65700 \times 360 = 274.3 \text{ degrees}$$

NOTE: The Diagram below has not been drawn to scale



(ii) Give the reasons behind the trend of the quantity of fish catches for Kenya and Japan from 1975 to 1985.

Kenya	Japan
<ul style="list-style-type: none"> • Communities encouraged to eat fish • Exploitation of water resources previously unexploited • Encouragement of fish farming • Improved transport and communication • Better fishing methods • Research and technology advanced in fishing 	<ul style="list-style-type: none"> • Fish farming a major activity as agriculture is not widely practiced • Fishing encouraged as ready market available • Availability of capital • Advanced fishing and storage technology • Well established ship building industry provides advanced fishing fleets • Extensive shallow continental shelf hosts a lot of fish • Indented coastline provide good breeding ground for fish

(b) (i) Define the term fish farming.

Fish farming is the rearing of fish in ponds.

(ii) Explain any five advantages of fish farming in Kenya.

- **Source of protein and food:** The most immediate importance of fish farming in Kenya is provision of animal protein and food to fishermen and consumers. Fish forms a major dish among communities living around lake Victoria and the Western province.
- **Source of income:** Fish farming is a source of income for those involved in the activity. The fish farmers sell their catch to co-operatives or to middlemen. The co-operatives and traders in turn sell the fish to consumers at a profit thus generating income. The fish farmers may also sell the fish directly to consumers and the income gained sustains them in the industry. Thus, the process of catching, processing, moving and marketing fish is an income generating activity in terms of payment for labour and the product.
- **Source of employment:** Fish farming creates numerous job opportunities for people living near or in fish farming areas. Some people are self-employed while others are employed by the fishermen and thus, earn their wages from the industry. Where co-operatives exist some people are employed as clerks and officers.
- **Health purposes:** Fish feeds on mosquito larvae. This is why it is useful to introduce fish in stagnant water as they suppress the breeding of mosquitoes. Mosquitoes transmit malaria and yellow fever, hence their suppression is helpful in controlling these diseases.
- **Development of related industries:** Fish farming encourages the development of other related industries like net manufacture and making of fishing hooks. Fish are also a source of raw material for some fertilizer plants.
- **Source of medicine and cooking fat:** Fish farmers can use fish oil directly or indirectly as a source of cooking fat. For example the Nile perch oil is used directly as cooking fat. Fish oil is also medicinal. Cod liver oil is particularly popular for the alleviation of chest problems.

(c) Besides fish farming what other measures have African countries undertaken taken to promote the growth of fishing industry.

- **Improvement of transport network:** Efficient means of transport is necessary for quick accessibility of markets. Some African countries have tried to improve access to fishing grounds. Kenya, for example, has tarmacked the Kitale-Lodwar road upto Kalokol on the Ferguson Bay of Lake Turkana. This has helped in the commercial exploitation of fish from the lake.
- **Vigilant surveillance of fisheries:** Some given species of fish have been over-fished to the extent that their natural replacement is endangered. The government of Kenya, for example, has outlawed the use of gill-nets which have been seen to be the cause of the rapid dwindling of fish populations. Fishermen are also supposed to be registered/licensed to fish. However, this is not followed to the letter. This, however, can be achieved by strictly enforcing restrictions on nets used and sizes of fish caught.
- **Strict hygiene standards:** Some African countries, especially those that export fish like Kenya, have tried to observe strict hygiene standards. This reassures the foreign market of quality fish products.
- **Waste treatment laws:** Environmental pollution is a serious problem in some fishing grounds e.g. Limuru is known for a polluted aquatic ecosystem. Industrial pollutants from a neighbouring shoe manufacturing firm have drastically upset the ecological balance of Tieba dam in Limuru. Laws have been enacted calling for proper treatment of wastes from industries before being allowed to flow back into the rivers. But again, whether this is followed to the letter is a question of debate.

34. (a) Describe three methods used for commercial fishing.

The type of fish, the fishing environment and the level of fishing largely determine the methods employed to catch fish. They include:

- **Seining:** Here fishing boats with the help of dory (small) boats spread out the seine nets with small meshes in the sea/lake. Once the nets are spread out, the boats may remain stationary or the nets be held in position using floats. The fishermen then give the fish sometime to be trapped. Once the net is full, it is hauled over and the fish emptied on to the ship. This method is used to catch pelagic and anadromous fish, which usually move to the shoals. It is the most effective method used to catch the *dagaa* on lake Victoria and Tanganyika. If not appropriately used, seining leads to over-fishing because it does not discriminate the ages of the fish being caught.
- **Trawling:** This involves the pulling of a net by a boat or ship. This method is used to catch demersal fish e.g. the cod in deep seas. A net is pulled along sweeping the fish. The net is then hauled into the boat and the fish emptied on board. Trawling is labour – intensive and the catch is high. Large commercial fishing ships are used and the fish processing takes place on the ship. The ships drag the nets slowly thereby collecting all types and sizes of fish.
- **Line Fishing:** In calm waters, fishing boats spread out long lines with several hooks on them. The floats keep the lines suspended to show the fishermen where the lines are. The baited hooks then catch the fish as they compete to feed. This method is also used to catch mainly demersal fish e.g. the cod, usually in shoals.
- **Barriers:** In flood prone areas, barricades are constructed during the floods to catch fish. The barriers hold water-containing fish. When the water level drops below the height of barriers as floods subside, the fishermen simply scoop the fish. The method is seasonal and relies on floodwaters.
- **Traps:** In this method paths of anadromous fish are identified, then traps are laid to catch them. The traps, made of either woven reeds or baskets and having the shape of a cone, are placed in such a way that the fish run into them and get trapped. Though slow, the method can catch a lot of fish.
- **Gill Net:** This is one of the most effective methods in shallow water fishing. The nets have a mesh, which lets only the head of a fish to go through and then traps it by the gills. Gill nets can be spread vertically across the course of a river on the path of anadromous fish, or can be swerved round in water to allow the fish to move into the net. This method is suitable for catching Tilapia.
- **Herbs:** Is used in areas where the river is calm. The fishermen crush some herbs and sprinkle in the water. The fish then become unconscious as they take to the surface. The fishermen simply collect from the river using their hands. This method is effective on pelagic fish and in ponds.

(b) Explain three main sources of water pollution along the Kenyan coastal waters.

- Domestic pollution: The disposal of sewage into the ocean contributes substantially to the water pollution. The sewer wastes are both from the numerous seaside hotels and residential areas.
- Industrial wastes from industries along the Coast.

- Oil spills from the sea-going vessels.
- Agricultural waste from pesticides, herbicides and siltation brought about by the rivers.

35. (a) Define

- (i) **Optimum population:** Refers to a population in which the number of people is in balance with the available resources.
- (ii) **Population explosion:** Refers to a high population that has outstretched the available resources. An overwhelming increase of population resulting to pressure on the available resources.
- (iii) **“A high population growth rate in Kenya is likely to slow down economic development.”**
Give four reasons to support this statement.
- The large unskilled population reduces the productive capacity of the population
 - High population puts pressure on land resources
 - High population leads to land fragmentation hence discourages mechanization of agricultural activities
 - Leads to excessive tree felling
 - Facilitates soil degradation and erosion
 - Leads to food shortage, thus under-nourishment
 - Leads to high dependency ratio
 - Leads to increased unemployment cases

36. (a) (i) What is population census?

Population census may be defined as:

- The enumeration of the entire population of an area and the compilation of demographic, social and economic information of the population being enumerated at a given time.
 - The process of determining the number of people in an area at a time by headcount.
 - The whole process of counting people and compiling data pertaining to all persons.
- (ii) **Kenya carries out her census after every ten years. Discuss at least four reasons why countries carry out population censuses.**
- To determine the composition of the population in terms of sex, age and regional distribution
 - To know the trends and levels of mortality and fertility
 - To plan for the provision of basic facilities such as food, schools and hospitals to the people
 - To aid in making decisions regarding the creation of new administrative units e.g. constituencies and districts
 - To know birth rate and trend of fertility
 - To know the population structure in terms of age and sex
 - To estimate the dependency ratio
 - To compute income per capita
 - To know the literacy level of the population
 - To the labour supply and predict any unemployment problems
 - To aid the general economic planning

(b) Discuss five consequences of rapid population growth.

- Reduced income per capita and reduced gross domestic product (GDP)
- Strain on the existing natural resources such as lands, forests etc.
- Strain on the existing human resources e.g. high dependency ratio
- Increased unemployment levels
- Increased poverty levels
- Increased crime rates
- Strain on social amenities such as schools and hospitals
- Food shortages as productive pieces of land are devoted to settlement
- High expenditure on non-income generating activities
- Population pressure leads to environmental degradation as people clear forests to create room for cultivation and settlement
- It leads to increased rural – urban migration in search of jobs
- It leads to land fragmentation. Fragmented land is uneconomical to operate and experience diminishing returns/low productivity
- Increase in inadequacy of social amenities like schools, hospitals and poor housing in towns lead to emergence and proliferation of slums
- It leads to over reliance on foreign aid/loans to sustain the fast growing population. This reduces foreign exchange due to loan repayment
- It leads to balance of payment problems due to increased importation of food to meet food shortages
- It leads to general low standard of living due to low savings by individuals

(c) Discuss five measures the Kenya government has taken to check the high population growth.

- Initiation of the National family planning programmes in Kenya
- Creation of the National council for population and development (NCPD)
- Introduction of adult education programme to check on illiteracy
- Creation of public awareness through mass media
- Organizing family life seminars
- Encouraging men and women to opt for voluntary sterilization
- Increased taxation
- Introducing family life/planning and counselling centres

(d) Identify four functions of the National Council for Population and Development (NCPD)

- Coordinating all activities directed at spreading family planning knowledge and practice and improvement of maternal and child health in Kenya
- Determining priorities in the fields of family planning and population developments
- Advise the government on National population policy
- Receiving, evaluating and programming selected proposals and suggestions from the government agencies and other organizations which contribute to the realization of the council's objectives
- Promoting research on different aspects of population and development
- Liasing with both local and international organizations engaged in population development activities
- Liasing with donors and participate in negotiations for funding of the project's programmes

37. (a) (i) What does the term census mean?

It refers to the enumeration of the entire population of an area and the compilation of demographic, social and economic information of the population being enumerated at a given time and place.

(ii) Differentiate natural population growth from numerical population growth.

- Natural population growth refers to the natural increase or decrease in population which is worked out by subtracting the crude death rate (CDR) from the crude birth rate (CBR) minus migration figures. All other differences in population like composition and age are ignored.
- Numerical population increase on the other hand is the actual (absolute) increase in the number of people in an area in a given time. It is worked out by getting the difference between two censuses.

(b) (i) List three primary sources of population data.

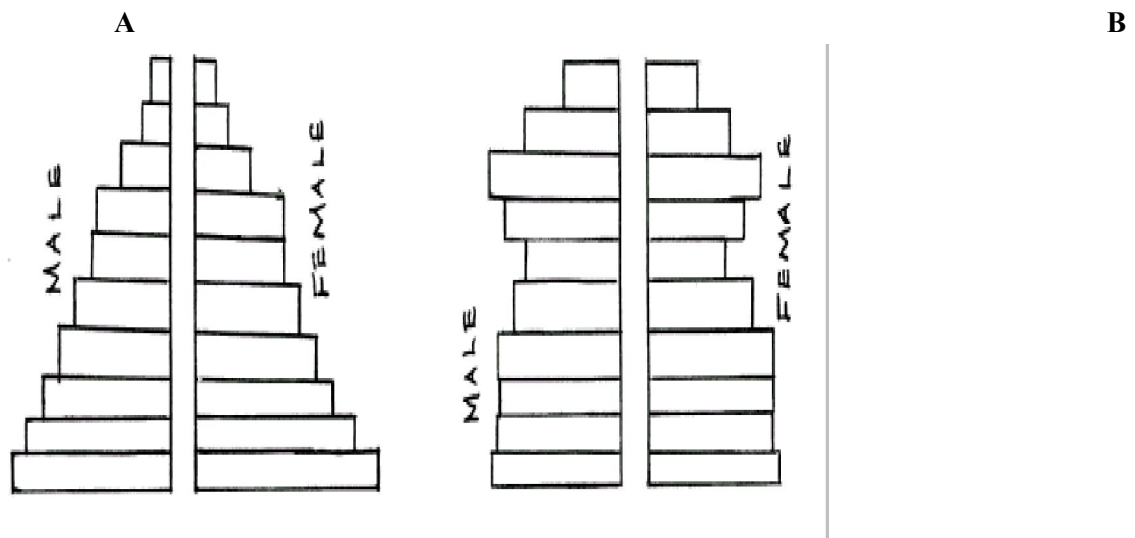
- Registration of persons
- Census
- Sample surveys

(ii) What four factors influence population growth?

- Fertility level
- Rate of mortality
- Migration of people
- Settlement patterns

(c) Use the population pyramids below to answer the questions that follow.

Population Pyramids of Kenya and Norway



(i) **Name any two countries of the world that might be represented by pyramid A and B respectively.**

Country A represents Kenya, Uganda, Zambia or any other developing nations while country B represent Norway, Denmark, Finland, Sweden or any Scandinavian countries.

(ii) **Compare and contrast the population structures of the two countries.**

- Both population structures have a high population of those aged between 0-20 years
- Both have a low proportion of those aged over 50 years.
- The dependency level/ratio (dependent population) i.e. those aged below 15 years and above 65 years is higher in country A than that of country B.
- Those within the working age, the productive population (age 15 – 65) in country A are fewer than those in country B
- The dependency ration in country A is higher than in country B

(iii) **What are the effects of population growth in country A on social facilities/amenities?**

The high population growth rate has led to:

- Inability to provide adequate education facilities such as schools, colleges, books and other equipments
- Poor health services as the population outstrips the available physical facilities like hospitals, medical personnel and drugs
- Inadequate provision of housing facilities leading to development/sprawling of slums
- Scarcity of adequate, thus, high rental rates for houses
- Inadequate and expensive transport services as demand for transportation outstrips available supply. This is exemplified by long queues in towns during rush hours (mornings and evenings when people go to and come from work)

38. (a) **Explain the meaning of the following terms: Population structure and Implicit population policy and explicit population policy.**

- Population structure refers to the composition of a given human population in terms of age and sex.
- Implicit population policy refer to particular laws, regulations or statements which may have direct or indirect effect on population growth
- Explicit population policy refers to the documents or statements issued by the government departments or commissions which are intended to control population growth

(b) Give three reasons why a population census is necessary in a country.

- It shows the population composition in terms of sex, age and regional distribution
- Provides information on trends and levels of mortality and fertility
- Helps the government to plan for the provision of basic facilities to the people
- Assists the government in knowing whether there are adequate economic and social resources to maintain a high standard of living
- Helps the government in making decisions on the division of new administrative areas

(c) State three characteristics of the first phase/stage of demographic transition.

- High birth rate
- High death rate
- Little or no increase in population
- High death rates caused by inadequate food supplies, wars, diseases, and insufficient medical facilities

(d) (i) What are the causes low birth rates in a country?

- Late marriages
- Effects of family planning campaigns
- Low nutritional or health levels
- Move towards small families in response to economic realities
- Urbanized population – prefer fewer children in order to maintain their standard of living
- Rise in the cost of feeding and educating children
- Changing attitudes towards employment/wages verses family engagement – the changing role of women in the family today
- Level of education attainment
- Improvement of medical facilities

(ii) State two problems associated with a decline of population in a developed country?

- Inadequate manpower thus expensive labour
- Under utilization of social facilities such as schools
- High old age dependency ratio

(e) Explain four causes of rural – rural migration in Kenya.

- Population pressure that leads to landlessness lead to migration of people to settlement schemes and to less populated areas in search of land
- Insecurity in areas which have frequent attacks from bandits and cattle rustlers has made some people to migrate to more secure areas
- Establishment of large plantations/irrigation schemes attract people from neighbouring areas as they search for employment
- Natural catastrophes such as floods, droughts, famine and diseases cause people to move to more secure areas
- Pastoral communities migrate from one rural area to another in search of pasture and water for their livestock
- Government policy of moving people from one region to another in order to create land/room for a government project

39. (a) Name any country in Africa where Nuclear power is produced.

- South Africa – at Transvaal and Natal. Coal is also produced at Wankie (Zimbabwe), Luena (Zaire), Maniamba (Mozambique), Nkandabwe and Mamba (Zambia) and Enugu (Nigeria).

(b) Give at least two disadvantages of Nuclear power.

- Expensive to install
- Not long-lasting. The raw material (i.e. uranium) is exhaustible
- Nuclear stations have risks which once they occur can cause great damage to human life
- At times of technical failures they produce harmful radiation that kill living organisms e.g. Chernobyl reactor in the former USSR which leaked in 1987 causing deaths
- The nuclear reactors have serious environmental impact since the radioactive wastes are harmful to health as they cause cancer

(c) Explain how nuclear power is derived.

It is derived from the alteration of atomic structures. It involves the release of heat that produces steam which is used to generate electricity. The process is by fission whereby radioactive minerals such as uranium are split into nuclear power stations or nuclear reactors to produce heat.

40. (a) State two measures taken by the government to conserve energy in Kenya.

- Encouraging Kenyans to use oil for essential services only
- The government uses consumer pricing to discourage unnecessary use of oil fuel (gasoline is taxed less than petroleum products)
- Encouraging to Kenyans to use public transport instead personal cars
- Encouraging the use of solar power for heating and lighting
- Encouraging use of windmills to set up water pumps
- Encourage the industries to use coal rather than petroleum and electricity

(b) Apart from industrial and domestic, name one other use of energy in Kenya.

- Energy is used in the transport sector (i.e. use of petroleum, coal and animal power)
- Solar energy is used in agriculture for drying grains, tobacco, pyrethrum etc
- Wind energy is used for pumping water from boreholes
- Solar energy is used for drying fish

41. (a) Differentiate between renewable and non-renewable sources of energy. Give examples.

Renewable source of energy refers to energy sources that can be reproduced or regenerated e.g. hydro, solar, biogas etc. while non-renewable refers to sources of energy that cannot be reproduced or regenerated e.g. petroleum, uranium and natural gas.

(b) (i) What reasons make tropical countries have the potential to develop hydroelectric power.

- Several falls and rapids provide good sites
- Presence of hard basement rocks
- High volume of water e.g. river Nile, Niger, Tana etc.
- Regular flows of water throughout the year

(ii) Why are the tropical countries not yet fully sufficient in H.E.P. production?

- Lack of adequate capital
- Inadequate technological resources
- Lack of sufficient skilled manpower

(c) How has Kenya benefited from the construction of the Seven forks dam?

- The dam generates H.E.P which is supplied to various parts of the country
- The dam has led to the creation of water reservoirs, which provide water for irrigation
- Dam has led to the opening up of areas through road construction
- Water reservoirs encourage fishing
- It has reduced Kenya's over dependence on electricity from Owen falls Uganda
- H.E.P generated from the dam has enabled the government to generate revenue
- The H.E.P generation has led to the growth of industries
- The sceneries created have become tourists' attraction
- Has created employment opportunities
- Has created a micro-climate

(ii) What problems are associated with Multipurpose Dams?

- Inadequate capital to maintain them and keep them in operation
- Displacement of the people and high cost of resettlement
- Silting of dams
- Depletion of rich alluvial deposits downstream
- High rate of evaporation resulting into loss of water
- Spread of waterborne disease e.g. Malaria, Bilharzias etc.
- Destruction of the natural habitat
- Inadequate skilled personnel in third world countries
- Political interference which disturb planning and management
- Reduced water supply downstream

42. (a) What is the meaning of the term 'non-renewable' energy? Give an example.

- These are the energy sources that lack the natural capacity to regenerate themselves once used and therefore likely to get exhausted if not carefully used e.g. petroleum, coal and nuclear energy.

(b) Identify three main types of renewable energy in Kenya.

- Solar
- H.E.P.
- Geothermal
- Wood fuel

(c) (i) Name two main areas where H.E.P. is generated in Kenya.

- Kindaruma
- Kamburu
- Masinga
- Sondu/Miriu

(ii) What basic factors are necessary for the successful generation of H.E.P.?

- A large volume of water preferably a lake or a big permanent river
- A regular and reliable supply of water with minimum fluctuations
- A large space
- for a reservoir preferably a deep gorge
- A large market since electricity cannot be stored for along time
- A large amount of initial capital for construction, transmission and maintenance

(d) (i) Describe the location of textile industries in Egypt.

- Most if not all textile industries are located along the river Nile and in the Nile delta
- El Mahalla – el-Kubra, a town to the south of Cairo is the leading textile center
- Within the Nile delta, textile industries are concentrated at Cairo, Alexandria and at Asyut

(ii) What factors have led to the success of the textile industry in Egypt?

- Readily available raw materials, mainly cotton
- Abundant H.E.P. from the Aswan
- Abundant capital from the sale of other products such as petroleum
- Abundant water for growing and processing cotton textiles from river Nile
- A large market at home and in the neighbouring countries

(e) What are the main negative effects of industrialization?

- Pollution of air, water and land
- Workers are often affected by respiratory diseases
- Acid rain sometimes results
- Unemployment as human labour is replaced by robots, computers, cranes resulting into poverty
- Displacement of people to give room for industries and raw materials acquisition e.g. Sony Sugar Company
- Erosion of traditional values due to a new, urban way of life

43. Study the table of energy consumption in Mt. Kenya Region.

Energy consumption in Mt. Kenya region in million tones.

Region	Oil	Gas	Wood	Total
Nairobi	10,000	2,400	2,000	14,400
Nyeri	4,100	1,000	3,000	8,100

(a) Using the scale 1 cm rep. 40 million tones, draw proportional circles to represent the consumption of the three sources of energy in Nairobi and Nyeri.

Square root of 14,400 = 120

Square root of 8,100 = 90

Scale: 1cm rep. 40 million tones

Therefore:

Radius for Nairobi circle = $120/40 = 3$ cm

Radius for Nyeri circle = $90/40 = 2.25$ cm

NAIROBI

Oil..... $10,000/14,400 \times 360 = 250$ degrees

Gas..... $2,400/14,400 \times 360 = 60$ degrees

Wood..... $2,000/14,400 \times 360 = 50$ degrees

NYERI

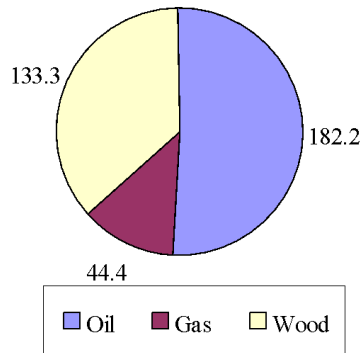
Oil..... $4,100/8,100 \times 360 = 182.2$ degrees

Gas..... $1,000/8,100 \times 360 = 44.4$ degrees

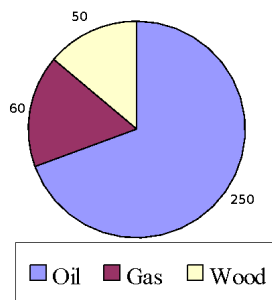
Wood..... $3,000/8,100 \times 360 = 133.3$ degrees

Proportional Circles to represent the three sources of energy in Nairobi and Nyeri are presented below (Note that they are not to scale).

Proportional circle showing fuel consumption in Nyeri



Proportional circle representing fuel consumption in Nairobi



(b) (i) Calculate the

percentage of gas consumption in Nyeri.

$$1,000/8,100 \times 100 = 12.3 \text{ percent}$$

(ii) Comment on the high consumption of oil in Nairobi and wood in Nyeri.

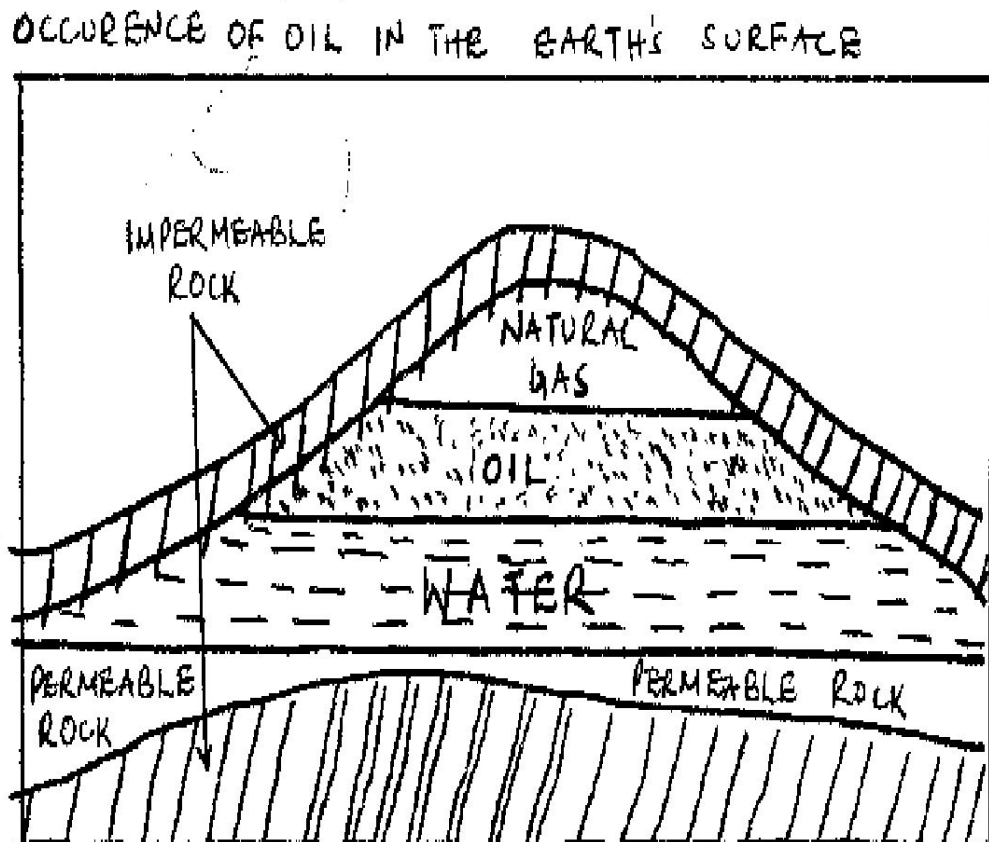
Consumption of Oil in Nairobi:

- Oil is used for transport due to large number of vehicles thus high consumption
- High demand for oil for cooking and lighting
- Easily available from pumps and nearby kiosks
- High demand in industries for industrial use and as lubricants
- Availability of high purchasing power as a result of urbanization

Wood in Nyeri:

- Availability of wood as most people practice agroforestry
- Wood energy is not as expensive as gas/oil energy
- High demand for wood fuel for heating and cooking
- Popularity of fuel wood as a source of energy in rural setting

(c) Draw a diagram showing the occurrence of oil in the earth's surface.



(d) Give any three uses of studying statistics in Geography.

- Making information on geographical phenomenon available
- Draws clear comparisons between geographical areas
- Establishing geographical relationships
- Showing changes through time of various geographical phenomena
- Predicting the future by drawing projections
- Economic planning

44. (a) (i) List any three factors that influence international trade.

- **Taxation:** Trade between countries is restricted by the imposition of various taxes like tariffs and custom duties. To protect the local industries, a country producing similar goods like those being imported may charge higher duties to discourage importation.
- **Political relations:** Trading among countries require that they be in good terms. Political misunderstandings among countries discourage trade, hence denying their citizens the goods in demand.
- **Capital:** An important item in trade is money which is used in the exchange of goods and services. Traders require capital to start businesses either from their own savings or in the form of loans. In Kenya, for example, many businessmen get loans from Industrial and Commercial Development Corporation (ICDC) and Kenya Industrial Estates (KIE) to set up their businesses. Other financial institutions include Agricultural Finance Corporation (AFC).

- **Demand and Supply:** Adequate demand for goods and a good source of supply are prerequisites for any transactions. Development countries usually demand raw materials from the developing counterparts. Developing countries on the other hand import finished products from the developed world. These forces of demand and supply thus, dictate the kind of trade that exists between various countries of the world.
- **Transport and communication network:** The supply of items is facilitated by an adequate means of transport and communication. Efficient transport and communication system reduces the cost of transporting the finished products to the market and leads to a decrease in the final cost of the item when finally sold to the consumer.

(ii) State five benefits of international trade to a country.

- **Economic Growth:** Trade creates numerous job opportunities through the several industries set up to meet the demand of various goods. A high demand of certain goods encourages specialization in production, which lead to high quality of goods
- **Foreign exchange:** Through international trade a country is able to acquire foreign currency which enable the said country to import goods from other countries.
- **Industrial growth:** Goods with a high demand stimulate industrial growth because several manufacturers compete to put up industries to meet the demand.
- **Source of revenue:** Trade generates revenue to a country through taxation of commodities and services rendered. Sales tax and other custom duties are some of the ways of raising revenue for a country.
- **Development of Infrastructure:** Trade usually demands good transport facilities, as this enables goods to reach their destination in good time.

(b) (i) What is Preferential Trade Area (PTA)?

It referred to a regional co-operation or trading block of Eastern and Southern African countries to foster trade and economic co-operation among the member countries.

(ii) Explain any three factors that have hindered trade between Kenya and her African neighbours.

- **Smuggling:** Smuggling has had serious effects on the trade between Kenya and her neighbours. Some people sneak in goods from other countries and at the same time export Kenya's products to such countries through the black market. Such trade is detrimental to the economic growth of the country because such traders avoid paying taxes.
- **Nature of Kenya's export:** Export earnings depend on the quality of goods exported and the demand for them on the international market. Variations in demand result in the fluctuation of prices of the goods in world market. The imposition of quotas regulates the supply from each country to avoid any economic glut, which has negative effects on Kenya that depends heavily on particular commodities for export. Coffee, a major export from Kenya, has for example, suffered with the introduction of quotas by International Coffee Organization. The result has been low payment to coffee farmers. Given the fact that Kenya's exports are mainly agricultural, they are vulnerable to climatic changes, pests and diseases. The fact that most of the other African countries also produce agricultural goods and other primary products the demand for Kenya's goods among the neighbouring states is reduced.
- **Nature of Kenya's imports and the unfavourable balance of trade:** Most of the imports are heavy industrial materials and finished products. These products are expensive as compared to Kenya's exports thus results in a large deficit balance of payment. As such Kenya's balance of trade is unfavourable due to the trade deficit.
- **Value of Kenya's Exports:** Kenya's exports are mainly based on processed raw materials. Minerals and processed agricultural materials from Kenya are generally bulky and of low value. Thus the total production and export cost is not commensurate with the profit accrued

from such sales. Furthermore, the marginal profit gained cannot compare favourably with the heavy payment made for imports.

- **Pattern:** The flow of trade still follows colonial patterns where former colonies tend to trade more with the former colonizers.
- Transport and communication network not well developed between Kenya and other African countries. This affects the flow of goods to and from these countries.

(c) State four solutions to Africa's Transport and Communication problem.

- **Trans-African highways:** African countries have proposed to construct highways across the continent. These highways are intended to improve the quality and volume of international road traffic in Africa. The principal axis is supposed to be from Gaborone to Cairo and from Mombasa to Dakar.
- **International Railways:** The presence of landlocked countries in Africa has made railway transport an attractive mode for transporting bulky raw materials to coastal seaports.
- **Regional Economic Co-operation:** The establishment of regional economic organizations has created conditions favourable to increasing the quality and quantity of transportation between neighbouring states. Regional economic groups in Africa include the Economic Community of West African States (ECOWAS) and PTA among others.
- **Establishment of National Airways:** Since the attainment of independence, every African country has established her own national carrier airline. Existing airports have been expanded e.g. Dar-es-Salaam, while international new ones have been established e.g. Jomo Kenyatta.
- **Establishment of ground satellite:** African countries have been endeavouring to improve on the existing telecommunications. Several ground satellites and radio and television boosters have been established to ease out communication problems.

45. (i) Mention two reasons why East Africa's rivers are not useful for navigation.

- Most rivers are small and shallow
- Most rivers do not have even flow – they are seasonal
- Some rivers have waterfalls and rapids
- Some rivers are in narrow valleys and gorges
- The rivers flow through unproductive areas

(ii) Name the type of transport that is very popular in East Africa and why.

Road transport.

Why?

- Road transport is cheap to construct and maintain especially the earth roads
- Roads are flexible and are found almost everywhere
- Roads can carry any load
- Road transport is fast and fairly cheap
- Road facilitates better functioning of other modes of transport i.e. it acts as feeder to the others as railway and air transport
- It helps to deliver raw materials to remotely sited industries

(iii) What are the major limitations of Air transport in Africa?

- The low standard of living in the majority of African countries makes it almost impossible for people to use air transport as a means of travel
- Maintenance, fuel and general care of aeroplanes and airports are very expensive
- Problem of air space – most countries impose heavy taxes in the form of fees for landing and flying rights to foreign aeroplanes
- Most African countries have not modernized their terminals mainly due to financial problems
- Other means of transport which are much cheaper than air transport also discourage its use
- Freight traffic amongst African countries is very limited because there are not many goods transported by air
- Poor weather especially when the sun is overhead

46. (a) Explain the meaning of Regional Co-operation.

This is an association of countries that have come together to achieve some specific common objectives such as trade.

(b) What does Kenya stand to gain by the revival of the East African Community?

- Increased market for her products
- Increased employment opportunities for her citizens
- Improvement in transport and communication infrastructure
- Enhanced specialization
- Saves foreign exchange which could have been used to import goods not produced in Kenya but can be got from her neighbours
- Increased Socio-cultural unity/co-operation

(c) Give at least three reasons that have hindered the growth and development of trade within the COMESA region.

- Duplication of goods/products
- Poor transport and communication network
- Flow of trade still follows the colonial patterns e.g. Kenya still trades more with Britain
- Developed countries provide essential manufactured goods hence are better trading partners than fellow African countries
- High tariffs levied by African nations

47. (a) (i) What is Urbanization?

- It is the process whereby an increasing proportion of total population in a country settles in towns. OR
- It is a process by which a population is transformed from a rural based agricultural life-style to urban-based non-agricultural life-style.

(ii) Identify the positive effects of rapid growth of urbanization.

- Provides cheap and abundant labour
- Provides a large market for industrial goods
- Encourages rapid industrialization
- Stimulates agricultural development in the rural areas because of the money remitted back home
- Justifies the provision of social amenities
- Facilitates diffusion of knowledge and ideas

(b) (i) What are the characteristic features of slums in Nairobi?

- Dwelling structures are of extremely low standards which are constructed out of extremely cheap materials

- The units are constructed back to back due to lack of space
- The units are single roomed and very small
- The buildings are dilapidated and are usually congested due to lack of space
- There is inadequate sanitary facilities
- There is absence of planned infrastructure such as roads

(ii) What factors have influenced the development of Industries in Eldoret town?

- Availability of cheap labour
- Availability of agricultural raw materials
- Well developed transport links with other parts of the country
- Availability of ready market
- Availability of power
- Government policy of decentralization of industries
- Extensive availability of land for expansion

48. (a) Define the term industrialization.

It refers to the process and pace at which a country sets to establish industries.

(b) State three ways in which Jua kali industries are important to Kenya.

- Creation of employment opportunities
- The sector makes use of materials that would otherwise be thrown away
- Saves the country's foreign exchange by producing goods that would otherwise be imported
- Earns the country foreign exchange when jua kali products are exported
- Encourages appropriate use of local resources
- Are income generating projects thus contributes to the gross domestic product (GDP)
- Leads to high standards of living due to increased earnings

49. (a) What is Industrial inertia?

It is the tendency for an industry to maintain its activity in a place even though the original reasons for the establishment of that industry no longer exists.

(b) State three ways in which the Government of Kenya is promoting industrial development.

Through:

- Improvement of transport facilities/network.
- Encouraging the growth of small scale or jua kali industries.
- Allowing foreign investors to remit part of their profits back home.
- Ensuring there is security (political stability) in the country.
- Providing loans at low interest rates to investors.
- Reducing local rates on imports and export tax.
- Increasing duty on imported commodities to make them more expensive in the local market.
- Encouraging industrial research on industrial matters (currently undertaken by KIRDI).
- Encouragement of foreign investments.
- Establishment of Kenya Bureau of Standards (KBS) to control quality of products.
- Establishment of various financial institutions to provide soft loans to industrialists e.g. Industrial development bank, ICDC and DFCK.
- Provision of training facilities at all levels for industrial planners and administrators e.g. at public universities and technical institutions.
- By giving subsidies to specific industries.

- Establishment of banking institutions to extend their services to industrialists especially in rural areas.
- Establishment of Kenya Industrial Estates (KIE) to promote development of small-scale industries especially in rural areas.
- Encouragement of rural electrification to provide power to industries.
- Giving tax concessions to industrialists.
- Carrying out feasibility studies for industrialists.
- Offering technical advice to industrialists.

50. (a) Name any three urban land-use zones.

- The central business district (CBD)
- Transitional zone
- Industrial zone
- Residential zone
- Commuter zone

(b) State four reasons which led to the development of Amsterdam as an entrepôt.

- Existence of deep natural harbour
- Its strategic location in western Europe
- Rich hinterland extending beyond Netherlands into Asia
- Access to North sea via the north sea canal/construction of water ways
- It was a centre of services such as banking and insurance
- It was the largest industrial city in the Netherlands

51. (a) Name two major types of industries located in Thika town.

Leather tanning

- Textiles
- Paper mills

Tobacco treatment plants

- Batteries making
- Vehicle assembly
- Food canning/processing
- Sisal mats and bags
- Coffee milling
- Steel works
- Fish net making

(b) State three benefits of promoting regional trade to industrial development.

- It provides raw materials that are not available in a country more easily from within the region
- It provides a wider market for goods produced in a country
- More industries can be developed to cater for the needs of the region/diversification
- The cost of manufactured goods is reduced when they are sold within the region than abroad
- It helps in solving the problems of restrictions on manufactured goods by some developed countries

(c) Discuss four factors that influenced the location of iron and steel industry in Ruhr region of Germany.

- **Availability of coal/source of power:** The Ruhr region is located on the largest coalfield in Europe. The coalfield extends from river Rhine to Hamm (east), river Lippe (north)

and river Wupper (south). The ready supply of coal, which was a basic raw material, has led to the development of the iron and steel industry.

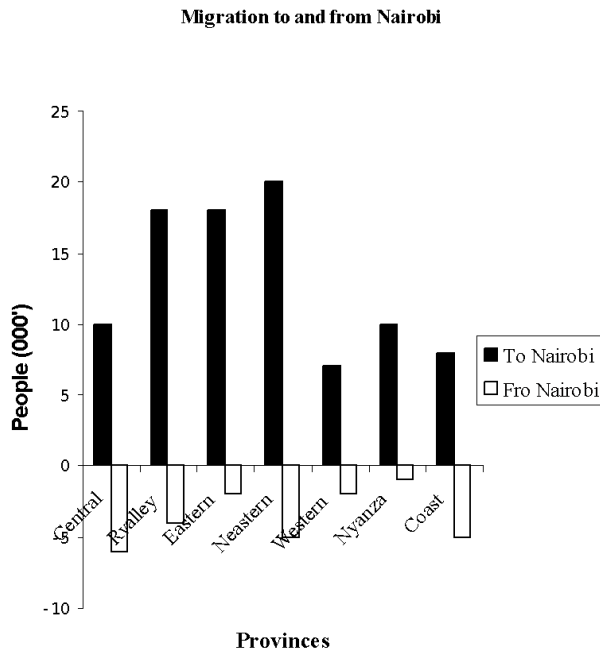
- **Availability of Iron Ore:** Iron ore was available from the onset of the industrialization of the region within the Ruhr valley and the Sieg (Sieger) field to the South. However, with the intensification of the production of iron and steel in the region, Iron ore is now imported from Sweden, U.S.A. and Alsace-Lorraine (France)
- **Availability of Limestone:** Limestone is a necessity in the iron and steel industry. The Ruhr region is advantaged because limestone is also found within the locality.
- **Central Geographical position:** The Ruhr region is centrally located in Europe. It has direct connection with all parts of Europe by water, railway, air and road. The Rhine River is navigable from its mouth in the North Sea up to Basle in Switzerland. Iron ore from Alsace-Lorraine is transported downstream to Duisberg for use in the Ruhr region. Products are transported easily downstream through the river to Rotterdam and afterwards to the rest of the world. Canals connect the Ruhr region with Eastern Europe and the North Sea. Other canals like Mittelland Canal, which connects it at Berlin, are also used.
- **Availability of Capital:** Capital accrued from other industries like coal is invested in the iron and steel industry. Old rich companies also provide ready capital for the development in the region. Such old companies include the Ruhr Kohle A.C. and the Krupp group.
- **Availability of ready market:** Products from the iron and steel industries of the Ruhr region have a ready market within the locality as well as in other parts of the world. The Ruhr conurbation of large industrial towns like Duisburg, Bochum, Essen, Dortmund, etc. forms an immediate market. The products are also exported to other countries especially in Latin America, Africa and Asia.

52. Use the data below to answer the questions that follow.

Migration to and from Nairobi in thousands of people

PROVINCE	TO NAIROBI	FROM NAIROBI
Central	10	6
Rift Valley	18	9
Eastern	18	2
North Eastern	20	5
Western	7	2
Nyanza	10	1
Coast	8	5

(a) (i) Draw a divergence bar graph to represent the data above.



8 (ii) *State two demerits of using the above method to represent data.*

- It does not show absolute/total variation from average
- The method can only show one commodity at a time

(b) *Using the above data account for the increased movement of people to Nairobi.*

- Pressure on land: There is pressure on land in agriculturally productive areas of Central, Western and Nyanza provinces. Lack of enough farmland pushes the people to move out to the city.
- Better employment opportunities: Many people move to Nairobi and other urban centres in search of jobs. They could also move in search of better paying jobs.
- Opportunities for trade: Still others move to the city in search of better business opportunities
- Social reasons: Some people move to Nairobi and other urban centers to live with their husbands, wives or other relatives.
- Nairobi is an educational centre and people move to the city to exploit educational opportunities.
- Nairobi also has the best medical/health facilities in the country. Thus, others move to Nairobi to be attended medically.
- The notion that people in Nairobi are living a better life or enjoying makes people to move to Nairobi.
- Dry areas have very little one can do for a living so people move to Nairobi in search for better jobs especially those from Eastern, North Eastern and parts of Rift Valley.
- The jobs in rural areas are few and mostly manual. The educated youths avoid them and move to Nairobi and other urban centers in search of white-collar jobs.

(c) *Explain five ways of how the trend in (b) above can be reverted.*

- Decentralization of industries. Industries should be established in rural areas or areas away from Nairobi. This is already evident in the establishment of industries in Thika, Ruiru, Athi River, Mumias, Sony sugar companies among others.

- Encourage more economic activities in rural areas to discourage rural urban migration.
- Encourage cottage industries, which require less capital. This increases employment opportunities in rural areas.
- Modernizing and diversifying agriculture. With better returns from agriculture people migrate less to towns.
- Encourage labour intensive rural works/programmes e.g. soil conservation and afforestation which offer employment possibilities.
- Decentralization of government decision-making process and implementation to the districts, thus, making them centres of development.

(c) *Give two effects of population increase in urban centres on the physical environment.*

- It leads to pollution of air, land, water and noise
- Lack of urban planning resulting in mushrooming of poor and unlawful construction of slums and squatter settlements
- Encroachment on agricultural land as people seek for more land for settlement
- When there is an overflow of people into an urban area it puts stress on water supply since the town authorities are not able to plan for the increasing number of people each year

53. (a) *State three reasons why some industries must be located close to the source of raw materials.*

- Perishability: Some raw materials require first/initial processing before being used for production e.g. in the case of tea and milk.
- Bulky and heavy raw materials: Industries involving use of bulky and heavy raw materials locate near raw materials to reduce transport costs. For example, all sugar-milling factories are located in the sugarcane growing areas. This is because processed sugar is less bulky and easy to transport. Other examples include location of sawmills near forests and cement manufacturing factories at the limestone mining sites.
- Security: Industries dealing in highly valuable minerals such as gold need to be located near the raw materials for security reasons.

(b) *Name two non-agricultural industries.*

- Cement production
- Oil refining
- Metal products, glass making and steel rolling industry
- Pulp and paper
- Vehicle assembling industries

54. (a) *State and explain any four factors that influence the growth of urban centers.*

- **Population increase:** Rapid population increase usually leads to increased pressure on land in rural areas. This leads to excessive fragmentation of plots until such a time as they can no longer be subdivided if subsistence is to be maintained. Thus, people are forced to go and look for a way to earn a living elsewhere. They often migrate to urban centres resulting into high population growth rates.
- **Organization of the society:** Urban growth and development has its origin in the inherent need by human beings to group together and enjoy companionship while maximizing the utilization of available social, economic and political opportunities. These opportunities depend on how well the society is organized. Thus, urban centres grow when the range of services provided to a growing population increases.
- **Industrialization:** The urbanization process of the developed countries has its origin in the industrial revolution. Industrialization leads to increased income opportunities which attract people to reside close to them. Thika and Athi river are examples of towns whose population

concentrations may be explained in terms of high concentration of manufacturing units in their vicinity.

- **Administration:** The concentration of administrative functions at a specific location often attracts public attention. People tend to prefer living close to leaders because they feel more secure and can easily receive the leaders' attention. This explains why most of the district headquarters in Kenya are also the biggest towns in their respective districts.
- **Mining:** Substantial deposits of a mineral ore can attract economic activity and subsequent population concentration. Population concentration leads to urbanization, as the mining community has to be provided with basic facilities such as shopping, houses, sanitation, medical and academic institutions. Examples of such towns include Magadi (Kenya) township, Shinyanga (Tanzania), Kasese (Uganda), Enugu (Nigeria), Ndola (Zambia), Awaso (Ghana) and Kimberly and Johannesburg in South Africa.
- **Transportation:** Transportation has been described as the cornerstone of urban growth and development. It determines the accessibility of urban facilities. Accessibility enables urban residents to select where to live, work, shop, relax, learn and pray. Improved transportation enables urban residents to participate in more urban-based activities at greater distances from their residence. Urban centers can also develop from major junctions and points of inter-modal transfer (break-of-bulk). Coastal towns such as Lamu, Mombasa, Tanga and Dar-es-Salaam owe their origin to transport related advantages.
- **Agriculture:** Rich agricultural areas often witness the emergence of urban centers. Such areas require nearby local markets for their agricultural produce, and distribution outlets of agricultural inputs, such as fertilizers and farm implements. Examples include Mumias, Eldoret, Nakuru, Nyahururu, and Nanyuki.
- **Tourism:** Tourism may lead to urban growth and development. It is an economic activity and attracts infrastructure, investment and people. Examples include Ukunda, Malindi (Kenya), Geneva, St. Moritz and Bern (Switzerland).

55. (a) **Define derelict land.**

Refers to land that has been abandoned as useless or as too badly damaged to repay a private person to improve it. Its characteristics include; ugly, denuded of vegetation, laced with stagnant pools of water or covered with mining tailings or slag.

(b) **What are the possible solutions to land dereliction?**

- Legislation: Existing-mining companies should be forced to rehabilitate the land after it has become uneconomic to extract minerals. Governments should be stringent to avoid evasion.
- Reclamation of the derelict land.
- Better town planning: Enforcement of laws, which restrict unplanned development.

56. **Citing specific examples, explain four climatic hazards experienced in Kenya.**

- **Floods:** This is the unusual covering of an area, by water, through a temporary rise in the river, lake or sea level. A river floods when its channel is unable to accommodate the discharge from its catchments. Floods mainly occur in lowland regions adjacent to high rainfall highlands. The high rainfall received in the highlands increases the volume of the rivers so much that by the time they reach their old age stage they overflow their banks. The process is accelerated if there is deforestation taking place in the uplands exposing the soils to rain wash. The eroded material is carried downhill and deposited in the banks of the river at the old age stage. Where deposition is extensive much of the river water spills over the banks to find their way into the plains. The flood plain of a river may be extended into the sea by the formation of deltas.

In Kenya flooding is common in the low lying areas served by rivers Nyando, Nzoia, Kuja and Tana. River Nyando, for example, originates from the Nandi hills and is responsible for the annual flooding of Kano plains between the months of March and May. The floods displace people and destroy property. Floods in Kenya also result from poor environmental management. These include deforestation, blocked urban drainage and cultivation along river banks. Deforestation can cause flash floods, soil erosion and sedimentation of reservoirs. Floods resulting from blocked drainage systems are common in major urban centers like Nairobi and Mombasa. Some of the worst floods recorded in Kenya *Uhuru floods* of 1961-1962 and the 1997-1998 el-nino floods.

The floods in Kano plains have, however, been seen as a blessing in disguise in that they bring a lot of fertile volcanic soils from Nandi hills which are deposited on the flood plains as silt. During floods fish swim upstream from lake Victoria into the plains. Consequently, the people of Kano plains catch a lot of fish with the advent of floods.

The devastating effects of floods can be controlled in various ways. These include avoiding the floods (evacuation and resettlement), land use zoning regulations, building of dams and dykes, reforestation and planting of other vegetation cover along river banks and improving and diverting channels to avert floods.

- **Lightning:** This is a visible electrical discharge in form of a flash. Lightning may occur within a single cloud, cloud to cloud or cloud to ground. During the formation of a thunderstorm, electrical discharges take place. The earth's surface is negatively charged while the atmosphere is positively charged. Lightning is associated with convectional rainfall and is experienced in regions that are intensely heated during the day, resulting in rapid transport of heat by convection in the atmosphere. This creates a severe mix-up of the heated air leading to thunder that is caused by collision of the charged molecules, a process leading in lightning. Lightning is disastrous, destroys property and lead to loss of life among other things. Hence there is need to provide protection where the likelihood of lightning is greater than normal. Regions prone to lightning in Kenya include the west of Rift Valley (especially Kisii and Nyamira districts), Kakamega and the lake Victoria region.

To control lightning disasters, the government of Kenya has taken the following measures: (a) establishment of a commission whose duty is to educate the people on dangers of lightning and how they can avoid the disaster. (b) Ministry of education has provided posters designed to educate people on precautionary measures against lightning. (c) Installation of lightning arresters in schools within the lightning prone areas.

- **Winds:** Powerful like Tropical Cyclones cause havoc in the environment over which they prevail. The cyclones are formed by depression (areas of low pressure). Waterspouts cause turbulence in the inland water bodies such as lakes. In Kenya, they have destroyed buildings (e.g. carrying away of classroom roofs), capsizing boats and destroying fishermen's nets in lake Victoria.
- **Drought:** Deficiency of water in the ground, stream, lakes and reservoirs resulting in prolonged deficiency of rain e.g. the drought experienced in the year 1984.

57. (a) (i) Explain four causes of water pollution.

- Direct discharge of industrial chemicals by industries to the rivers, lakes, seas and oceans
- Discharge of non-decomposing materials e.g. plastics
- Pollution of seas, oceans and lakes by shipping especially oil tankers which discharge oil at the sea
- Using the sea as a dumping ground for the household and industrial wastes
- Agricultural chemicals in runoff (fertilizers, pesticides or herbicides) end up in rivers which become polluted
- Disposal of radioactive waste from nuclear power stations to the oceans

- Sewage water treatment using recycle methods and chlorine chemicals, the chemicals end up in the water

(ii) State five measures that can be taken to control water pollution.

- Limiting/controlling the size of human population (population growth rate)
- Introduction of waste treatment plants
- Introduction of public health services to monitor water supply for drinking
- Introduction of strict anti pollution laws and enforcing them
- Manufacturing of non-biodegradable products could be prohibited

(b)(i) Explain four ways through which the government promotes conservation of the environment.

- Improvement of water, soil and air management through afforestation
- A signatory to the International conventions on pollution control
- Develop and exploit alternative sources of energy especially non-pollutant fuels e.g. electricity
- Develop and exploit alternative uses of agro-chemicals e.g. the use of manures
- Establishment of environmental standards and ethics
- Environmental public awareness campaigns on pollution
- Setting up a committee responsible for environmental conservation e.g. permanent presidential commission on environment and soil conservation
- Setting aside a national tree planting day
- Inclusion of environmental education in the school curriculum

(ii) Why is the use of inorganic measures encouraged in improving soil fertility?

- It binds the soil together
- It improves soil texture and structure
- Nourishes soil organism
- It improves soil temperature
- It buffers soil
- Adds a variety of soil nutrients into the soil

58. (a) What is a multipurpose project.

This refers to an undertaking intended for many economic purposes e.g. irrigation, fishing, transport, and reservoir e.t.c.

(b) (i) Name one multipurpose project in Kenya.

Masinga dam, Turkwel.

(ii) State the objectives of the project you have named above.

The objectives of Masinga dam include to:

- Act as a reservoir of the rest of the dams downstream, releasing water as required by the subsequent power stations
- Provide water for irrigation
- Be used for fishing
- Be a tourists' attraction centre. Masinga tourist lodge nearby provides recreational facilities.

- Produce hydroelectric power

(iii) State four problems the development of the project may bring to the area.

- Forms a barrier thus hindering transportation across the valley
- It covers most of the fertile farmlands along the river valley
- High water loss through evaporation due to the exposure of large water surface to direct sunrays
- It interferes with the water animals (marine life) which cannot cross the barrier dam
- The calm waters encourage breeding of mosquitoes and bilharzias snails
- It segregates people who were neighbours due to resettlement in higher grounds

(c) Describe the problems that led to the establishment of the Tennessee Valley Authority.

- Flooding during the rainy season from the Appalachian ranges
- Deforestation of land due to clearing for cultivation
- Monoculture which led to the exhaustion of the soil
- Steep slopes which were bare and encouraged soil erosion

(d) Explain how the Tennessee Valley Authority dealt with the problems named in (c) above.

- The problems were solved by construction of 33 dams along the river course to control floods
- Reforestation of the steep hill slopes
- Filling in the gullies which had been formed by erosion
- Implementing (introducing) the modern methods of farming – terracing, crop rotation and fertilizer application
- Planting of grass and cover crops to reduce surface run-off