

GEOGRAPHY

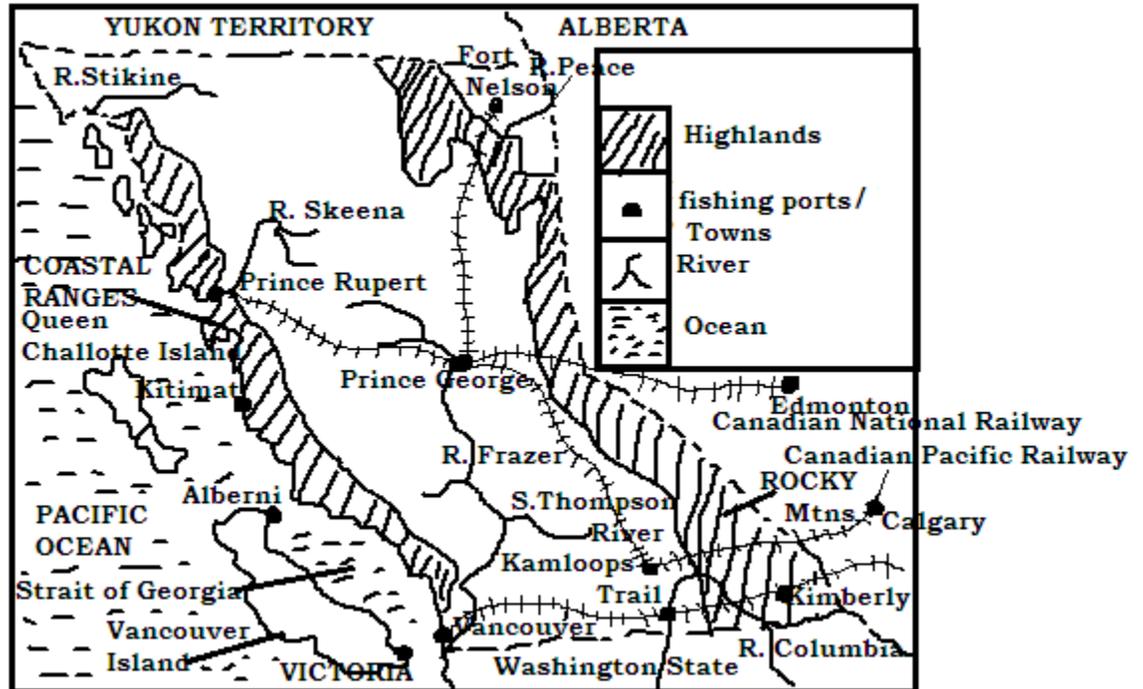
(STUDIES IN DEVELOPMENT)

REGION I: NORTH AMERICA

BRITISH COLUMBIA

FISHING INDUSTRY

(a) A sketch map of British Columbia showing selected features;



(b)(i) **Types of fish caught in British Columbia;**

- Pelagic fish; Herring, Mackerel, Tuna, Sardines, Anchovies.
- Demersal fish; Cod, Halibut, Haddock, Hake, Alaska Pollack.
- Anadromous fish like salmon.
- Crustacean fish Lobster, Crabs, Oysters, and Prawns.

Uses of fish apart from being a source of food/proteins;

- Used in making of medicines.
- Used in making soap.
- Used in making fertilizers.
- Used in making glue.

(ii) **Factors favouring existence of the fish types above;**

- Availability of abundant fish food (planktons).
- Existence of a large water body.
- Presence of a broad continental shelf.
- Presence of warm Alaska currents leads to defreezing of waters which encourages breeding of fish in the area.
- Indented coastline allows fish breeding.
- Sheltered harbour which is good for fish landing sites.
- Existence of many rivers for upstream migration of fish (Salmon) / fresh water.

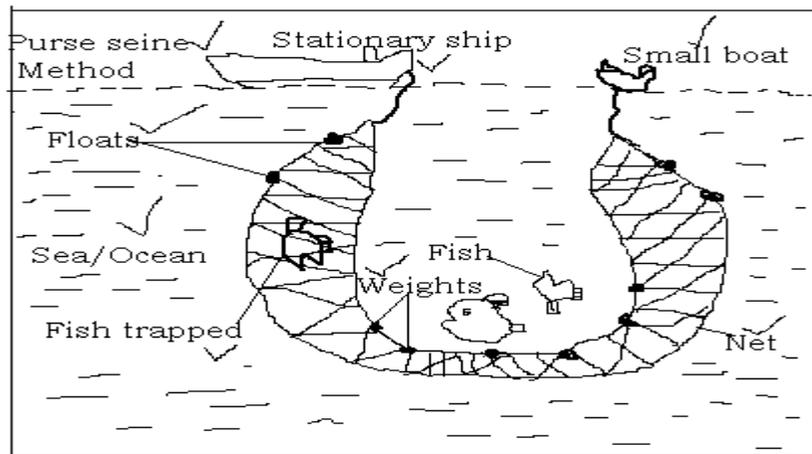
- Deep salty waters for the fish like herring, halibut.
- Ice free conditions all the year round.
- Cool climatic conditions that allows fish metabolism.
- Presence of oxygenated waters that allows growth of fish.

(c) **Methods of fishing used in catching fish in British Columbia;**

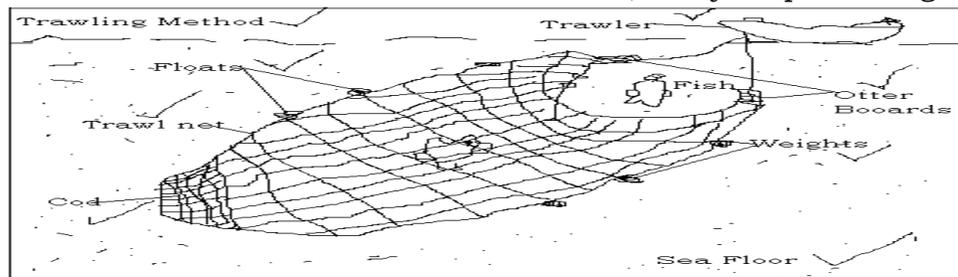
- **Purse seining:** This is a modern method of fishing which uses a sound recorder/detector.
- When the sound records the presence of a school/shoal of fish, the net supported on the top by floats and weights at the bottom is suspended in the water like a tennis net.
- Then gradually a small boat pulls one end around until the net forms a large circle.
- The bottom of the net has a rope passed through which is pulled in so that the bottom edge closes to form a bowl shape in which the fish are enclosed. The net is drawn onto the boat and the trapped fish is scooped out.

OR Illustration

Purse seining method



- **Trawling:** This is another modern method of fishing where a trawler/vessel drags trawl or bag shaped/cone shaped net over the sea bed to catch demersal water fish.
- The mouth of the net is kept open by wooden or metal/otter boards which pulls outwards. The fish is caught in the process and the net is pulled out of the water and fish is loaded on the trawler, ready for processing.



- **Trolling/Long lining:** This is a method mainly used to catch Salmon in British Columbia as well as large pelagic fish like Tuna.

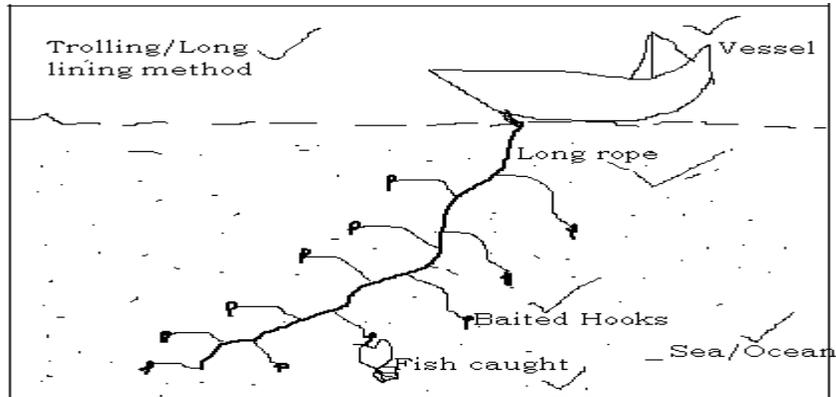
- It involves towing/pulling lines behind the boat moving at a moderate speed. The hooks on the lines are baited. The fish are attracted to the hooks by light reflected from the baited hooks.

OR Illustration;

- Trolling/Long lining;

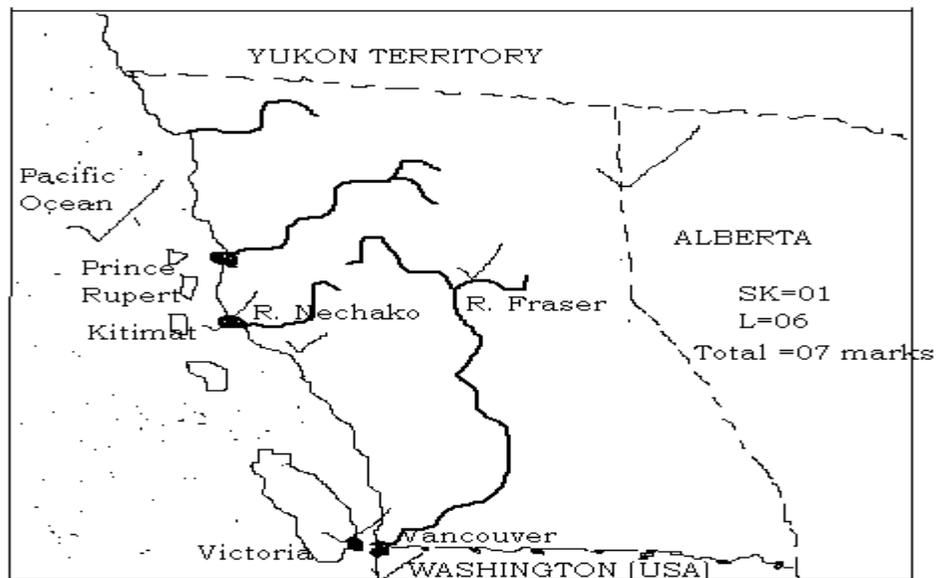
(Identification =01mk, Explanation =02marks)

(03marks)



- **Drifting method/Gill netting;** (Not Deep sea fishing method) Drift/Gill nets are hang vertically in the sea like tennis net. They are supported with floaters on the upper edge and weights below the water surface where fish will swim into the net. The fish are entangled by their gills and are unable to move either backwards or forwards because their heads are caught and their bodies are too big to get through.

- (a) Draw a sketch map of British Columbia and on it mark and name;
- The pacific ocean,
 - Rivers Nechako and Fraser,
 - Fishing ports; Vancouver, Kitimat and Victoria.
- (a) A sketch map of British Columbia showing Pacific Ocean, Rivers; Nechako and Fraser and major fish processing port:



- (b)(i) **Deep sea fishing methods;**

- Purse seining methods.

- Trawling method.
- Long lining fishing. (For details refer to the previous work)

(c) **Explain the conditions which have led to the development of the fishing industry in B.C**

Physical factors

- Existence of a large fishing ground in Pacific Ocean rich in Fisheries resources.
- Presence of numerous rivers, coastal creeks and fiords for fish breeding e.g. Skeena, Fraser, Stikine rivers/indented/rugged coastline.
- Large/extensive continental shelf ideal for breeding, flourishing of planktons and easy catching of fish.
- Smooth sea floor encouraging deep sea fishing e.g. trawling, trolling.
- Plentiful/Abundant supply of planktons acts as food for fish.
- Existence of a variety of commercially valuable fish species e.g. salmon, cod, and herring that are highly marketable.
- Presence of smooth sea floor facilitating use of modern sea fishing methods.
- Availability of various forest which supply timber/wood fuel for boat making and wood for fish preservation.
- Rugged terrain/infertile soils which limit agriculture making people turn to fishing
- Presence of indented/rugged coastline provides deep natural harbour for port development that have developed into major fish processing centres/with onsite processing facilities.
- The meeting of North Pacific ocean current (Alaska) and California ocean current result into upwelling (favorable) for the rapid multiplication of the food for fish planktons.
- Ice free Conditions ensure fishing all the year around.

Human factors;

- Abundant Skilled labour to work in various activities like catching fish, processing and marketing.
- Intensive fisheries research has resulted into breeding, conservation and marketing.
- Large sums of capital from local and foreign investors to buy fishing gears.
- Ready market both domestic and foreign in Europe and sub tropic world.
- Supportive government policy encouraging fishing conservation policies, research, investment.
- Modern transport network linking fishing grounds to market centres like e.g. roads, railways, airways.
- Advanced technology involving modern methods of catching fish, processing and transporting.
- Limited economic activities on land making fishing a viable alternative for employment, local incomes, etc.

(d) **Outline the benefits of fishing industry to the development of British Columbia;**

- Source of foreign exchange used in international trade.

- Source of rich protein food for the people enriching their diet, as well as livestock.
- Raw material for industries that make glue, soap, oils hence employment to the people.
- Provision of employment such as fishermen/monger thus providing local income.
- Fishing industry provides local income from the sales thus improving standards of living.
- Development of infrastructure such as roads, railways line for easy transport.
- Diversification of the economy reducing over dependence on few sectors.
- Urbanization and port development such as Victoria, Vancouver, Kitimat, Prince Rupert.
- Source of government Revenue through the taxes charged on fish processing factories.
- Promotion of international relations through export trade.

(a) Problems/Challenges facing fishing industry in British Columbia;

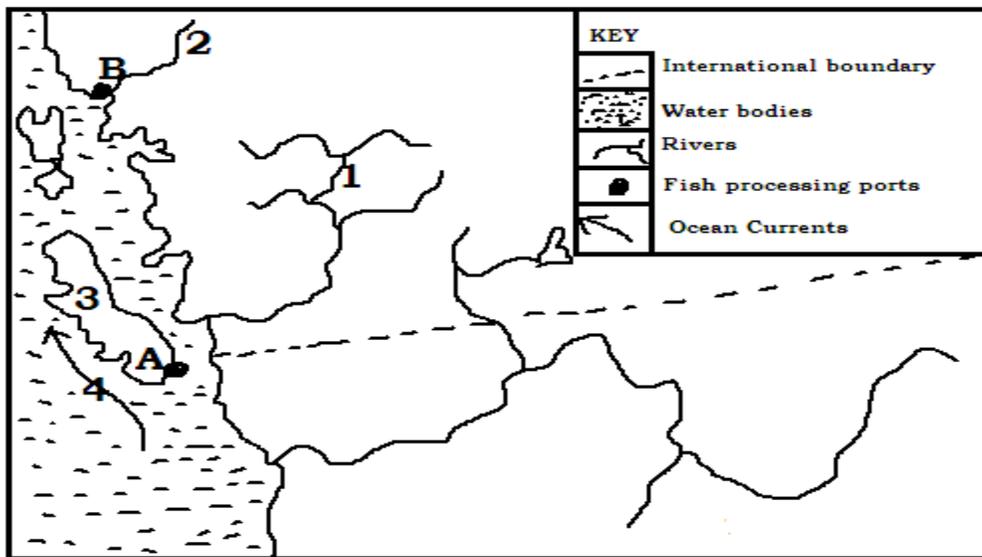
- Violent winds which cause accidents leading to death of fishermen.
- Deep fiords make accessibility of river areas difficult hence not ideal for fish landing.
- Sea predators which feed on fish
- Rugged terrain affects distribution of fish within Canada.
- Winter freezing of inland waters discourages fish breeding.
- Shortage of labour leads to fish wastage.
- High costs of fishing due to use of expensive trawling method reduces profits.
- Sea pirates disrupt fishing.
- Pollution of rivers/Oceans by wastes from other factories like wood/pulp at river mouth leads to death of fish.
- Stringent laws – closed seasons of no fishing between December and Jan increase the cost of production.
- Damming of Rivers hinder seasonal migration of fish in rivers and limits fish breeding.
- Construction of dams interferes with movement of fish to other breeding grounds
- Overfishing in the accessible waters leads to exhaustion of some commercial fish species like salmon.
- Small domestic market due to low population leads to wastage.
- Distant external markets reduce the profits from fish.
- Limited domestic market/Narrow internal market due to low population discourages fisher men.
- Availability of other viable economic activities like mining leads to limited labour supply.
- Price fluctuations lower incomes from the fishing activity.

- Disputes/conflicts over international fishing waters with other countries like Japan./ Invasion of foreign vessels/encroachment by foreign vessels of Japan reduce the fish catch of British Columbia

Measures/Steps being taken to solve the above problems/challenges;

- Using/signing of international agreements to solve territorial conflicts.
- Setting up factories that use fish as a raw material like Animal feeds manufacturing.
- Carrying out market research to widen market for fish.
- Constructing of fish ladders for fish to increase access to dams.
- Introducing fish farming to supplement marine fisheries.
- Emphasizing mechanization to reduce labour shortage.
- Controlling fishing by the government to avoid fish depletion.
- Forming international bodies like North West Atlantic fishers Organization to command for higher prices.
- Emphasizing proper disposal and treatment of industrial wastes to avoid pollution of water bodies.

Study figure below, showing part of British Columbia answer the questions that follow;



- (a) (i) Rivers; **1** is R. Frazer, **2** is R. Skeena,
 (ii) Ports; **A** is Vitoria, **B** is Prince Rupert.
 (iii) Island **3** is Vancouver, (iv) Ocean current; **4** is North Pacific Ocean current
- (b)(i) **Types of fish caught in British Columbia;**
- Pelagic fish like Tuna, Herring, Sardines, Mackerel and Anchovies.

- Demersal fish like cod, Haddock, hake, Alaska Pollack.
- Anadromous fish like Salmon.
- Crustacean fish like Lobster, crabs, Oysters, Prawns.

(ii) **One commercial deep sea fishing method used in British**

Columbia;

- Trolling/long lining,
- Trawling, Purse Seining. (**Refer for the details**)

Study the table below showing the processing of Pacific salmon in British Columbia and answer the questions that follow; **Table 35**

Processing method	'000 tonnes
Canned	637,000
Frozen	12,000
Smoked	2,000
Fresh	1,000
Fish oil meal	2,000
Total	654,000

Adapted: Gughes D, etal (1988) North America: A study of development, pg 128.

- (a) Draw a pie chart to show the relative importance of the fish processing method.

(a) Converting the calculations to degrees;

$$\text{Canned} = \frac{637,000}{654,000} \times 360^\circ = 350.6 \approx 351^\circ \quad \text{Smoked} = \frac{1,000}{654,000} \times 360^\circ = 0.6 \approx 1^\circ$$

$$\text{Frozen} = \frac{12,000}{654,000} \times 360^\circ = 6.6^\circ \approx 7^\circ \quad \text{Fish oil meal} = \frac{2,000}{654,000} \times 360^\circ = 1.1 \approx 1^\circ$$

$$\text{Fresh} = \frac{2,000}{654,000} \times 360^\circ = 1.1 \approx 1^\circ$$

A pie chart showing the relative importance of fish processing methods.

(Should have percentage value) **(Use your graph book)**

- (b) (i) The most dominant method of fish processing is Canning.

(ii) **Why canning is most popular?**

- Fish can retain its flavour.
- Canning can take place on site during the process of fishing on the floating canaries.
- Canning is a faster method to process a continuous supply of fish throughout the year.
- Convenience of transporting canned fish to export markets.
- Presence of several fish canning factories at river mouths like Frazer, R. Skeena.
- Canning preserves fish for a long time.
- The method is hygienically clean.

Major fishing ports in British Columbia;

- Prince Rupert, Vancouver, Victoria and Kitimat.

FORESTRY INDUSTRY

(a) **Differentiate between tropical rainforests and temperate forests;**

Tropical rainforests	Temperate forests
- Located in tropical regime between latitude 0 ^o -10 ^o north - south of Equator	- Located in temperate regions between latitude 40 ^o -60 ^o North-South of the Equator.
- Have long gestation period.	- Short gestation period.
- Wide variety of tree species/mixed stands.	- One type of tree species in a particular forest/ stand in pure stands.
- Trees have canopies.	- Trees are conical shaped.
- Have buttress roots.	- Trees have shallow root system.
- Have huge tall trucks.	- Trucks are tall and slender.
- Trees have broad leaves.	- Have needle shaped leaves.
- Logs are heavy in weight.	- Logs are light.
- Have hard wood trees.	- Mainly consists of soft wood trees.

NB: Use “while” to form sentences to write the above answers.

(b) **Factors which have favoured the development of temperate forests in British Columbia;**

- Conducive climate of cool temperatures and moderate rainfall ideal for the growth of trees.
- Thin and infertile soils which do not favour agriculture.
- Rugged relief which does not favour human settlement and other economic activities like arable farming.
- Presence of numerous rivers to transport the logs.
- Presence of extensive/vast land due to the low population
- Positive/Supportive government policy encouraging forestry.
- High/advanced technology in the various activities.
- Large/wide market both within the country and abroad.
- Availability of skilled and semiskilled labour force used in the various activities.
- Well developed transport based on roads, water and rail.
- Intensive research for better varieties especially those which mature fast.
- Large/wide capital invested in forestry

Characteristics of forests in British Columbia.

- Pure stand and it is easy to harvest them.
- Have soft wood trees like spruce, western hemlock, Douglas fir, Red Cedar.
- Some species are fast maturing with straight trunks.
- Evergreen forests.
- Needle like leaves.
- Trees have thick barks to withstand winter.
- Trees have a conical shape.
- Trees are tall.
- Trees bear cone shaped polished fruits.

- There are some planted trees like pine

The factors which have led to the development of forestry industry in British Columbia;

Physical factors

- Presence of large tracts of forested and due to low population, steep Mtns/slopes.
- Rugged terrain which restricts other economic activities/landuse.
- Low temperatures /cold conditions which support the growth of coniferous forests.
- Presence of many valuable tree species which are marketable.
- The thin soils which discourage agriculture allow the growth of trees.
- Many flowing rivers like Frazer allow transportation of logs by floating them/Diversified transport modes like roads, railways and rivers.
- Winter conditions are ideal for transportation of logs.
- Moderate rainfall support growth of coniferous trees
- Lights nature of soft wood trees ease transportation along Rivers.
- Existence of trees in pure stands allows selective tree extraction.

Human factors;

- Large sums of capital to pay the workers in the forestry.
- Favourable government policy of offering licences to lumbering companies.
- Availability of skilled and semi skilled labour to exploit the trees.
- Modern technology like the use of modern machines like the power driven chain saws, cranes.
- Availability of ready market at home and abroad for soft wood products.
- Availability of huge power supply used in the wood processing industry.

(c)(i) **Tree species found in British Columbia;**

- ✓ Spruce, Douglas fir, Western red cedar, western Hemlock, pine, Balsam fir, Cyprus, Red wood, .

(ii) **Importance/Benefits of the forestry industry in British Columbia;**

- Source of employment to people of British Columbia as lumber jacks, drivers, industrial workers.
- Source of revenue to the government through taxation.
- Source of foreign exchange though exportation of forests products.
- Provides raw materials for the industries that produce pulp and paper.
- Source of timber for construction.
- Environmental protection against soil erosion/soil conservation.
- Habitat for wild animals e.g. bears, foxes, reindeers encouraging ecotourism.
- Forests act as tourist attractions which earn foreign exchange to the country.
- Forests are source of drugs/medicine used for treatment.
- Promotes international relationship through trade between Canada and other Countries.
- Modify the climate through formation of convectonal rainfall encouraging wheat growing.
- They diversify the economy from other activities like mining and fishing.

- Lead to development of infrastructure especially transport routes e.g. roads, railway lines and waterways.
- Source of fuel used in industries and at home.
- They important for recreation like picnics, forest walks.
- They are used for research/study purposes like about the different tree varieties.
- Purification of air through transpiration.
- Development of ports and urban centres/towns like Vancouver, Victoria, Kitimat.

(d)(i) **Problems affecting the forestry industry in British Columbia;**

- Fire outbreaks during summer which destroy large tracts of forestland.
- Over exploitation leading to their depletion.
- Severe winter conditions which limit forest exploitation/Harsh climatic conditions.
- Shortage of labour since the area is sparsely populated limits extraction.
- Rugged terrain restricts/discourages the development of roads and railways.
- High transport costs due to distant markets/Long distances from the interior centres to the coastal collecting centres increases transport costs.
- Pests like moths and caterpillars which destroy trees.
- Diseases which reduce the quality of trees/timber.
- Competition for market from other countries e.g. Norway, Sweden, discourages lumber jacks.
- Accidents especially when felling trees leading to death of workers.
- Limited home market due to the low population.
- Modern technology limits the use of forest products like paper e.g. the use of computers.
- Dangerous wild animals like the bears that attack the loggers.

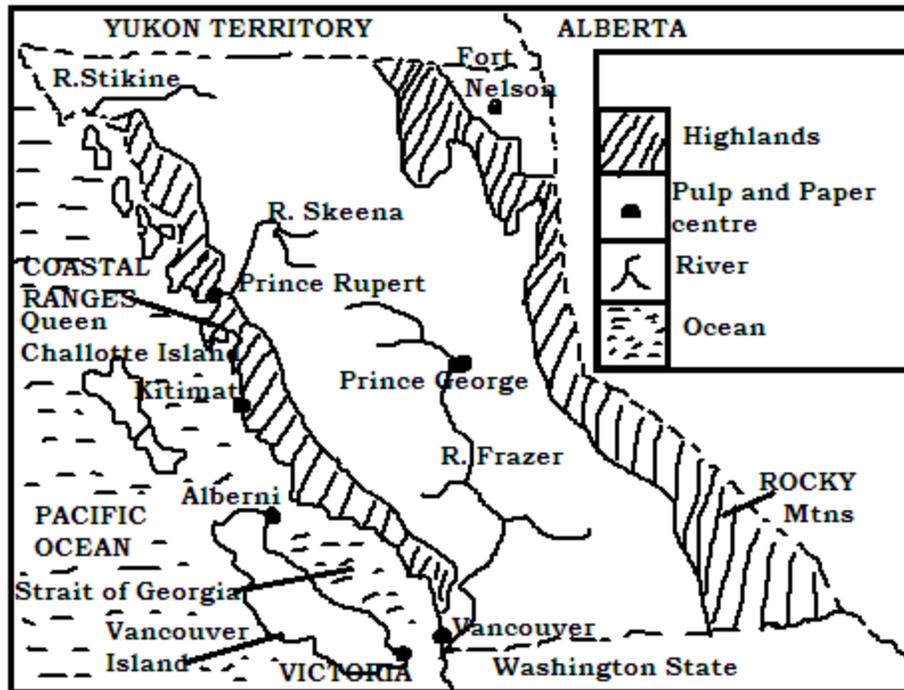
(ii) **Steps/measures being taken to solve the problems in (d)(i) above;**

- Setting up of fire control towers to monitor any fire outbreak/using of firefighting equipment e.g. water bombers/regular patrols by planes.
- Spraying with chemicals to control pests and diseases.
- Setting up of re-forestation programmes/forest farming to avoid depletion.
- Planting of fast maturing tree species/research to encourage constant extraction.
- Practice of log low during winter and log high in summer.
- Putting up strict laws on holiday activities to solve the problem of labour shortage.
- Using of machines/Mechanization in the forestry activities to solve the problem of labour shortage.
- Use of boom scooters to solve log jam.
- Patching of forests to reduce destruction of forests during fires.
- Dressing bright coloured garments/helmets by loggers to avoid accidents.
- Carrying out extensive research for market from outside countries..

A sketch map of British Columbia showing selected river, Timber collecting centres and Coastal timber exporting ports;

PULP AND PAPER INDUSTRY IN BRITISH COLUMBIA:

A sketch map of British Columbia showing relief regions, Pulp and paper centres;



- The Pulp and paper centres in British Columbia include the follow; Alberní, Vancouver, Kitimat, Prince Rupert, Prince George, Fort Nelson.

Factors that have favoured the development of pulp and paper centres (E.g. Vancouver) in British Columbia;

- Presence of large tracts of land under forestry provides a steady supply of raw materials to the pulp and paper industries.
- Location of Vancouver/Alberní/Prince Rupert at the coast allows easy logging of timber by floating them to the coast.
- Availability of huge hydro electric power generated from river peace and Columbia to run the saw mills and paper factories.
- Advanced technology allows efficiency in pulp and paper mills.
- Availability of abundant skilled labour from immigrants and local people facilitates operation of industrial machines.
- Availability of ready market for the pulp and paper products for example in USA, UK, France, Japan and China.
- Large sums of capital provided by the local people and foreigners to invest in the pulp and paper industry.
- Highly skilled labour released from other activities during winter.
- Presence of high value soft wood trees like spruce, Hemlock.
- Presence of Rivers for transportation of logs.

MINING INDUSTRY (BC)

Study **Table 36** below showing the percentage of the population employed in the various sectors in British Columbia and answer the questions that follow;

Table 36

Type of sector	Percentage of population employed
Fishing	04
Agriculture	06
Forestry	35
Mining	11
Others	44
Total	100

Adapted from: Monkhouse, F.J. and Cain. H.R. North America: A certificate series: Longman p.142.

- (a) Draw a pie-chart to show the relative importance of the different employment sectors.
- (b) (i) Identify the relative importance of the mining sector in British Columbia.

(a) Converting percentages to degrees;

$$\text{Fishing} = \frac{04}{100} \times 360^\circ = 14.4^\circ \approx 14^\circ \quad \text{Mining} = \frac{11}{100} \times 360^\circ = 39.6^\circ \approx 40^\circ$$

$$\text{Agriculture} = \frac{06}{100} \times 360^\circ = 21.6^\circ \approx 22^\circ \quad \text{Others} = \frac{44}{100} \times 360^\circ = 158.4^\circ \approx 158^\circ$$

$$\text{Forestry} = \frac{35}{100} \times 360^\circ = 126^\circ$$

A pie chart showing the relative importance of the employment sectors in British Columbia;

**The pie chart should have both degrees and percentages
(Use your graph book)**

- (b) (i) **The relative importance of the mining sector;**
- Mining is the second largest employing sector in British Columbia next to Forestry.
 - It employs 11% of the population.
- (ii) **Factors for the development of the mining sector in British Columbia;**
- Physical factors;**
- Presence of valuable/high grade minerals e.g. copper, bauxite, zinc, silver, lead, oil.
 - Presence of large quantities of power /energy for processing the minerals.

- Presence of a variety of minerals for diversification of the mining activities.
- Presence of large minerals reserves for commercial extraction/exploitation.
- Large quantities of fresh water for processing the minerals.
- Occurrence of some minerals near the earth's surface makes exploitation easy.
- Proximity to the coast facilitates exploitation of minerals and the products.

Human factors;

- Variety of energy sources like HEP, Thermal energy and nuclear to run the mining machines.
- Efficient transport well served by the Canadian – pacific railway and the great northern rail/road and the British Columbia railway. These facilitate the movement of minerals to industrial centres.
- Availability of large capital brought in by settlers who came in during the period of the “gold rush”.
- Advanced technology in mining techniques from primitive to open pit methods.
- Improved /intensive research into new uses of rare minerals e.g. tungsten and molybdenum in electricity and steel industries.
- Existence of ready market for the valuable minerals within and abroad (lead and zinc).
- Availability of skilled and semi-skilled labour to work in the mining sector.
- Favourable government policy of licensing mining companies in the mining sector.
- Relative political stability favoured long term investment in the mining industry.

(c) Contribution/Benefits of the mining sector to the development of British Columbia.

- Provides employment leading to improved Standard of living.
- It earns foreign exchange through exportation of minerals.
- It provides income to the people who work in the mining sector leading to improved standard of living.
- Development of industries which utilize the minerals as raw materials.
- Provides oil and natural gas used as fuel in domestic and industrial operations.
- It has diversified the economy thus reducing overdependence on forestry and fishing.
- Development of infrastructure like railways, roads and HEP.
- Urbanization/growth of towns and its related advantages like market, social and economic infrastructure.
- International relations with other countries that import the minerals.
- It provides revenue through taxes thus facilitating social economic infrastructure.

(d) problems faced by the mining sector in British Columbia;

- Rugged terrain makes accessibility of some areas difficult.
- Severe/harsh winter conditions make it difficult to mine throughout the year.

- Exhaustion of some minerals which leads to deserting of old towns/ghost towns.
- High cost of mining where some minerals are deep in the synclines.
- High cost of transporting minerals from the interior to distant consuming coastal centers.
- Accidents in the mines lead to loss of lives.
- Floods in the mines distort mining activities.
- Price fluctuations on the work market discourage miners.
- Competition for market with other mineral producers like Germany.
- Shortage of labour/competition for labour with other sectors limits mineral extraction.
- Pollution of the environment negatively affects the miners.

Other minerals mined in British Columbia apart from Oil

- Gold, Copper and Zinc.

Effects of mining on the physical environment of British Columbia;

- Has led destruction of the natural landscape.
- Destruction of forests where mining activities are carried out.
- Has led to contamination of rivers and the Ocean with mineral refuse.
- Has led to lowering of the water table.

THE CANADIAN PRAIRIES

AGRICULTURE

1. Study the table below showing grain production in Canada (2013/14) and answer the questions that follow; **Table 37**

Type of Grain	Production ('000 Metric Tonnes)
Wheat	31,000
Barley	10,000
Rye	200
Oats	4,000
Corn	14,000
Total	59,200

Adapted: Statistics Canada and industry consultation, p9
www.rayhlen.com/pdf/Canada.

- (a) Draw a pie chart to show the relative importance of each type of grain in Canada.

(a) Calculations; (000)

$$\text{Wheat} = \frac{31,000}{59,200} \times 100 = 52.4\%$$

$$\text{Barley} = \frac{10,000}{59,200} \times 100 = 16.9\%$$

$$= \frac{52.4}{100} \times 360^\circ = 188.6 \approx 189^\circ$$

$$\text{Rye} = \frac{200}{59,200} \times 100 = 0.34\%$$

$$= \frac{0.34}{100} \times 360^\circ = 1.2 \approx 1^\circ$$

$$\text{Corn} = \frac{14,000}{59,200} \times 100 = 23.6\%$$

$$= \frac{23.6}{100} \times 360^\circ = 85.1 \approx 85^\circ$$

$$= \frac{16.9}{100} \times 360^\circ = 60.8 \approx 61^\circ$$

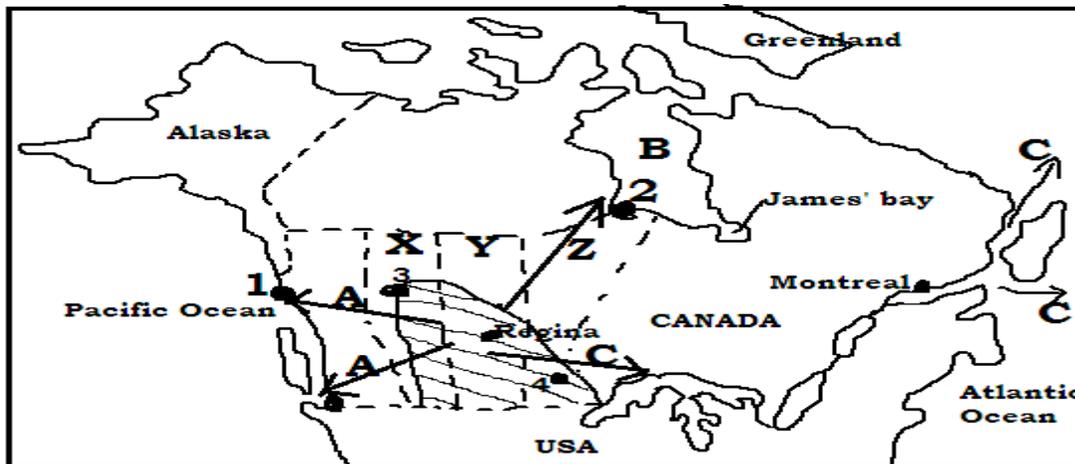
$$\text{Oats} = \frac{4,000}{59,200} \times 100 = 6.76\%$$

$$= \frac{6.76}{100} \times 360^\circ = 24.3 \approx 24^\circ$$

A pie chart showing the relative importance of each type of grain in Canada (Should have both degrees and percentage) **(Use your graph book)**

- (b) (i) - Largest is Wheat with 31,000,000 tonnes.
 - Smallest is Rye with 200,000 tonnes.
- (ii) Provinces which produce grains in Canada;
 - Alberta - Saskatchewan - Manitoba.
- (c) Conditions which have favoured the growing of grains in Canadian provinces identified in (d)(ii) above. **(Refer to factors that have favoured extensive wheat farming on the Canadian prairies)**

Study the sketch map of showing the main export routes for Canadian wheat and answer the questions that follow;



- (a) Name the; (i) Ports marked 1 and 2,
 (ii) Provinces marked X, Y and Z, (iii) Towns marked 3 and 4.
- (d) (i) **Ports:** 1 is Prince Rupert, 2 is Churchill.
 (ii) **Provinces;** X is Alberta, Y is Saskatchewan, Z is Manitoba,
 (iii) **Towns;** 3 is Edmonton 4 is Winnipeg.

Countries to which Canada exports her wheat;

- Britain, China, Japan, North Korea, South Korea, USA.

Disadvantages of transporting wheat along route A.:

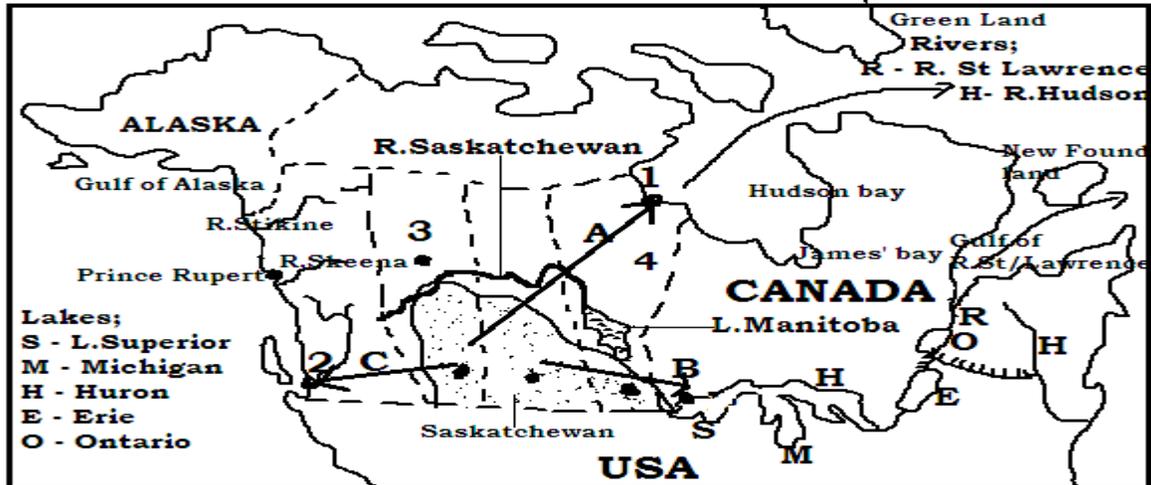
- It's difficult to cross the Rocky Mountains.
- The route is too long to reach the foreign markets.
- It's expensive to reach the coast due to long railway distance.
- It's closed by snow during winter.

Advantages of transporting wheat along route C:

- It's the eastern route through the St. Lawrence seaway.

- It's cheaper to use because of using water transport.
- Its ice free for most of the time over 8 months.
- It's highly accessible to the large market of Europe, Asia, and Africa.
- There is a short distance covered to reach the market.
- There are many port facilities along this route.

A Sketch map of Canada showing selected features;



(a) Factors that have favoured extensive wheat farming on the Canadian prairies.

Physical factors

- Extensive cheap extensive land that allows establishment of wheat plantations.
- Presence of fertile black chernozem soils allow luxuriant growth of wheat.
- The relatively flat landscape the allow mechanization/ Undulating landscape from Manitoba province to Saskatchewan and Alberta allows mechanization.
- A long frost free growing season that allows growth and ripening of wheat that is over 120 days.
- The warm summer temperatures allow ripening of wheat.
- The warm Chinook winds melt ice thus adding moisture to the soils.
- Low incidence of pests and diseases allows proper growth of wheat.
- Abundant water supply from lakes and rivers like River Athabasca and Lakes like Manitoba and Winnipeg facilitates crop irrigation.
- The grassland vegetation was easy to clear to set up wheat plantations.

Human factors;

- Availability of ready market for wheat in Canada at Regina, Winnipeg and externally in China and Britain.
- Developed transport network based railways and waterways facilitate distribution of wheat to market centres.
- Modern technology used wheat planting and harvesting has led to large scale wheat growing.
- Large sums of capital used to buy farm implements.

Benefits of Agricultural sector/Grain farming to the people of Canada;

- Provides employment opportunities to the people.

- Provides food like wheat, corns, and animal products for feeding people and livestock.
- Has led to development of towns and ports/urbanization like Calgary, Regina, Edmonton, and Winnipeg.
- Has led to development of infrastructure like Roads, Railways.
- Has led to development of industries that produce Bread, wheat flour and animal feeds.
- Has improved people standard of living through increased incomes from agricultural products.
- Has promoted foreign relations through trade in agricultural produce.
- Has led to diversification of the economy thus reducing over dependence of mining.
- Earns government revenue through taxation.
- Provides raw materials to agro based industries.
- Provides market for agricultural inputs like fertilizers.
- Promotes research in the development of high yielding varieties, soil conservation and marketing of crops.
- Provides fodder for animals feeding.

Problems/Challenges faced by the farmers growing grains in Canada/

Problems facing wheat farmers in Canada;

- Over production of wheat and other grains leading to losses and high costs in storing the excess.
- Overdependence on foreign market leading to fluctuation of prices hence losses.
- Price fluctuations discouraging farmers especially when prices drop.
- Reduced soil fertility as a result of monoculture leading to low yields.
- Stiff competition for port facilities leading to delays in delivery.
- Stiff competition for market from other world producers like India, Pakistan reducing the market.
- Pests and diseases that destroy grains for example rust and locusts.
- Shortage of skilled labour especially during harvesting season leads to post harvest losses.
- High cost of maintaining the extensive farms leads to reduced profits.
- Pollution of soils due to over use of chemicals leading to low yields.
- Winter freezing limits the type of crops to be grown and the grown season.
- Winter blizzards/hailstorms destroy crops.
- Growth of stubborn weeds like wild onions compete for nutrients leading to low yields.
- Prolonged drought resulting into use of costly methods of growing grains like irrigation.

Problem resulting from overdependence on wheat as an export crop in Canada;

- Price fluctuation due to Competition with other wheat producing Countries like USA, Pakistan, China and India discourages farmers.
- Natural hazards like pests, frost, diseases have led to destruction of crops and loss of farmers' income.
- Soil exhaustion due growing of the same crop/monoculture.
- High post harvest losses due to labour shortage.
- Leads to unemployment as many farmers withdraw from wheat growing when prices fall leading to low standard of living.
- Lead to low government revenue because of limited export during bumper harvests leads to unfavourable balance of payments.

**Measures being taken to promote /improve agriculture in Canada/
Steps being taken by the Canadian government to solve the problems above;**

- Diversifying crops by growing other crops like rye and oats to reduce on adverse effects of pests and diseases.
- Storing of wheat when there is over production to cater for future shortages and control price.
- Introducing of quota system to pre-determine production levels so as to control prices.
- Setting up of industries to process wheat into flour before exporting it.
- Improving on the quality of wheat produced to off-set competition.
- Processing of excess wheat into animal feeds to reduce its wastage.
- Fallowing of land to restore soil fertility.
- Introducing of winter resistant wheat varieties.
- Diversify of agriculture through mixed farming to improve soil fertility.
- Carrying out research into several crops grown.
- Forming of cooperatives to help in marketing of products.

Uses of Wheat to the people of Canada;

- Baking of chapatti, - Used in brewing beers.
- Making of bread, Biscuits - Making of cattle feeds

Study the table below showing the average yield of cereals per hectare in Canada (1986 – 96) and answer the questions that follow;

Table 38

Year	Average yield (kgs/ha)
1986 – 88	2,238
1988 – 90	2,200
1990 – 92	2,531
1992 – 94	2,566
1994 – 96	2,702

Adapted from World series: (1990 – 1999) A Guide to the Global Environment Oxford , UNDP and The World Bank.

- (e) Draw a bar graph to show the information given in the table above.
- (f) Describe the;
 - (i) Trend of the average yield of cereals grown in Canada,
 - (ii) The conditions which have influenced the trend in (b)(i) above.

(a) A bar graph showing average yield of cereals per hectare in Canada (1986 – 96).

(Use your graph book)

(b) (i) Trend

(ii) **The conditions which have influenced the trend in (b)(i) above.**

For decline in production;

- Increase in climatic hazards like drought, frost, hailstorms, pests and diseases.
- Decline in soil fertility due to monoculture.
- Increase in post harvest losses.

For increase in production;

- Increase in research leading to introduction of winter resistant crops.
- Increase in use of fertilizers.
- Increase in irrigation farming to control drought.
- Increase in the use of pesticides and herbicides.
- Increase in mechanization for efficient harvesting.
- Increase in labour supply to plant and harvest.

(c)(i) **Cereal crops grown in Canada.**

- Oats, Corns, Barley, Wheat and Maize

Non cereal crops grown in Canada;

- Beans, Tobacco, and vegetables.

(ii) **Important cereal growing provinces in Canada;**

- Alberta, Saskatchewan and Manitoba.

Study the table below showing the climate of Winnipeg on the Canadian Prairies and answer the questions that follow;

Table 11: Winnipeg; Canada –Altitude 232 m.

Table 39

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp (°C)	-20	-17	-9	2	11	16	19	18	11	5	-6	-14
Rainfall (mm)	23	23	28	34	56	79	77	64	56	39	26	23

Adapted from Young, E.W and Lowry, J.H. (1984) A course in World Geography – North America, Edward Arnold, p.31.

(a) Draw a suitable graph to show the climate of Winnipeg.

(a) A bar and Line graph showing the climate of Winnipeg on the Canadian prairies. (T=02marks, VS=02marks, HS=01mark, Acc=04) **Use your**

graph book

(b)(i) Identify the;

- Coolest month is January with -20°C. - Wettest month is June with 79mm.

(ii) Calculate the;

$$\text{Mean annual rainfall} = \frac{\text{Total annual rainfall}}{1} = \frac{23+23+28+34+56+79+77+64+56+39+26+23}{1}$$

$$\frac{528}{1} = 528 \text{ mm pa}$$

Annual range of temperature = *Hottest – coolest*

$$(19\text{C} - -20\text{C}) = 19 + 20 = 39\text{C}$$

(c) **Explain the climate related problems faced by the farmers living on the Canadian prairies;**

- Extreme cold conditions during winter (Nov-March) limits the growing season and types of crops to be grown.
- Frozen ground/water bodies in winter restrict movement of farmers and disrupt transport and marketing schedules.
- Winter freezing limits outdoor grazing.
- Winter frost destroys crops and farmlands.
- There are weather vagaries like winter blizzards (snow storm), hailstorms that destroy crops.
- Drought on the plains of Alberta leads to expensive irrigation farming.
- Wind erosion leading to unproductive soils.

(d) **Outline the steps being taken to solve the problems in (c) above;**

- Irrigating is carried out to supplement rainfall for agricultural activities.
- Intensive scientific research has led to introduction of quick maturing crop varieties like Red-fife sounder marquis (wheat varieties).
- There is stall feeding/indoor grazing of livestock during severe winters.
- Use of large stores/grains elevators/silos of stores wheat and other grain crops awaiting export in winter.
- Insurance against crop loss in case of destructive winter conditions like hailstorms, winter blizzards.
- Early warning/weather forecast by use of satellites to avert/stop crop loss/speed up harvests.
- Diversification of crop varieties to include new crops such as peas, flax.
- Halting farm activities and concentrate on repair of machines, farm structures, Book keeping, others.

Study table II below showing grain production in Canada (2013/14) and answer the questions that follow;

Table 40: Grain Production in Canada (2013/2014)

Table 40

Type of Grain	Production ('000 metric tons)
Wheat	31,025
Barley	10,237
Corn	14,194
Oats	3,906
Rye	223
Total	59,585

Adapted: statistics Canada and industry Consultation pp.9.www.ray
glen.com/pdf/Canada.

- (a) Draw a pie- Chart to represent the information contained in the table above.
- (b) (i) Identify the type of grain which is produced in,
- Smallest, - Largest, quantities in Canada.
- (ii) Name any **one** major grain growing region in Canada.

(a) **Calculations: Production ('000 metric tons)**

Wheat	$= \frac{31,025}{59,585} \times 360^0$	$= 187.4^0 \approx 187^0$
Barley	$= \frac{10,237}{59,585} \times 360^0$	$= 61.8^0 \approx 62^0$
Corn	$= \frac{14,194}{59,585} \times 360^0$	$= 85.75 \approx 86^0$
Oats	$= \frac{3,906}{59,585} \times 360^0$	$= 23.6^0 \approx 24^0$
Rye	$= \frac{223}{59,585} \times 360^0$	$= 1.3^0 \approx 1^0$

A pie chart showing grain production in Canada in 2013/14

(Use your graph book)

- (b)(i) Type of grain which is produced in;
- Smallest; Rye with 223,000 metric tons.
 - Largest; Wheat with 31,025,000 metric tons
- (ii) One major grain growing region in Canada; - The Canadian prairies.
- (iii) **Two ports through which Canada exports its goods;**
- Montreal, - Chicago, - Vancouver, - Prince Rupert,
 - Churchill, - Duluth, - Quebec - Thunder bay
- (c) **Activities carried out on the farm in all the four climatic seasons in the region identified in (b)(iii) above;**

Winter (Dec-Feb)

- Farmers are involved in indoor activities like;
- Stall feeding of animals. - Repair of machinery
- Update of records. - Placing orders for seeds, fertilizers, herbicides, others.
- Planning for the following year's activities. - Planting of winter wheat

Spring (Mar-May)

Farmers are engaged in.

- Ploughing and planting of grains. - Harvesting of winter wheat
- Outdoor grazing of animals. - Planting of fodder crops and grasses

Summer; (June- August)

- Spraying of weeds. - Beginning of harvesting.
- Fallow cultivation. - Outdoor grazing of animals

Autumn (Sept – Nov)

- Grain harvesting. - Fertilizer application.
- Making hay for winter stall feeding of animals.
- Planting of winter wheat. - Farmers' holiday in November.

(d) Steps being taken to increase grain production in Canada;

- Diversifying of grains/crops to increase on the grain production.
- Applying of fertilizers to increase on soil fertility.
- Developing of better and high yielding varieties through research.
- Planting of quick maturing wheat varieties.
- Pest and disease control through spraying by using chemicals.
- Early planting/ploughing.
- Using of skilled labour in the grain production.
- Using of modern machines to solve labour shortage.
- Ensuring against crop failure.
- Using of better storage facilities to reduce post harvest losses.
- Advertising/searching for market is being done.
- Opening of more areas of grain production through irrigation schemes especially in the western part.
- Promoting dry farming to ensure moisture preservation.
- Training of more personnels in crop management.

Study table below, showing the climate of Edmonton on the Canadian Prairies and answer the questions that follow;

Table 41

Months	J	F	M	A	M	J	J	A	S	O	N	D
Temp (°C)	-15	-12	-4	5	11	14	16	16	10	5	-4	-10
Rainfall(mm)	23	15	18	20	20	81	89	61	36	18	18	20

Adapted: Monkhouse, F.J. and Cain H.R. (1979) Geographies: A Certificate series; North America, Longman p.31.

(a) A combined **bar** and **line** graph representing the climate of Edmonton on the Canadian prairies; **(Use your graph book)**

Use the graph book.

(b) (i) **Coollest month** is January with -15°C - Driest month is February with 15mm

(ii) **Annual range of temperature** =

$$\text{Highest temperature} - \text{Lowest temperature} = (16 - -15) = 16 + 15 = 31^\circ\text{C}$$

$$\text{Mean annual rainfall} = \frac{\text{Sum of the monthly rains in the year}}{1 \text{ year}}$$

$$\frac{23+15+18+20+20+81+89+61+26+18+18+20}{1} = 409\text{mm p.a}$$

1

(b) **Influence of climate on the agricultural activities on the Canadian prairies;**

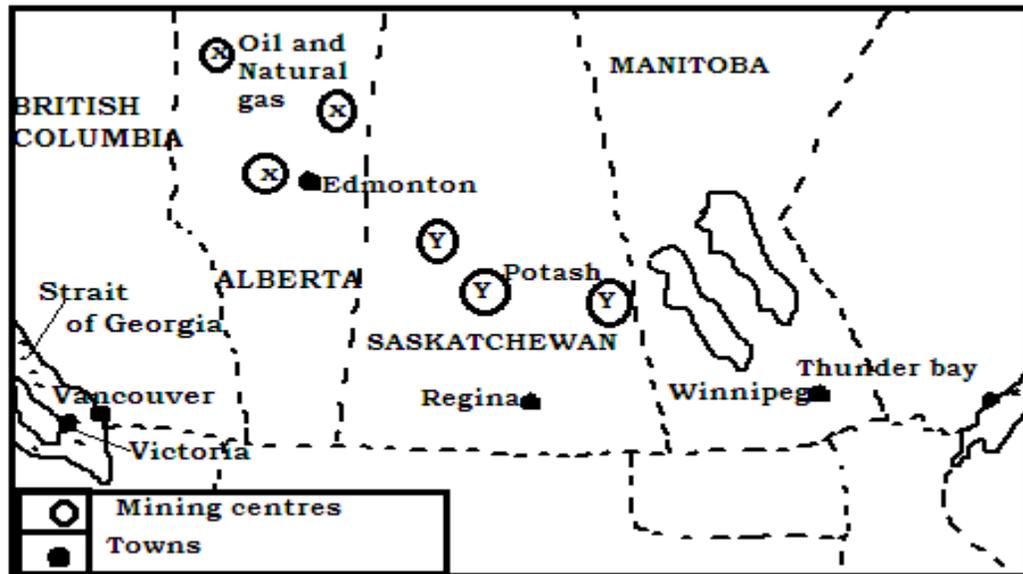
Season	Weather conditions	Activities done
Spring (April – May)	<ul style="list-style-type: none"> - Experiences light rains. - The warm Chinook winds help in melting of ice. - Has warm temperatures 	<ul style="list-style-type: none"> - Ploughing. - Planting/sowing. - Outdoor grazing. - Weeding. - Spraying. - Spreading of fertilizers.

		- Harvesting of winter wheat.
Summer (June, July, August)	- The summers are warm	- Harvesting. - Drying of crops. - Processing. - Grading. - Packaging. - Storing, marketing. - Out grazing.
Autumn (Sept, October)	- Mild temperatures/ Cool temperatures.	- Harvesting. - Ploughing. - Dry farming. - Processing. - Grading. - Packing. - Storing. - Marketing.
Winter (Nov- March)	- Winter old conditions	- Book keeping. - Repair of machines. - Planning for next year's activities. - Indoor rearing of animals.

NB: The above answers should be phrased in sentence form.

INDUSTRIALISATION IN CANADIAN PRAIRIES

A sketch map of Canadian prairies showing selected features.



(a) **Conditions which have led to the establishment of industries on the Canadian prairies;**

Physical factors;

- Presence of abundant raw material in form of minerals like copper, Zinc, agricultural produce like wheat to feed industries.
- Availability of vast land for the construction of industries.
- Abundant water from lakes and rivers which is used to cool industrial machines.

Human factors;

- Availability of large sums of capital from the government and private investors to set up industries.
- Existence of both local and foreign markets because of its location from other manufacturing cities.
- Developed transport like Canadian Trans-Canadian Highway, pipelines to supply natural gas, raw materials and finished goods.
- Availability of abundant skilled and semiskilled labour provide by the large population in cities like Regina.
- Favourable government policy of diversifying the Canadian prairies economic operation.
- Availability of modern technology like the use of Robots and computers and automated machines.
- Availability of large sums of capital to invest in industries.

(b) **Benefits of the industrial sector to the people of Canada;**

- Employment opportunities to the people from which they get salary/wages
- Diversification of the economy thus creating more opportunities.
- Source of revenue to the government through taxes/licences paid by industrialists.
- Provides industrialists goods for use hence improved standard of living.

- Has led to growth of towns/urbanization and associated advantages like education and commerce.
 - Provides market for agricultural products thus leading to value addition.
 - Has led to establishment of roads and other infrastructure.
 - Has promoted international relationships through export of industrial goods to Britain.
- (c) **Environmental problems which have resulted from the establishment of industries in on the Canadian prairies;**
- Shortage of land limits expansion.
 - Pollution of air, water and land.
 - Devegetation/destruction of vegetation cover.
 - Destruction of landscape that reduces its productivity.
 - Stiff competition for land increases the price of land as a resource.
 - Urban related problems like slums, unemployment and prostitution.

NEW YORK PORT/ CITY POPULATION OF NEW YORK

Study the **table 14** below showing urban population for selected Cities in Canada and USA and answer the questions that follow;

Table 42

City	Population
Toronto	5,312,000
Chicago	8,814,000
New York	18,718,000
Vancouver	2,188,000
Montreal	3,640,000

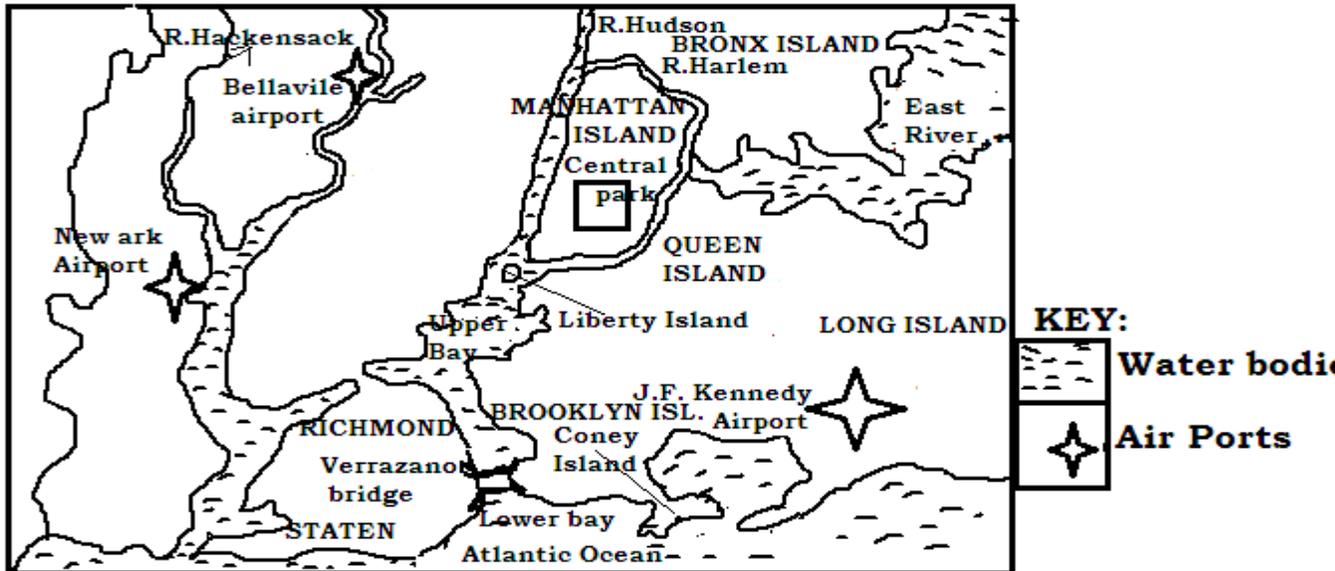
Adapted: 2008 World Development Indicators, The World bank, p182.

- (a) Draw a bar graph to represent the information contained in the table.
- (a) **A bar graph showing City population size for selected Cities in North America: (Use the graph book).**
- (b)(i) The City with the highest population size is New York.
- (ii) **Factors which have led to a large population size in New York;**
- Availability of employment opportunities. New York being a home of wide range of business, world headquarters, port facilities and industries attracts a lot of people from various part of the world.
 - Availability of developed social infrastructure. New York has got a wide range of social services ranging from transportation to medical services that have attracted a lot of people to enjoy such services.
 - Political stability in the city. There has been stable political stability in New York and USA which has attracted several business and institutions to the city.
 - Ice free conditions with the port ice almost free of ice throughout the year. This has attracted a lot of people and business hence the high population.

- New York is an administrative city with the home of several United Nations of Organization including the UN headquarters. New York attracts a lot of people worldwide hence the high population.
 - Tourist functions. New York has got vast tourist and education resources, famous hotels, and entertaining centres that attract people from all parts of the World.
- (c) **Problems resulting from the concentration of population in any one City in (b)(i) above;**
- Moral decay as a result of a large population and limited employment opportunities, many women have resorted to prostitution.
 - High crime rates because of rampant unemployment, many people like the youths have resorted to theft, robbery, drug abuse.
 - Overcrowding and congestion which leads to delays in transportation during rush hours.
 - Limited land for expansion limits productivity.
 - A lot of pollution of air, water and land that affects people health.
 - Traffic congestion especially during rush hours leads to delays.
 - Rampant poverty due to high rates of unemployment.
 - Racial discrimination because New York has attracted many people from different parts of the world. Especially Africans, Chinese, and Indians.
 - Unemployment due to the presence of many people leading to low standard of living.
 - Pollution of the environment by the untreated industrial wastes and human wastes.
 - Food shortage leading to poor health.
 - Destruction of vegetation leading to land degradation.
 - Limited accommodation leads to slum development.
- (d) **Measures being taken to solve the problems in (c) above;**
- Constructing of sky scrapers to reduce land shortage and congestion.
 - Establishing more industries to create more employment especially for the Negroes and the blacks.
 - The government is constructing cheaper and better housing facilities to reduce slum development.
 - Reducing the number of vehicles to minimize the exhaust fumes to the atmosphere.
 - Encouraging the use of public means to transport instead of private to reduce on congestion.
 - Construction a number of tunnels and tall bridges to reduce on congestion.

URBANISATION

- (a) **A sketch map of New York showing selected Islands, Rivers and the Atlantic Ocean**



(b) **Factors which favoured the growth of New York City/Port;**

- Presence of a sheltered natural harbour which is not affected by strong waves.
- Strategic location on the Eastern side of American continent gives it easy accessibility to Europe and Africa.
- Historical factors e.g. the coming of the early settlers e.g. the Dutch and later the British who founded the city.
- A Variety of transport e.g. water, air, railways giving it easy accessibility to its hinterland.
- Strategic location at southern end of Hudson-Mohawk gap giving it accessibility to the interior.
- Presence of rich and productive hinterland providing a variety of goods to be handled by e.g. agricultural and industrial products.
- New York has a diversity of functions like the Headquarters of UN, commercial centre.
- Improved technology allowed the construction of modern bridges, tunnels to connect the various Islands that make up the city.
- The Flat relief providing ideal conditions for the construction of sky scrapers and other infrastructure.
- Presence of a hard basement rock provided a firm foundation for the construction of sky scrapers and tunnels.
- Numerous Islands gives enough space for the expansion of the city.
- Ice free conditions allow the use of the Port through the year.
- Low tidal range allows port activities to be carried through without disturbances by waves.
- Presence of wide rivers give large space for docks (natural enclosed harbour loading and unloading of ships) and quays (artificial land place for loading and offloading of ships)
- Deep water harbours allow anchorage of large vessels near the shore thus accommodating large vessels.

- Favourable government policy of providing large capital base for developing the city.
 - Availability of highly skilled labour to construct infrastructure/city.
- (d) Functions of New York City;**
- New York is an administrative centre with the Headquarters of UN.
 - It's a commercial /trading centre/business centre.
 - It's banking centre and financial centre for example the presence of stock exchange.
 - It is a recreational and entertainment centre with several entertainment facilities.
 - It's an EntrePort with adequate port facilities to other parts of the world.
 - It is a tourist centre.
 - It is an industrial entre like ship building, chemical industries.
 - It is an educational centre.
 - It is communication centre/transport centre.
- (e) Environmental problems which have resulted from the development of New York City; / Explain the problems facing New York Port.**
- Pollution of air, water and land by wastes, gases, chemicals, poor disposal of wastes (human wastes).
 - Traffic congestion leading to accidents.
 - Overcrowding/Over population of the City leading to shortage of space/Shortage of accommodation facilities.
 - High population leads to unemployment.
 - Poor sanitation leading to spread of diseases.
 - Development of slums and associated problems like theft and robbery.
 - Smog leading to poor visibility which results into accidents.
 - Unemployment leading to high rates of crimes.
 - High cost of living due to high demand for basic needs of life.
 - Land shortage which limits expansion.
 - Problem of flooding due to expansion of the city to the coastal lowlands/valleys.
 - Fog during certain periods causes accidents.
- (f) Outline the measures being taken to solve the above problems.**
- Strengthening police force to fight and reduce crimes.
 - Putting tough restrictions on immigrants to New York to reduce slum development and unemployment.
 - Improving Public/air transport to reduce traffic congestion.
 - Constructing of more industries to create more jobs/reduce unemployment.
 - Emphasizing treatment of industrial wastes to reduce environmental pollution.
 - Emphasizing the use of public transport to reduce on traffic congestions.
 - Using of radars/strong lights to solve the problems caused by fog.
 - Constructing of bridges and canals to create more access of Manhattan Island to other Islands.

Exports handled by New York Port;

- Textiles, Machinery, Wheat, Chemicals.

Imports handled by New York Port;

- Cotton, Cocoa, Sugar, Tea, Coffee.

Study the table below showing types of transport used in Manhattan, New York City and answer the questions that follow;

Table 43

Means of transport	Percentage	Degrees
Subway (underground trains)	-	252
Train	9	32
Bus	6	-
Ferry	2	-
Car, Lorry, Taxi	-	47
Total	100	360

Adapted: White, RG and Boorman: North America.

(a)(i) Complete the table above.

(ii) State the least popular means of transport used in Manhattan.

(b) Draw a pie chart to show the relative importance of the different types of transport. **(Use your graph book)**

Problems faced by the transport sector in New York City;

- Occurrence of fog that causes accidents.
- Pollution from automobiles affects passengers.
- Traffic jam especially during rush hours leading to delays.

Effects of the transport sector on the environment of in New York.

Negative effects;

- Destruction of natural vegetation.
- Destruction of swamps during road construction.
- Congestion which often causes accidents.
- Pollution of the water, land and air.

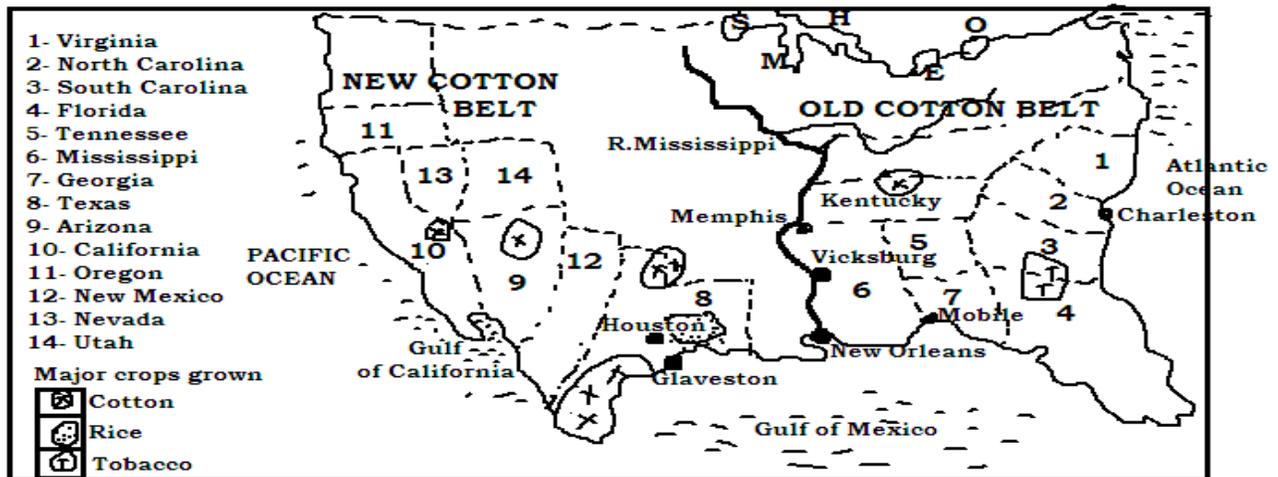
Positive effects;

- Creation of employment to thousands of people.
- Generation of revenue to the government.
- Easy movement of people and goods.
- Has facilitated development of tourism industry by creating access to tourism attractions.
- Has led to urbanization with better accommodation and education services.

COTTON BELTS AND THE SOUTH (USA)

THE OLD COTTON BELT

A sketch of the South (USA) showing the Old and New Cotton Belts.



OLD COTTON BELT

States in the Old Cotton Belt;

- Virginia - North Carolina
- South Carolina - Tennessee - Georgia

State the factors that favoured cotton growing in the Old Cotton Belt;

- Ready market for cotton.
- Presence of cotton ginning machines.
- Presence cheap slave labour.
- Presence of vast land crop cultivation.
- The 200 days of frost free growing period.
- Presence of well drained soils.
- Alternating wet and dry conditions of moderate rainfall and hot temperatures allow growth and ripening of cotton.

Factors that led to the decline in cotton growing in the Old cotton Belt;

- The strong winds destroyed crops hence low yields/natural calamities in the old cotton belt e.g. hurricanes, floods led to destruction of cotton plantations.
- Availability of vast land in the west which encouraged mechanized farming.
- Competition for market from synthetic fibres threatened cotton farmers.
- The low prices for cotton discouraged farmers.
- Pests and diseases like cotton boll weevils destroyed large cotton farmlands.
- Soil exhaustion/decline in soil productivity due to monoculture practices led to low yields.
- Growth of pastures for animals that reduced the land under cotton.
- Abolition of slave trade reduced labour available for cotton farming.
- Loss of valuable labour to the newly established industries in the South.
- Irrigation in the new areas made production more worth than in the old cotton belt.
- Government policy that encouraged the growing of the new areas (West) for cotton growing thus discouraging cotton growing by creating soils banks.
- Competition for land between cotton and other newly introduced crops in the old cotton belt like Soya beans, Pea nuts, Rice, Vegetables, fodders/

Introduction of new crops like soya beans to improve soil fertility limited land for cotton growing.

State the changes that that took place in the old cotton belt after the decline in cotton growing;

- Thousands of Negroes and poor whites started working in the new industries/ Industries were set up to offer employment.
- Cotton has been given in many poor soil areas because farmers are paid by the government to put their soil in the soil bank that is not in use for cotton growing.
- Beef, dairy and poultry were introduced to increase farmer's income.
- Better farming methods like crop rotation and mixed farming for better yields.
- Forests were planted to control soil erosion.
- Crop diversification was done through growing more crops like soya beans and wheat.
- Introduction of new cash crops and food crops like Soya beans, vegetables, rice to improve people's standard of living.

THE NEW COTTON BELT & THE SOUTH (USA)

States in the New Cotton Belt;

- Texas, - Oklahoma
- Arizona - New Mexico.

Factors that favoured cotton growing in the New cotton belt/ Factors that led to the shift of the cotton growing belt to the new areas.

- Deep fertile soils allowed proper growth of cotton.
- Light soils that were easy to cultivate.
- Relatively gentle landscape enabled the use of machines.
- Large tracts of land where cotton was grown.
- The sunny conditions favoured growth and ripening of cotton.
- Drier conditions in the west limited pests and diseases.
- Availability of skilled labour used in planting and harvesting of cotton.
- Modern/advanced technology used in irrigating cotton farms allowing farming throughout the year.
- Well developed transport to distribute cotton to market centres.
- Positive government policy through providing extension services to farmers.

Benefits of Cotton growing in the New cotton belt.

- Source of government revenue through taxes thus allowing construction of roads, schools, hospitals.
- Promotes economic diversification thus reducing overdependence on mining.
- Promotes international cooperation through agricultural exports.
- Has created employment opportunities hence improving people's standard of living.
- Agricultural exports bring in foreign n Exchange.
- Stimulated development of roads, railways.
- Provides foodstuffs like cooking oil to people.
- Has stimulated the growth of agro based industries like textiles.

Explain the problems facing Agriculture in the South;

- Limited market for the produce grown under the use of artificial fertilizers leads to wastage.
- Price fluctuations discourage farmers.
- Shortage of labour during the busy harvesting periods leads to loss of crops in the fields.
- Pests and diseases destroy the crops.
- Limited land discourages extensive farming leading to low output.
- Climatic failure like prolonged drought leads to low harvests.
- High cost of controlling weeds makes farming expensive.
- Soil exhaustion due to over cultivation and monoculture leads to low productivity.

Outline the measures being taken to solve the above problems;

- Using chemicals and pesticides to control pest and diseases.
- Carrying out land consolidation to increase total land under cultivation and output.
- Carrying out mechanization to reduce labour shortage.
- Employing migrant labour from Mexico to reduce labour shortage.
- Using organic fertilizers like manure to improve on soil fertility.

Negative effects of cotton growing to the people of the South; /

- Cotton farming near rivers led to siltation.
- Burning of cotton weeds and cotton stalks leads to atmospheric pollution.
- Many forests were cut down to establish cotton plantations thus leading to low rainfall amounts.
- Decline in food supply as farmers concentrated on cotton growing.
- Reduced labour for other sectors.
- Easy spread of cotton diseases
- Application of fertilizers led to contamination of water resources/pollution.
- Spread of diseases due to monoculture.
- Salination due to irrigation farming.
- Soil exhaustion due to monoculture practices.

Effects of cotton growing on the physical environment of the South;

- Destruction of the natural landscape through deforestation and construction of transport routes.
- Soil exhaustion due to over cultivation.
- Environmental degradation due to destruction of forests.
- Formation of acid rains as a result of polluted atmosphere from the cotton industries.
- Promotion of soil erosion, landslides and mass wasting because of exposing rocks to denudational forces through deforestation.
- Global warming due to destruction of the ozone layer by the industrial gases like chlorine, carbon diode from the cotton industries.

Study the table below showing area under cropland in **one** of the states in the South (Mississippi) and answer the questions that follow:

Area under cropland in the South (Mississippi) **Table 44**

Type of crop	Area under crop land "000" (Ha)
Soya bean	1,012
Cotton	704
Hay	286
Cereals	154
Others	44
Total	2,200

Adapted: Hyghes: Detal (1984) North America Studies in Development, Longman P.69.

(g) Draw a pie-chart to represent the information in the table.

Converting variables to degrees;

$$\text{Soya beans} = \frac{1,012}{2,200} \times 360^\circ = 166^\circ, \quad \text{Cotton} = \frac{704}{2,200} \times 360^\circ = 115^\circ$$

$$\text{Hay} = \frac{286}{2,200} \times 360^\circ = 47^\circ, \quad \text{Cereals} = \frac{154}{2,200} \times 360^\circ = 25^\circ$$

$$\text{Others} = \frac{44}{2,200} \times 360^\circ = 7^\circ$$

A pie-chart showing area under cropland in Mississippi in the South.

(Use your graph book)

(a) **Why more land has been used for growing of soya bean than cotton?**

- Soya beans were emphasized to improve fertility of the soil since it a leguminous crop.
- The climate is more favourable for growth of Soya beans than any other crop.
- There was a lower incidence of pests and diseases affecting Soya beans than cotton.
- The cost of production for Soya beans was relatively lower than for Cotton.
- There was a great need to diversify crop production.

(c) (i) **Mention any other two states in the South where cotton is grown.**

- Tennessee, Alabama, Georgia, North Carolina, South Carolina, Virginia.

Conditions which have favoured the growing of cotton in the south.

- Moderate to heavy rainfall of between 500-1000mm p.a. with most of it received in the first 160 days.
- Availability of well drained fertile soils which favour growth of cotton.
- Hot summers with temperatures ranging between 23-27°C which allows proper growth and convenient harvesting of cotton.
- Availability of cheap slave labour to work on cotton plantations.
- There was a high demand for cotton especially from the industrialized North and Western Europe.
- High level of technology used in mechanization.
- Availability of vast land for growing the crop.

(d) **Contributions of cotton growing to the South (USA)**

- Has generated employment opportunities to cotton farmers, transporters and in other agricultural related activities.
- Has led to diversification of the economy through supplementing industrial production.
- Has promoted international relations especially with countries which buy American cotton.
- Source of foreign exchange through exporting cotton and its products to foreign countries like Germany and Western Europe.
- Source of raw materials to the textile industries. In this, cotton growing promoted industrial establishment.
- Cotton growing improves farmers' standard of living by earning them income.
- Research had been carried out hence breeding of high yielding crop varieties.
- Cotton growing had stimulated infrastructural development. E.g. Roads, railways and ports were constructed to facilitate production and transportation.

Study the table below showing seasonal work on a selected plantation in the South (USA) and answer the questions that follow;

Table 45

Month	Rainfall(mm)	Temp(°C)	Work done on the plantation
JAN	90.5	3.6	Repairing machines and updating record books
FEB	90.5	6.2	Planning next season's work and purchasing seeds.
MAR	106.1	11.7	Preparing of cotton fields
APR	112.3	16.9	Planting cotton
MAY	109.1	19.0	Planting legumes especially soya beans.
JUN	96.7	24.3	Harvesting wheat planted the previous year.
JUL	101.0	26.0	Weeding and spraying
AUG	89.0	29.0	Weeding and spraying
SEPT	79.3	22.6	Harvesting cotton
OCT	69.9	17.0	Legumes are harvested.
NOV	70.0	10.5	Application of fertilizers in the field
DEC	88.2	5.0	Planting of winter wheat.

Adapted: World Resource Series (1990 – 1999)

- Draw a line graph to show the climate of the selected plantation in the South. **(Use your graph book)**
- Identify the agricultural activities done on the plantation during;

Winter:

- Winter wheat is planted,
- Fertilizers are applied to fields.
- Ploughing of for the next season.
- Updating records ,purchasing seeds,

Summer;

- Harvesting wheat.
- Weeding/spreading of herbicides.
- Harvesting of cotton.
- Planting legumes like Soya beans.

Explain the contributions of the agricultural sector to the development of the South.

- Agricultural exports to Germany and Switzerland earns the South Foreign exchange.
- Cotton growing provides raw material to textile industries.
- Has led to growth of Town like Birmingham which act as accommodation centres.
- Has led to economic diversification thus reducing over reliance on mining sector.
- Provides employment opportunities to farmers and marketers thus improved standard of living.
- Has promoted international cooperation trough export.
- Provides food like cereals thus better diet.

Evidence of modernization in the area;

- Utilization of machinery for ploughing.
- Use of herbicides and fertilizers.
- Planning and record keeping.

Crops grown in the South include;

- Cotton, wheat, legumes (soya beans).

Study the table below showing cotton growing in selected States of the Southern USA and answer the questions that follow;

Table 46

States	Production (%)	Cotton Belt	Degrees
California	25	} New Cotton Belt	90
Texas	30		-
Mississippi	10		-
New Mexico and Arizona	10	} Old Cotton Belt	-
Others	25		-

Adapted from: Hughes, D, et al (J 988) North America: A study 0, (Development ; Longman p68.

- (a) (i) Calculate the missing values to complete the table above.
(ii) Name any two States with the lowest percentage of cotton production in the Southern USA.
- (b) Draw a pie chart to show the information given in the table above.

i. (i) **Missing values for the states in the table;**

$$\text{Texas; } \frac{30}{100} \times 360^\circ = 108^\circ$$

$$\text{Mississippi} = \frac{10}{100} \times 360^\circ = 36^\circ$$

$$\text{New Mexico and Arizona} = \frac{10}{100} \times 360^\circ = 36^\circ$$

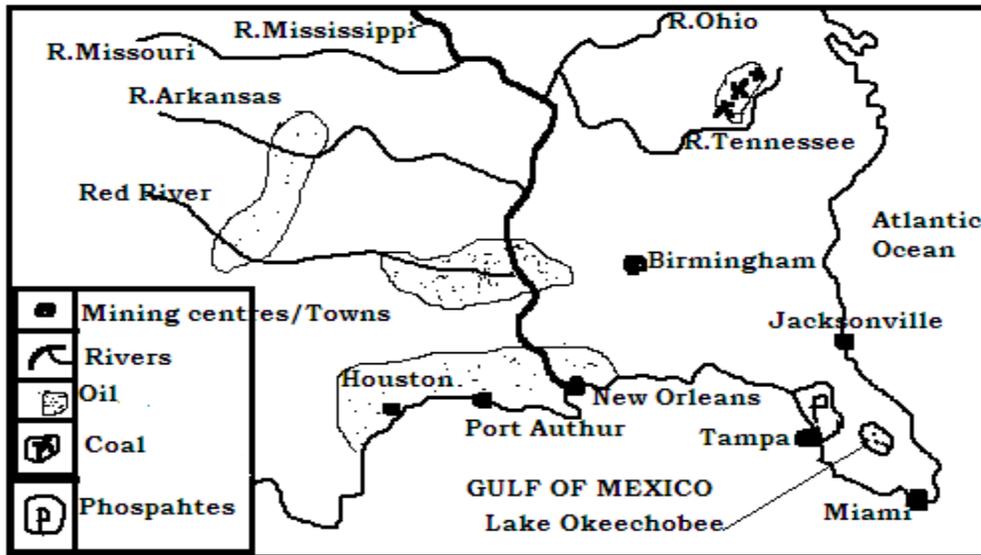
$$\text{Others} = \frac{25}{100} \times 360^\circ = 90^\circ$$

(ii) **States with the lowest percentage of cotton production in Southern USA;**

- Mississippi with 10%
- Arizona and New Mexico with 10%

- ii. A pie chart showing Cotton growing in selected states of Southern USA.
(Use your graph book)

INDUSTRIALISATION IN THE SOUTH (USA)



(a) (i) Industries found at;

Houston;

- Oil refineries, - Textiles, - Space industry
- Food processing, - Engineering, - Petrol –chemical

Birmingham;

- Iron and steel, - Food processing, - Machinery/Engineering
- Chemical, - Fertilizers

(ii) **Factors which have favoured industrial development in the South (USA);**

NB: take a case study;

- Presence of varied mineral resources like Oil and natural gas at Houston, Coal and Iron ore at Birmingham.
- Reliable water supply from river Mississippi to cool industrial machines.
- Availability of large capital for mineral exploitation and industrial development.
- Availability for skilled and semiskilled labour from North Eastern coast.
- Supportive government policy of taxes exemptions, to attract industrial investors to the South.
- Availability of a ready market for the industrial products within the region for example the agricultural machinery, food.
- Ideal climatic conditions favourable for industrial development that is no winter/summer disparities allow production of light goods throughout the year.
- Advanced technology allows quality production.
- Huge power supply to run industrial machines.
- Industrial inertia allows industrial establishment to share infrastructure.

(d) (i) **Advantages of industrial development in the Southern States of USA;**

- Has provided employment opportunities to millions of people.
- Taxes imposed on industries earn USA revenue which is used for social economic development.

- Industrial exports like fighter jets earn USA foreign exchange.
- The sale of industrial goods earns people local income hence improved standard of living.
- Has promoted infrastructural development like air ports, railways, roads.
- Industrial development has led to economic diversification thus reducing overreliance on agriculture.
- Has promoted growth of towns/urbanization at Birmingham, Houston, and New Orleans which act as residential centres.
- Provides market to mineral and agricultural raw materials. Such as Oil and cotton.

(ii) **Disadvantages of industrial development in the Southern States of USA;** (Problems resulting from industrialization)

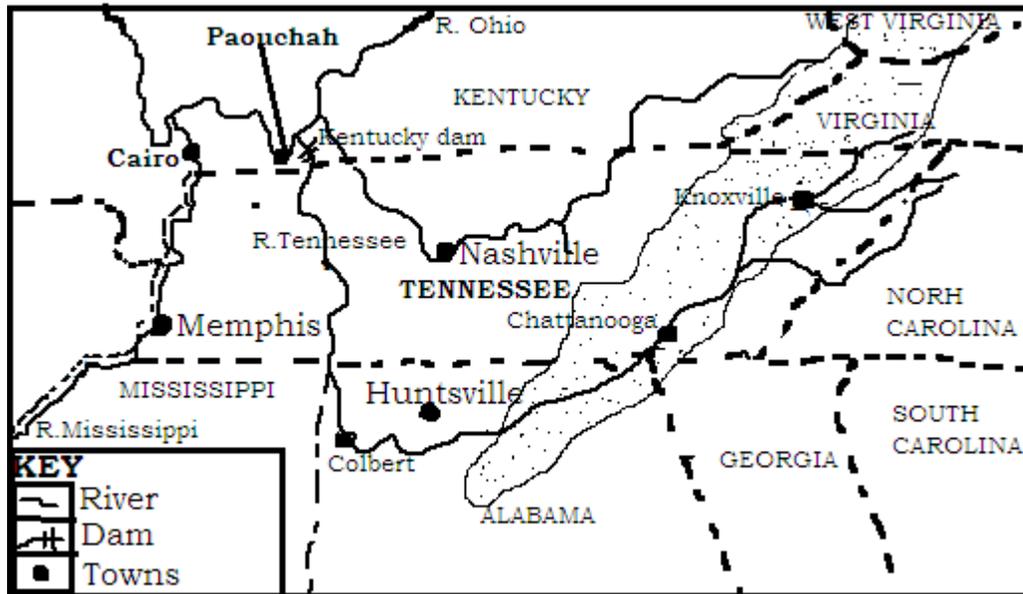
- Has encouraged pollution of environment due to emission of air and industrial discharge.
- Has led to exhaustion of raw materials due to high rate of exploitation.
- Has led to congestion due to high rate over concentration of industries.
- Has led to urbanization and the related evils like theft.
- Had led overcrowding to limited land.

TENNESSEE VALLEY AUTHORITY (TVA)

A multi-purpose Scheme is the one that is specially established to serve **more than one use**/purpose like generation of HEP, Controlling of floods, Promoting tourism, establishing industries.

Aims of the Tennessee Valley Authority (TVA)

- To generate HEP for domestic and industrial use.
- To contain environmental problems like flooding, drought though afforestation.
- To improve navigation along river Tennessee through constant dredging.
- To control the flooding of river Tennessee and its tributaries so as to retain land for settlement.
- To eradicate the water borne diseases and save human lives.
- To control soil erosion and reclaim the badly eroded areas for agricultural use



Other examples of Multipurpose Schemes in USA are;

- The St. Lawrence Sea Way,
- The Central valley water way,
- The Appalachian Regional development Act/Appalachian Plan.

Factors/Conditions that led to establishment of the Tennessee Valley Multipurpose Scheme;

- Poor housing facilities by the local population caused poor living conditions.
- Poor farming methods including mono-cropping that led to soil exhaustion and erosion.
- Limited fuel resources especially due to rapid deforestation within the river valley. The Tennessee scheme wanted to provide cheap HEP to the region.
- Flooding of the existing Rivers like R. Tennessee used to flood during the rainy season caused a lot of damage to property and loss of life.
- Navigational problems within the Valley caused by waterfalls, rapids and shallow zones necessitated a navigable way along the Tennessee.
- The need to diversify the economy from predominantly agriculture to industry.
- Ignorance of the people about causes and dangers related to soil erosion.
- Water borne diseases which used to attack the local population.
- Famine was very rampant among the local people. The scheme wanted to create a constant food supply in the region by providing water for irrigation.
- Environmental problems like soil erosion necessitated afforestation.
- The desire to modernize agriculture through research and use of fertilizers, creation of demonstration farms in the region.
- The desire to create employment opportunities in the region through industrialization/ Wide spread unemployment and poverty due to destruction of farmlands.

- Underdeveloped infrastructures like schools, roads, electricity, health units.
- Siltation of River Tennessee and its tributaries like Cumberland displaced people and destroyed farmlands.
- Poverty as people's incomes were too low.

SOIL EROSION IN THE TENNESSEE STATE

Factors that led to soil erosion in the Tennessee State;

- Over cultivation led to soil exhaustion and disintegration hence soils erosion.
- Over grazing of livestock exposed the soils to agents of erosion.
- Flooding of river Tennessee carried away a lot of soils hence erosion.
- Monoculture practices led soil deterioration hence erosion.
- The steep slopes accelerated surface run-off leading to soil erosion.
- Heavy torrential rainfall increased the massive erosion.
- Ploughing up and down the hill slopes crated channels which later formed gulleys.
- Cutting of trees exposed soils to agents of erosion.

Steps taken to control soil erosion.

- Contour ploughing was done along the steep slopes to control surface run-off.
- Strip cropping was introduced along the steep slopes to control soil erosion.
- Farmers were taught about the cause and ways of controlling soil erosion.
- Crop rotation was introduced to maintain soils fertility.
- Manures and fertilizers were used to improve on soil fertility.
- Terraces were constructed to reduce soil erosion in areas of steep slopes.
- Cover crops like pumpkins were planted to provide a protective cover to the soils.
- Afforestation was done to bind the soils together.
- Dams were constructed to control river flooding.

(b)Measures/steps taken by the Tennessee Valley Authority to address the problems of environmental degradation;

- Construction of dams like Kentucky dam to prevent flooding.
- Afforestation and re-afforestation programmes to control soil erosion and encourage rainfall formation along Appalachian highlands.
- Industrialization to increase employment opportunities and reduce pressure on land.
- Terracing of steep slopes to conserve the soils from gully erosion.
- Introduction of better farming methods like contour ploughing to control soil erosion.
- Diversification of agriculture through introduction of dairy farming.
- Resettlement of the people to create better villages.
- Development of socio-economic infrastructure to improve production and marketing of products.
- Cover crops like pumpkins were grown to control splash erosion.
- Using of family planning methods to control on population growth.

- Leguminous crops like soya beans capable of improving soil fertility were planted.
 - Establishment of demonstration farms to train farmers.
 - Dredging of river Tennessee in order to deepen the river channel and encourage navigation.
 - Spraying to control pests and diseases.
 - Refilling of canals to improve navigation/water flow.
- (c) **Benefits/Contributions/Achievements of the Tennessee Valley Multi-purpose Scheme;**
- The several dams constructed by the Scheme provide cheap hydro electric power used in industries and at home.
 - The scheme has fully controlled flooding in the region attracting permanent settlement.
 - Has ensured constant water supply to the region for domestic and domestic use.
 - Has ensured constant food supply like pumpkins, beans thus improved diet.
 - Provided lakes for recreational purposes thus earning the region foreign exchange and income.
 - Controlled flooding of River Tennessee thus controlling water borne diseases like Bilharzia.
 - Controlled environmental problems like soil erosion through afforestation and reafforestation programmes.
 - Eradicated poverty through establishment of industries and other economic activities.
 - Bridges constructed over rivers enabled the improvement of transport and communication.
 - The local people were taught better farming methods like crop rotation and use of fertilizers.
 - Led to wildlife conservation in Tennessee through offering wildlife education and recreation.
 - Provided employment opportunities to local people like farmer and industrialists.
 - Led to development of tourism and education at the recreational centres.
 - Led to growth of Towns like Nashville which acts as a trading centre.
- (d) **Contributions of the Tennessee Valley Project to industrial development in the region. /Influence of the TVA on industrial growth;**
- The several dams constructed by the Scheme provide cheap hydro electric power used in industries and at home.
 - Has ensured constant water supply to the region for industrial use.
 - Creation of skilled labour through training used in industries.
 - Provided lakes for that provide water for industrial use.
 - Generated HEP from dams like Kentucky used for industrial use.

- Improved navigation along River Tennessee leading to transportation of raw materials and finished goods.
- The scheme controlled flooding in the region thus attracting permanent settlement in the region for industrial operations.
- Forests planted have planted raw materials to timber based industries.

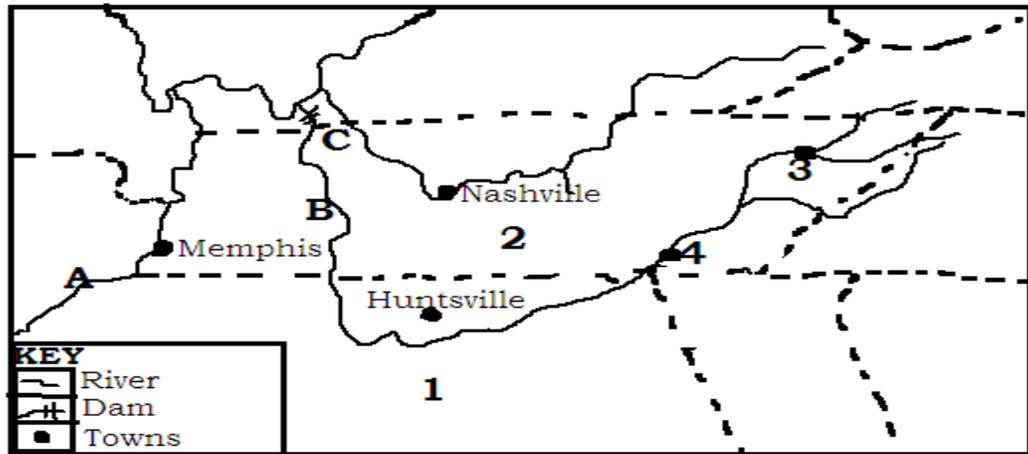
(a) Problems still faced by the people living in the Tennessee Valley:

- Urbanization and industrialization led to new challenges like unemployment, overcrowding, traffic and congestion of the population.
- Increased demand for land led to high cost of land/limited land for agriculture/shortage of land.
- Siltation of rivers due to damming at Kentucky dam.
- Environmental pollution of air, water and land due to establishment of industries.
- Displacement of population from the areas formerly inhabited in an effort to establish forests.
- Seasonal floods that destroy property.
- High cost of living leading low standard of living.
- Soil erosion in some areas destroyed crops.
- Pests and diseases destroy farmlands.

(e) Problems which resulted from the establishment of the Tennessee Valley Multipurpose Scheme:

- Loss of Scenic Beauty which discourages the tourist industry.
- Over exploitation of sources of energy like coal for industrialization.
- Displacement of people by the lakes formed through damming of rivers.
- Urbanization and related problems like slum development.
- Pollution of the environment from industries.
- Increased demand for electricity leading to high cost of power.
- Over utilization of resources leading to their depletion.
- Regular dredging leading to high costs of maintenance.

Study the map of the Tennessee valley provided below and answer the questions that follow.

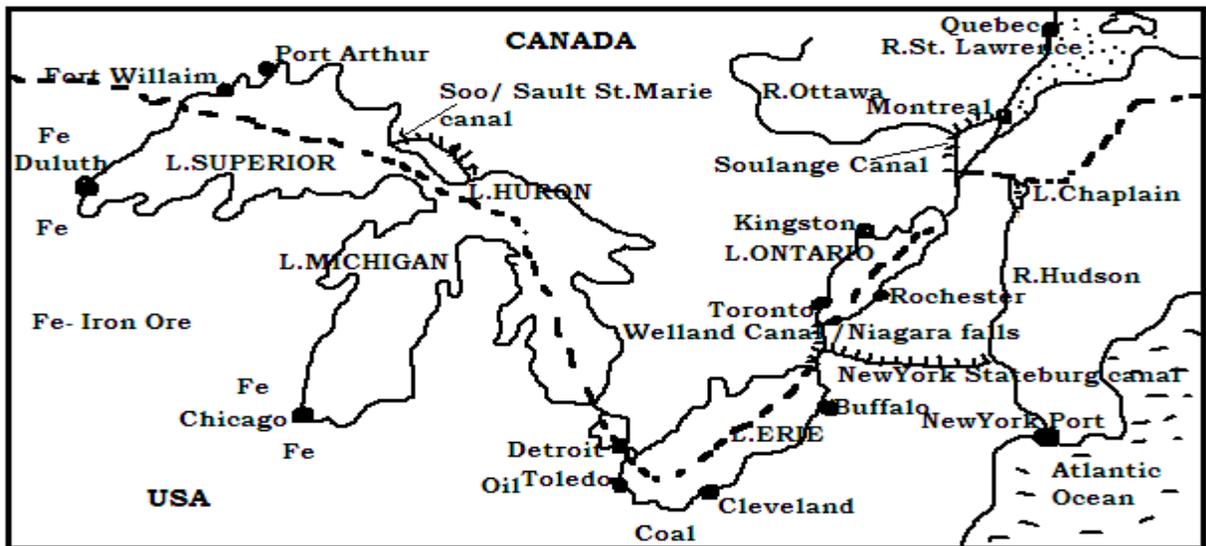


- (a) Name the;
- | | |
|-----------------------------|----------------------------|
| (i) Rivers marked A and B, | (iii) Dam marked C, |
| (ii) States marked 1 and 2, | (iv) Towns marked 3 and 4. |

- (b) Describe the factors which led to the establishment of the Tennessee Valley Multipurpose Scheme.
- (c) Explain the contributions the Tennessee Valley Multipurpose Scheme to the development of any **one** State named in (a)(iii) above.
- (d) Outline the problems which resulted from the establishment of the Tennessee Valley Multipurpose Scheme.

ST.LAWRENCE SEAWAY AND GREAT LAKES

Study figure **below** showing the Great Lakes and St. Lawrence waterway and answer the questions that follow:



Aims of constructing the Sea Way;

- To generate revenue through charging taxes on the vessels.
- To generate HEP for domestic and industrial use.
- To control the flooding of River St.Lawrence and destruction of property.

- To facilitate deep water transport along river St.Lawrence.
- To connect the rich interior to Atlantic Ocean for trade.

(b) Steps taken to improve navigation on the Great lakes and St.Lawrence River.

- Ice breakers are used to remove ice during winter.
- Canals were constructed to by-pass waterfalls and rapids for example Welland canal to by-pass Niagara Falls.
- Dams and Locks were constructed to raise the water level to allow the sailing of large vessels.
- Dredging and excavation were done to deepen the sea way.
- Blasting was done with use of explosives to remove the Islands.
- Radars and strong lights were put along the sea way to increase visibility.

(c) Conditions/Factors which have led to the construction of the Great Lakes and St. Lawrence Seaway;

- Presence of numerous obstacles such as shoals of rocks which was restricting smooth flow of oceans going vessels.
- Existence of rapids and waterfalls e.g. Niagara Falls, Sault St. Marie made navigation impossible.
- The seasonal flooding needed to be controlled by using dams and locks to regulate the flow of water.
- Seasonal blockage of the seaway by ice during winter needed to be broken to minimize the piling of goods and navigation delays.
- The need to open up the interior of North America by exploiting resources such as extraction of iron ore at Labrador, wheat growing in the prairies of Canada, others.
- Some parts of river St.Lawrence were narrow that needed widening for all vessels to sail through.
- Some parts of St. Lawrence Seaway were shallow therefore needed to be deepened.
- There was silting of the seaway which reduced the depth of the seaway.
- The great lakes were at different altitudinal levels e.g. Lake Superior (183m a.s.l), Huron (174m a.s.l), Erie (177m a.s.l) and Ontario (75m a.s.l) and so a need to regulate the level of water by building locks.

Contributions the St Lawrence Seaway and Great lakes to the surrounding areas

- Has strengthened international cooperation between USA, Canada and other countries like Spain and Japan.
- Niagara Falls, Soo Canals have promoted tourism thus earning foreign exchange.
- Has attracted dense settlement in towns like Detroit, Duluth and Chicago.
- Has promoted industrialization by facilitating importation of raw materials.
- Has enhanced agriculture by creating access to the Canadian wheat growing area.

- Has led to growth of towns/ Urbanization like at Duluth, Quebec and Montreal which act as accommodation centres.
- Has opened up remote areas by creating access to Canadian prairies.
- Has led to generation of HEP from dams like Iroquois dam for domestic and industrial use.
- Provides employment opportunities to tax collectors thus improving their standard of living.
- Has led to technological advancement through Canal construction like Soo, Welland.
- Earns government revenue through taxes imposed on users of the Seaway.
- Acts as a natural boundary between Canada and USA.

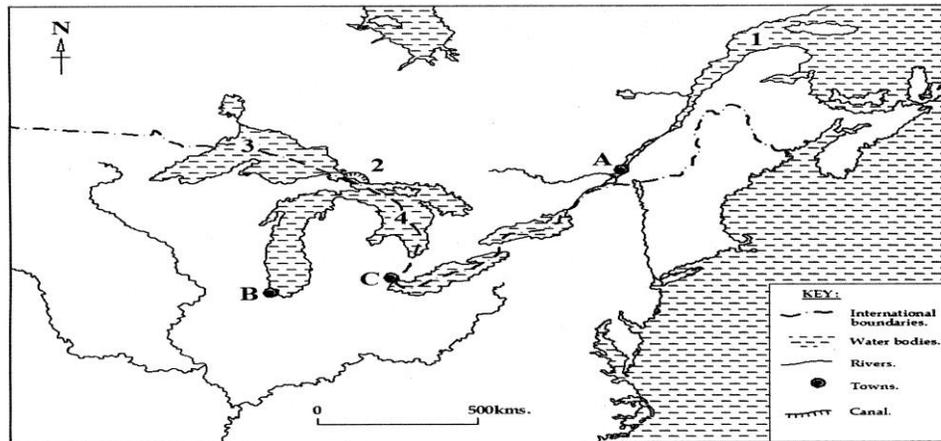
(d) Problems faced by people using the seaway;/Problems still faced by the users of the Seaway;

- Pollution of the seaway by well established industries and oil spills causing air, water and land pollution.
- Delays resulting from congestion at the locks and canals.
- High costs of maintenance of locks and channels.
- Poor visibility due to smog and foggy conditions which cause accidents.
- Seasonal freezing of the seaway for three months.
- Very large vessels cannot be used due to small size of the canals.
- There are problems of sea pirates.
- Continuous silting of the Seaway.
- Ice causes accidents.

(d) Measures being taken to solve the above problems;

- Time tabling/scheduling of ships/vessels to avoid congestion, delays and accidents.
- Containerization to ease loading and off loading.
- There is use of flood light/strong head light/radars on ocean going vessels.
- Use of ice breakers/automatic submarine defreezers during winter to clear the seaway.
- Use of alternative means of transport like roads, railways, others during winter when the seaway is frozen.
- Constant dredging to overcome siltation/use of improved technology.
- Twinning of locks is being done which allows two-way traffic.
- Establishment of strict laws/legislation against pollution that is clear air production, others.
- Regular patrolling of the sea way to check sea pirates.

Study figure below: map of the Great lakes region provided below and answer the questions that follow;



Industries found are more or less the same;

Name the town; Montreal/Chicago/Toledo

- Petro-chemical industries, - Clothing and textile industries,
- Iron and steel manufacturing, - Engineering/metallurgical industry.
- Timber and furniture products. - Motor vehicle assembly,
- Cement manufacturing, - Glass manufacturing, food processing,
- Printing and publishing.

Types of industries found in any one industrial centre;

- Iron and steel/steel rolling,
- Food processing. - Textile/clothing industries.
- Oil refineries. - Motor vehicles assembly/Engineering.
- Ship building and repair. - Timber processing/pulp and paper.
- Cement manufacture. - Glass manufacture
- Printing and publishing.

Industries found in Chicago;

- Electronics, - Chicago,
- Printing and Publishing. - food processing

OR Industries found in Pittsburg;

- Chemical industries,
- Machinery,
- Food processing

(ii) The conditions that influenced the location of industries in the Great lakes region;

- There is easy transportation due to proximity to the Great lakes and St. Lawrence Seaway.
- Presence of plenty of water for industrial use from the Great lakes and St. Lawrence River.
- Nearness to bulky raw materials e.g. coal from Pittsburg, Iron ore from the Appalachians.
- Influence of historical factors like early settlers.
- Presence of large population to offer local market.

- Nearness to the prairie region; rich agricultural hinterland necessitated the development of agricultural inputs/machinery.
- Presence of supportive/positive government to make the region self sufficient.
- Sufficient power supply to run industrial machines.
- Large space for expansion of industries.
- Improved technology.
- Large sums of capital to purchase industrial machines and inputs.

Factors/Conditions which have favoured the development of industries in the Great Lakes region

- Plenty of fresh water for lakes and rivers for washing, and cooling of machines.
- A variety of raw materials that include agricultural, minerals and forest products./ Presence of abundant agricultural and mineral raw materials such as iron ore from Messabi ranges used in the iron and steel industry.
- Abundant and varied sources of power/energy to light industrial premises and run machines/ Presence of a variety of power resources e.g. and HEP from Niagara Falls for running the industrial machines.
- Vast land and gentle relief in the region thus easing construction and expansion of industries. / Large tracts of cheap land enabled location and expansion of industries in this region.
- Skilled labour to work in Industries such as machine operators, Engineers./ Presence of abundant skilled labour to work for example chemical engineers needed in textile industries.
- Availability of large sums of capital to buy industrial equipment/raw material./ Large capital to purchase raw material, industrial machinery, pay labour was generated from international trade.
- Wide local and foreign market e.g. in the tropical and sub tropical world/ Presence of huge/wide market for manufactured goods both within and foreign like Britain, China, Japan.
- Presence of abundant water from the great lakes either to be used as a raw material or for washing and cooling purpose.
- Positive government policy of encouraging investment in the industrial sector./ Supportive government policy of locating industries in this region for industrial development.
- Modern transport and communication network e.g. Roads, railways and waterways that ease collection of raw materials and distribution of finished goods./ Presence of a reliable transport network for transporting raw material and manufactured goods along the St.Lawrence seaway
- Advanced technology leading to production of high quality goods that are competitive on the international market./ Modern technology such as use of conveyor belts, automatic machines has led to large scale production.
- Relative political stability that enhances industrial activities.
- Intensive research leading to expansion of market for industrial goods
- Industrial inertia which has attracted many industries concentrate in the region to share mechanics, roads, security, and electricity.

(c) **Contributions of industrial sector to the development of Great lakes region/Benefits of industrialization/ industrial sector in the development of the Great lakes Region;**

- Provision of employment opportunities for the people and so improving their standard of living.
- Has earned revenue to the government of through taxes imposed on industrial goods.
- Development of infrastructure like roads, railways, waterways and ports.
- Urbanization/conurbation and associated advantages like accommodation, trade and commerce.
- Has led to economic diversification, leading to creation of alternative employment.
- Earning foreign exchange through export of industrial/manufactured goods.
- Promotion of regional and International cooperation between USA and Canada hence promoting trade.
- Industries have led to exploitation of natural resources like agriculture and minerals such as iron ore from Labrador mines (Messabi ranges).
- Development of skills through training on job.
- Inter-industrial linkages for expansion of market for other sectors like agriculture.
- Diversification of the economy that reduced overdependence on one economic activity.
- Provides market for primary sectors like agriculture, mining forestry, and fishing
- Source of income to people thus rising standards of living.
- Provision of consumer goods/manufactured goods to people improved standard of living.

Problems faced by the manufacturing sector in the Greta lakes region;

- Limited raw materials for heavy industries like iron and steel industries.
- Negative government policies like heavy taxes discourage industrial production.
- Limited electricity to run industries leads to low output.
- Congestion along facilities affects transportation of raw materials and distribution of manufactured goods.
- Limited skilled labour like technicians, Engineers limits industrial operation.
- Limited market for industrial goods due to competition with highly qualitative and low priced goods from Britain, Japan.
- Limited capital to expand the industries.

(d) **Steps being taken to improve the industrial sector in the Great Lakes region;**

- Importing of cheaper raw materials e.g. Agriculture and minerals.
- Recycling/Reuse of scrap to solve shortage of raw materials.
- Use of raw material saving technology to minimize the cost of raw materials.
- Applying automation/using of Robots to boots industrial output.

- Carrying out intensive industrial research to increase quality and competitiveness of manufactured goods.
- Diversifying of transport and communication networks to ease collection of raw materials and connect industrial, centres to distant markets.
- Diversifying of the energy/power sources to attain reliability and efficiency.
- Emphasizing intensive advertisement and research to boost trade in the manufactured goods from the region.
- Providing of loans for investment in the industrial sector from local and foreign banks.
- Offering of subsidies on industrial inputs to minimize cost of production

(a) **Environmental problems that have resulted from industrialization in the Great lakes region; / Negative effects of the industrial sector on environment of the great region;**

- Pollution of water, land and air e.g. the canals leading to loss of aquatic life/general health hazards/, shortage of clean and safe water for domestic and industrial use.
 - Increased accidents in the Great lakes waterways due to smog.
 - Traffic congestion leading to delays at ports and locks.
 - Removal of top fertile soils by mining leading to decline in production.
 - Loss of forest cover leading to environmental degradation.
 - Emergence of ghost towns due to updated technology.
- Problems faced by these industrial cities.**
- Displacement of people due to setting up of industries.
 - Land shortage thus limiting land for other purposes.
 - Urban related problems such as slum development.
 - High crime rates due to wide spread unemployment.
 - Overcrowding leads to easy spread of disease like swine flu.
 - Displacement of people from their land for industrial expansion.
 - Increase in the crime rate such as drug abuse, robbery, prostitution.
 - Shortage of accommodation facilities leading to slum development with their associated evils such as poverty.
 - Limited land for expansion limits growth of the cities.
 - Increased government expenditure to maintain the city in form of garbage removal, street lights, and road and railway rehabilitation.
 - Increase of smog by industrial and vehicle fumes affects visibility and cause health problems such as asthma.
 - Exhaustion of minerals due to over exploitation.

IRON AND STEEL INDUSTRY IN THE GREAT LAKES REGION:

Study the table below showing the principal types of Cargo entering the Great lakes region and answer the questions that follow;

Table 47

Type of cargo	Montreal – Lake Ontario Section	Welland Canal
Iron Ore	22,700	16,000
Iron and Steel	6,000	670

Others	9,300	7,300
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Adapted: Young E. W and Lowry JH (1984) A geography in World Geography, Book 7; North America, 4th Edition, Edward Arnold, p195.

(a) Calculate the percentage of each type of Cargo reaching the Welland Canal from Montreal.

(a) Percentage of each type of Cargo reaching the Welland Canal from Montreal;

- Iron Ore = $\frac{16,000}{22,700} \times 100 = 70.5\%$
- Iron and Steel = $\frac{670}{6,000} \times 100 = 11.2\%$
- Others = $\frac{7,300}{9,300} \times 100 = 78.5\%$

(b) (i) Raw materials used in the iron and steel industry;

- Silver,
- Iron ore, limestone - Aluminium

(ii) Iron and steel industrial centres found in the Great lakes region of North America;

- Detroit, - Baltimore, - Buffalo, Chicago
- Pittsburgh, Rochester, port authur

(c) Conditions which have led to the development of iron and steel industries in the Great Lakes region;

Physical factors;

- Presence of huge deposits of iron ore in the great lakes region attracted the establishment of iron and steel industries.
- Availability of abundant water supply from the Great lakes of Superior, Michigan, Huron, Erie and Ontario used in cooling the iron and steel plants.
- Abundant energy in form of coal, nuclear and hydro Eclectic power used to run industrial machines.

Human factors;

- Availability of an efficient transport system based on the Great Lakes, rails and roads facilitate the distribution of iron and steel products.
- Availability of large sums of capital provided by the USA government and private investors used to setup and maintain the iron and steel industries.
- Availability of advanced technology used in the USA iron and industrial iron and steel industry.
- Availability of a ready market for the iron and steel products like automobiles, heavy machinery, construction equipment and demand abroad in Europe (Germany, France)
- Availability of abundant skilled labour provided by the large population of USA and immigrant from Europe helped to operate industrial machines.

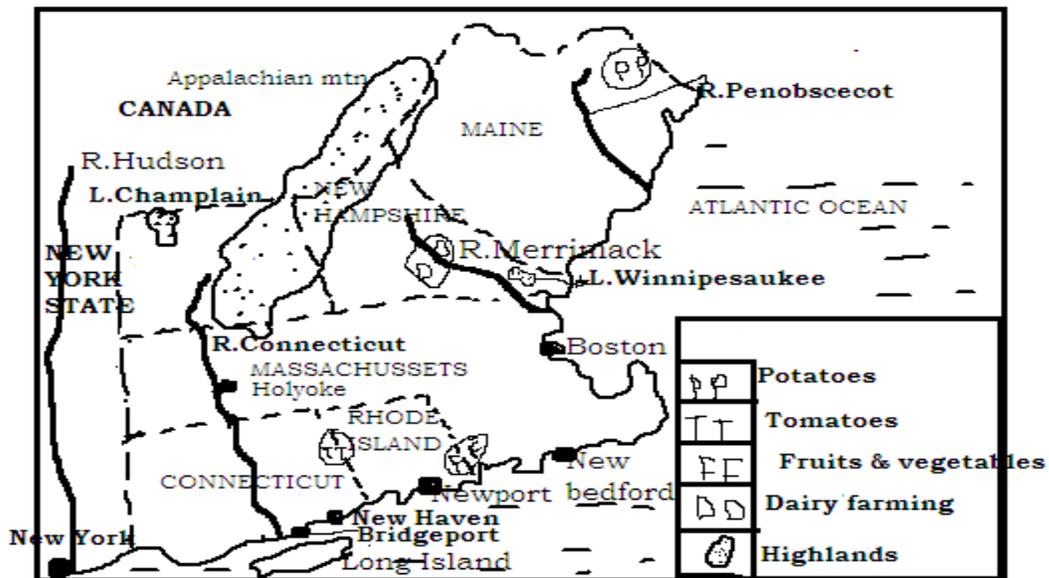
(d) Effects of the industrial development on the environment of the Great lakes region;

Negative effects;

- Has led to destruction of natural vegetation during industrial establishment.
- Has led to exhaustion of minerals due to high rates of mineral exploitation.
- Has led to smog created by fumes from industries.
- Has led to pollution of water, air and land by the industrial fumes and wastes.
- Spread of respiratory diseases.
- Shortage of land
- Increased cost of water and air purification.
- Overcrowding of people and traffic jam.
- Land degradation in the mining areas due to creation of hollow and residue hills.

NEW ENGLAND AGRICULTURE

A sketch map of New England showing major crops grown and dairy farming;



Conditions favouring agriculture in New England;

- Reliable rainfall suitable for the growing of a variety of crops.
- Warm summer temperatures facilitate ripening of crops like fruits.
- Well drained fertile soils support growth of several crops.
- Ready market for agricultural commodities like at Boston.
- Adequate capital to buy seedlings and farm inputs.
- Intensive research has led to introduction of quick maturing crops.
- Developed transport facilitates distribution of agricultural produce to market centres.

Benefits/Contributions of agricultural sector to the people of New England.

- Provides employment opportunities to farmers, transporters and veterinary doctors thus improving their standard of living.

- Has led to economic diversification thus reducing over reliance on industry.
- Provides market to industrial products like fertilizers.
- Earns New England revenue through agricultural exports.
- Provides raw materials to agro-based industries like textiles.
- Provides food stuffs like fruits to people thus improving on their diet.

Challenges/problems facing agricultural sector in New England;

- Shortage of capital to purchase farm inputs limits production.
- Price fluctuation of agricultural produce discourages farmers.
- Shortage of land to establish big plantations limits production.
- Shortage of labour to harvest crops leads to losses.
- Pests and diseases destroy crops.
- Steep relief of the Appalachian Mountains limits mechanization.
- Soil exhaustion due to over cultivation leads to low output.
- Short growing season due to cold winters leads to few crops grown.

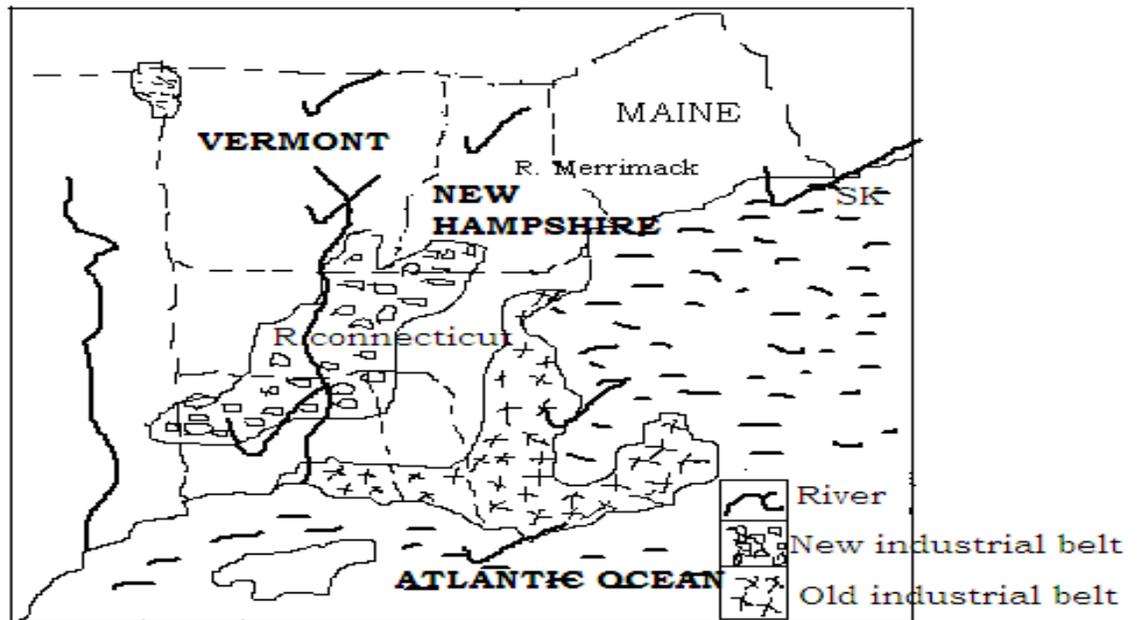
Measures being taken to improve agriculture in New England;

- Using glass houses to control winter problems.
- Carrying out intensive research to introduce quick maturing and high yielding crop varieties.
- Exporting of commodities to widen market.
- Spraying with pesticides to control pests and diseases.
- Conserving soils through contour ploughing and mulching to improve soil fertility.
- Using of machines to solve labour shortage.
- Applying of fertilizers to improve soil fertility.

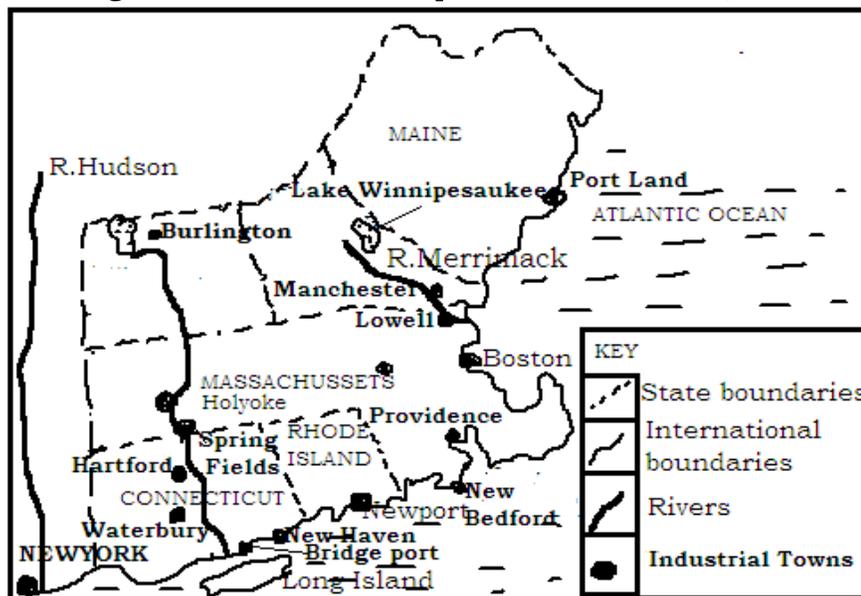
MANUFACTURING SECTOR IN THE NEW AND OLD INDUSTRIAL REGIONS

1. (a) Draw a sketch map of New England and on it, mark and name;
 - (i) Water bodies; Atlantic Ocean and river Connecticut,
 - (ii) The Old industrial region,
 - (iii) The new industrial region,
 - (iv) States; Vermont and New Hampshire.
- (b) Describe the factors that led to the shift of industries from the old to the new industrial region.
- (c) Explain the importance of manufacturing industries to New England.
- (d) Outline the environmental problems which have resulted from the establishment of industries in New England.

(a) **A sketch map of New England showing the Old and the New Industrial Belts;**



Study the figure below: sketch map of Old and New Industrial regions of the New England and answer the questions that follow;



- (a) (i) Rivers; A is R. Merrimack, B is R. Connecticut.
 (ii) Old industrial towns; 1 is New Haven, 2 is Providence.
 (iii) New industrial towns; 3 is Springfield, 4 is Manchester.

(b) **Conditions which have led to the decline of industries in the old industrial region; / Factors for the shift of industries from the Old to the New Industrial region;**

- Shortage/ Decline in cotton production which was the main raw material for the textile industry in the old industrial region.
- Competition from the new industries in the new industrial belt using synthetic materials.
- Highly skilled labour in the new industrial belt using raw material saving technology.
- Introduction of new energy sources like HEP in the New industrial belt after the depletion of coal and oil in the old industrial belt.
- Shift of market from the old industrial belt due to increased population in the new industrial belt that provided large market.
- High labour costs in the old industrial region which led to increased costs of production.
- Better working conditions in the new industrial belt led to migration of labour from the old to the new industrial belt.
- High transport costs since most of the industrial raw materials like coal, oil had to be imported.
- Outdated technology in the old industrial belt was outcompeted by advanced technology in the new industrial belt.
- Congestion of industries in the old industrial belt necessitated a shift to the new industrial region where there was space.

(c) **Importance of manufacturing industries to New England;**

- Production of diversity/variety of goods and services for the population.
- It has led to the development of infrastructure such as roads, railways, water transport system for the transportation of products to market centres.
- It is a source of income to the people thus improving their standard of living.
- It is a source of revenue to the government through taxes levied on manufacturing companies and also workers' incomes.
- It has provided employment opportunities to the people of New England thereby improving their standard of living.
- It has led to advancement in technology through acquisition of skills in the relevant manufacturing sectors.
- Provides market to the agricultural and mining products.
- Foreign exchange is earned through exportation of industrial goods.
- It has led to growth of towns/urban centres like Boston, New Bedford which offer accommodation.
- Has led to diversification of the economy of New England thereby reducing overdependence on Agriculture.
- Has promoted international relationship through trade in manufactured goods.
- Industrial exports to Britain have earned New England foreign exchange.

- (d) **Environmental problems which have resulted from the establishment of industries in New England;**
- Pollution of the environment that is air, water and land by industrial emission/wastes.
 - Loss of vegetation cover/biodiversity through industrial establishments.
 - Exhaustion of raw materials hence leading to decline in the production of such goods like cotton for textiles industries, minerals leading to closure of mineral related industries.
 - Migration of labour leading to disruption of social setup.
 - Overpopulation within the industrial region has resulted to overcrowding /congestion.
 - Development of urban centers with related problems like prostitution, drug abuse, terrorism.
 - High cost of water extraction and purification of both domestic and industrial uses.
 - Decline in the water table leading to shortage of drinking water.
 - Global warming leading to unpredictable weather changes/accumulation of green house gases.
 - Poor visibility due to smog and fog causing accidents.
 - High cost of water treatment/purification for domestic and industrial use.
 - Shortage of land/competition for land for other activities.
2. (a) Draw a sketch map of New England and on it mark and name
- (i) Appalachian Mountains, (iii) Rivers; Connecticut and Merrimack,
 - (ii) Atlantic Ocean, (iv) Industrial Centres; Boston, New Bedford and Holyoke.
- (a) **A sketch map of New England showing selected features;**
Refer to the previous maps.
- (b) (i) Types of industries found in any **one** industrial centre named in (a) (iv) above.
- **Boston;** Chemical industries, Printing and publishing, Textile industries.
 - **New Bedford;** Ship building, Printing and Publishing.
 - **Holyoke;** Paper industry, Machinery manufacture, chemical industries.
- (ii) **Conditions which have favoured the establishment of industries in New England;**
- Presence of vast land for industrial establishment.
 - Availability of ready market both domestic and foreign.
 - Availability of well developed transport network like roads, railways, ports and airports that facilitate movement of goods.
 - Availability of huge supply of Hydro Electric power to run industrial machines.
 - Availability of large sums of capital to buy raw materials and pay workers.

- Production of high quality goods that can compete with goods from Japan.
- Better working conditions among workers that allow large scale production.
- Availability of highly skilled labour to work in industries.
- The need to have new industries as old industries were phased out.

Benefits of industries in New England;

- Industries provide skills to their workers through on-job training and short courses.
- Provide social and economic services like accommodation.
- Led to growth of towns like New Bedford, Holyoke.
- Provides market for agricultural products like cotton for textiles.
- Promotes international cooperation with countries that import industrial goods.
- Stimulated infrastructural development like roads.
- Industrial exports bring in foreign exchange needed to develop the region.
- A source of government revenue through taxes and such revenue is used to develop roads and hospitals.
- Provides consumer goods to the public like garments.
Great employment opportunities from which workers get income to improve on their standard of living.

(c) Problems which have faced the industrial sector in New England;

- Shortage of raw materials limits large scale production.
- Congestion in the major cities like Boston leads to delays.
- The Appalachian Mountains create transport problems leading to delays.
- Competition for market with other industrialized nations like Britain.
- Limited land discourages industrial expansion.
- High cost of paying and maintaining labour reduces the profit margin.
- Changes in tastes and fashion limit production.
- Shortage of energy leads to wastage.
- Pollution discourages industrial operations.

(d) Steps being taken to solve the problems in (c) above;

- Introducing of raw material saving technology to minimize raw materials.
- Relocation of industries to reduce on congestion.
- Using of capital intensive technology to reduce labour shortage./Adoption the use of machines like conveyor belts to solve labour shortage.
- Carrying out market research to increase market for the industrial products.
- Relocating of industries to new areas where labour costs are lower.
- Using railway transport to reduce on transport costs.
- Importing of raw materials to supplement on available raw materials.
- Developing of alternative energy source to reduce the inadequate energy supply.

Study the table below showing the processing of Mackerel and Hake in New England and answer the questions that follow; **Table 48**

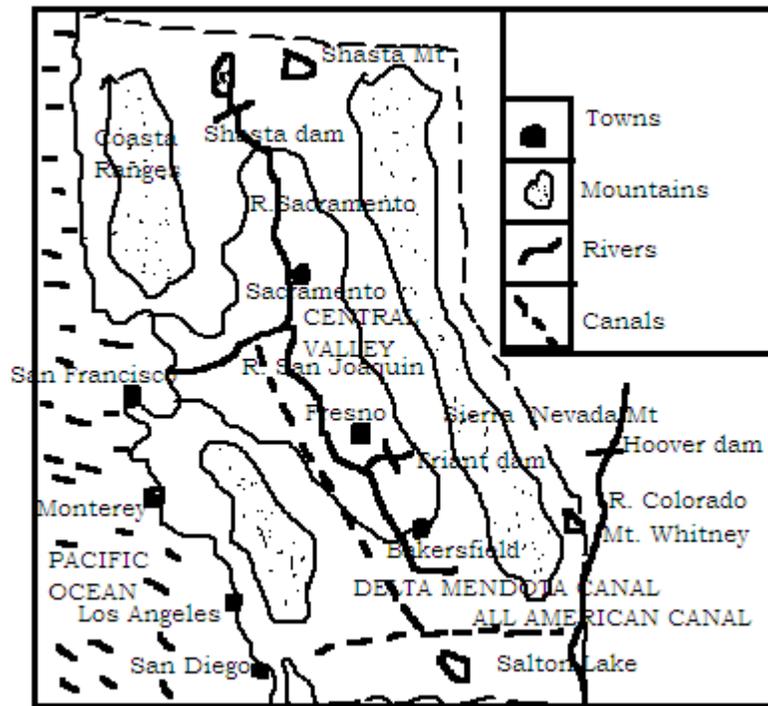
Processing Method	'000 tonnes
Canned	637,000
Frozen	12,000
Fresh	2,000
Smoked	1,000
Fish oil meal	2,000

Adapted Hughes, etal, (1988) North America Study of development

- (a) Draw a pie chart to the relative importance of the fish processing methods.
- (b) (i) Which processing method is most popular?
(ii) Why is the canning method identified in (b)(i) above most popular
- (c) (i) Name **two** fishing ports in New England.
(ii) Describe the conditions which have favoured fishing in New England.
- (d) Explain the problems facing fishing in New England.

CALIFORNIA AGRICULTURE

1. (a) Draw a sketch map of California and on it mark and name;
(i) Towns; Sacramento and Fresno, (iii) Rivers; San Joaquin and Sacramento,
(ii) Mountains; Sierra Nevada and Coastal Ranges, (iv) Canal; Delta Mendota.
(a) **A sketch map of California showing selected Towns, Rivers Mountains and Delta Mendota Canal;**



(a) (i) **characteristics of market gardening;**

- Land is intensively cultivated.
- Mainly carried out in or near urban centres.
- It is highly mechanized.
- Products are sold while still fresh.
- Fertilizers are applied to improve soil fertility.
- There is irrigation farming to avoid crop failure.
- It involves growing of fruits and vegetables for sale.

(ii) **Conditions that favoured market gardening in the Central Valley;**

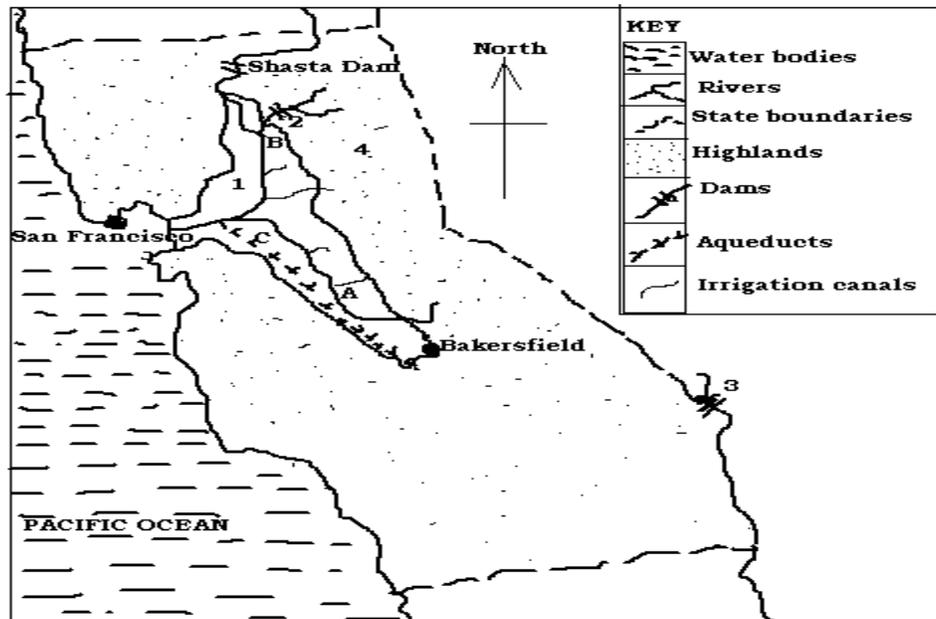
- Many rivers like Sacramento and San Joaquin provide water for irrigation.
- Presence of fertile alluvial soils deposited from Sierra Nevada ranges allows proper growth of crops.
- Relatively gentle landscape in the central valley allows mechanization and gravity irrigation.
- Hot Mediterranean climate and sunny conditions allow ripening of fruits.
- Vast land in the central valley allows extensive crop cultivation.
- Relative political stability in the central valley allows extensive crop farming.
- Abundant skilled labour to attend to crops.
- Ready market for the produce in towns like Fresno, Los Angeles.
- Large sums of capital to invest in buying machines and chemicals.
- Modern transport facilitates distributions of produce to market centres.
- Supportive government policy of giving tax incentives to framers.

(b) Benefits of market gardening to California;

- Provides market for industrial products like fertilizers, chemicals and farm implements.

- Has encouraged urbanization through provision of constant food supply.
- Provides raw materials for agro based industries such as food canning factories at Fresno and Sacramento.
- Has led to economic diversification thus reducing over reliance on fishing and tourism.
- Has facilitated the development of transport network like Delta Mendota canal.
- Source of government revenue through taxes imposed on farmlands.
- Provides foodstuffs like tomatoes and onions thus improving the standard of living.
- Source of foreign exchange through exportation of market garden crops to Canada, France.
- Has promoted international cooperation between California and importing Countries like Canada and UK.
- Provides employment opportunities to framers from which they get income hence improving their standard of living.

Study the figure below showing California and answer the questions that follow;



- (a) (i) Valley 1 is Central Valley.(ii) Rivers; A is River San Joaquin, B is River Sacramento
 (iii) Dam 2 is Oroville dam, 3 is Parker dam.(iv) Aqueduct C is Delta Mendota canal or California Aqueduct.
 (v) Mountain 4 is Sierra Nevada.

(b)(i) **Any two crops in California;**

- Cereals like Wheat, barley, sugar beet, Cotton, Rice, Maize,
- Vegetables like cabbages, lettuce, lemon,
- Fruits like pears, apples, oranges, dates, and vines, citrus.
- Fodder crops like Alfa -Alfa, Hey.

(i) **Conditions favouring agricultural activities in California;**

- Fertile alluvial soils in the Central valley eroded from the Sierra Nevada ranges support the growth of variety of crops.
- Presence of numerous rivers which provide water for irrigation e.g. River Sacramento, River San Joaquin, etc.
- Availability of extensive land on the Central valley for crop growing.
- Cool temperate climate which allows the growth of temperate crops like wheat and barley.
- Some areas have modified Mediterranean climate/warm sunny summer and mild wet winter climate which favours the growth of citrus fruits.
- Use of advanced technology of irrigation/canning of agricultural products/mechanized agricultural/refrigeration.
- Intensive research leading to improved variety of crops like fruits, cereals and vegetables.
- Availability of abundant skilled and semiskilled labour to operate the machines/carry out scientific methods of agriculture/truck farming.
- Presence of ready market for the agricultural products.
- There is relatively flat land in the central valley which allows irrigation farming/use of machines.
- Availability of large capital to invest in farming activities.
- Presence of reliable power/HEP which is used for heating, lighting agricultural green houses.
- Frost free conditions for a long period in a year in the Central valley and Imperial Valley of California facilitate growing of crops.
- Low incidence of pests and diseases favour the growing of crops.
- Practice of mixed farming which offers complementary benefits like provide manure.
- Presence of modern transport to distribute agricultural products.
- Favourable government policy to support agricultural/modern agricultural activities.

(c) **Contributions/Benefits of agriculture to the development of California;**

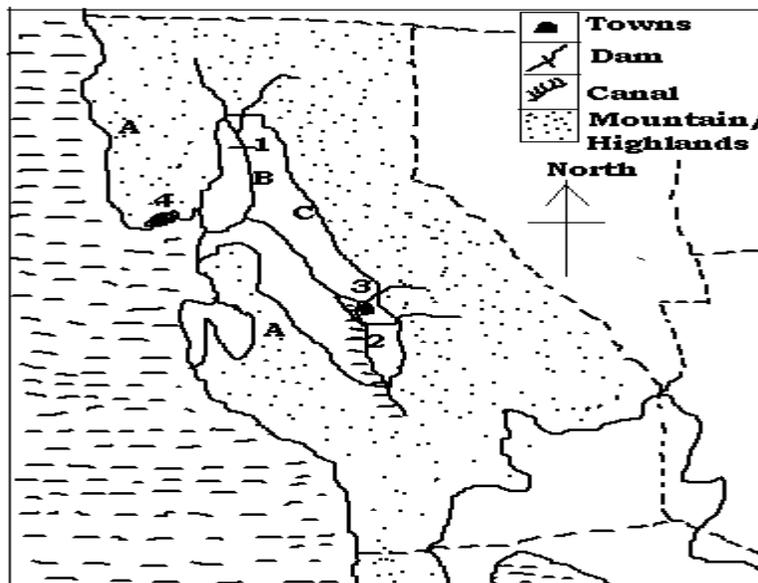
- It offers employment to the population.
- Exports of agricultural products lead to foreign exchange.
- Increased incomes/standard of living for the farmers.
- Development of infrastructure like HEP stations, aqueducts, Canals, railway lines.
- Production of food for the population.
- Production of raw materials for the agro-based industries like textiles, wine processing, fruits canning.
- Growth of towns/urban centres like Fresno, Sacramento, San Francisco.
- Provision of market for industrial products.
- Diversification of the economy.
- Provision of government revenue.
- It has led to international relationship with Countries that import the agricultural products from California.

- There has been development of industries like those that supply chemicals and those that supply agricultural raw materials.

(d) **Steps being taken to promote agricultural sector in California;**

- Diversifying of agricultural activities that is growing of crops and rearing of animals.
- Mechanizing agricultural to cultivate extensive land areas.
- Specializing in high value crops.
- Constant dredging of rivers, canals and aqueducts.
- Using of green houses to protect plants from frost/harsh weather.
- Researching in new crop varieties and animal species which are more resistant to pest and diseases.
- Extending of canals and aqueducts/transfer of water from well watered hilly areas to those with low amounts of water/land reclamation.
- Applying of fertilizers/manure/organic farming.
- Constructing of water reservoirs.
- Searching for market of agricultural products.
- Spraying of crops with pesticides.
- Applying of herbicides to control weeds.

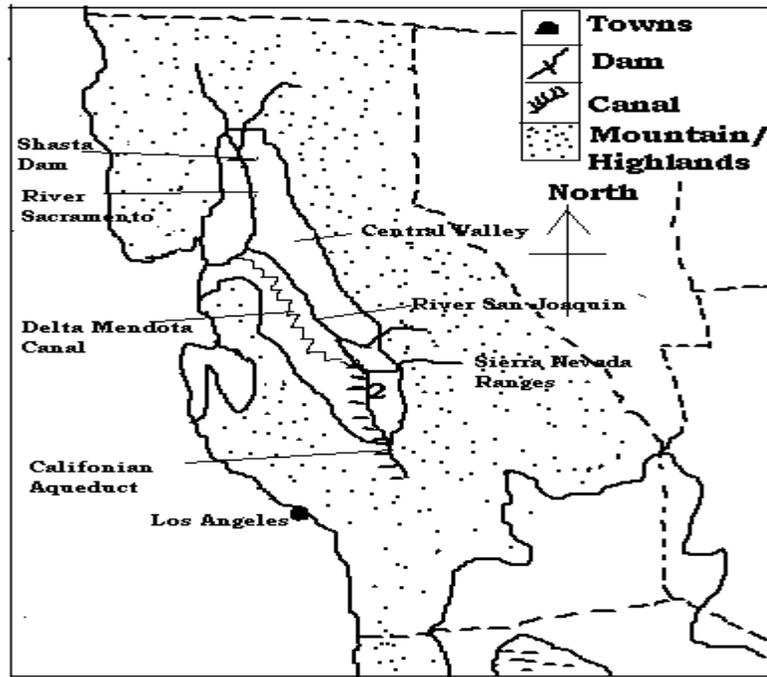
Study Figure below: Map of California provided below and answer the questions which follow;



- (a) (i) Mountain ranges; A is Coastal ranges, (iv) Dam 1 is Shasta Dam.
(ii) River B is River Sacramento. (v) Canal 2 is Friant Kern Canal
(i) Valley C is Central Valley (vi) Towns; 3 is Fresno, 4 is San Francisco

(b) **Factors which have favoured cotton growing in California;**

- Arid areas of the Central Valley, San Joaquin with low incidence of pest and diseases.
- Existence of large expanse of land for growing cotton.



(b) **Conditions which have favoured irrigation farming in California;**

- The area is semi-arid/receives low and unreliable rainfall necessitating irrigation.
- Excessively hot temperatures which cause high evaporation rates.
- Low soil water balance due to hot temperatures.
- Presence of permanent rivers which provide water for irrigation e.g. river Sacramento, River San Joaquin.
- High levels/advanced/improved technology to construct dams canals, aqueducts, others.
- Warm sunny conditions for the ripening of crops.
- Gently sloping land which allows water flow by gravity.
- Availability of relatively flat land/gentle slopes favour easy mechanization.
- Low incidence of pests and diseases due to hot temperatures.
- Availability of extensive/vast/large land for establishment of irrigation farms.
- Presence of fertile alluvial soils deposited by rivers favours crop growing.
- Availability of large/adequate/abundant capital to invest in irrigation farming.
- Improved research leading to a variety of crops grown like fruits, vegetables, legumes, others.
- Skilled and semi-skilled cheap labour to do work in commercialized irrigation farms.
- Availability of large/wide market for the crops grown both at home and abroad.
- Supportive government policy which encourages irrigation farming.
- Improved/well developed/efficient transport network based on rails, water, and air to transport agricultural products.

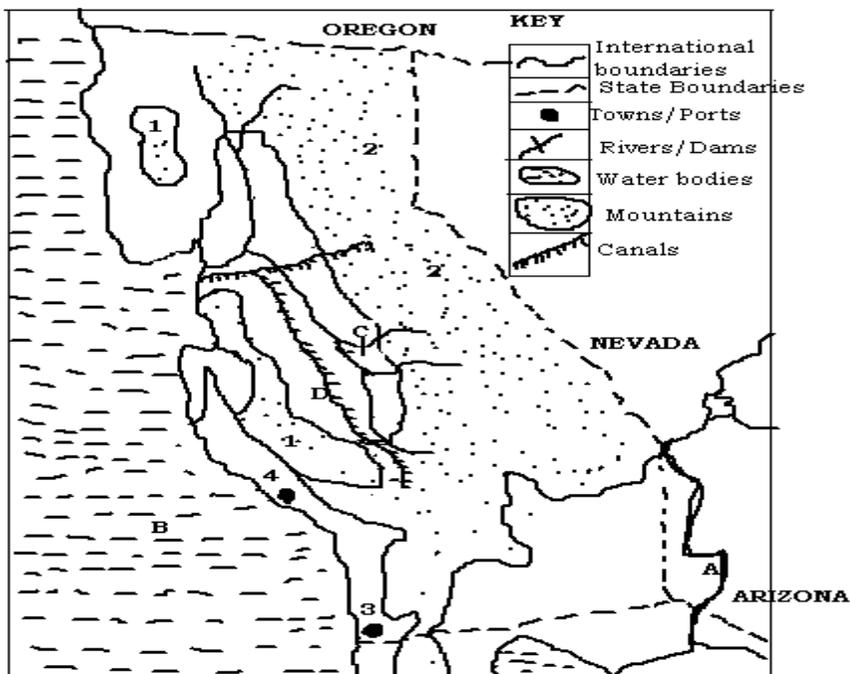
- Formation of strong co-operative societies to overcome high cost of irrigation farming.
- (c) **Contributions of the agricultural sector to the development of California;**
- Source of food like vegetables, fruits, legumes for both human and animal consumption.
 - Provides employment opportunities to population which improves their standard of living.
 - Provides raw materials to the agro-based industries.
 - Yield local income for the people leading to improved standards of living.
 - Earns government foreign exchange through exports thus supporting infrastructural development.
 - Diversification of the economy as therefore providing alternative source of foreign exchange.
 - Growth of towns/urbanization e.g. Los Angeles, Fresno, Bakersfield and the associated advantages like jobs, easy communication, others.
 - Provides revenue to the government through taxes for economic development.
 - Has led to industrial development which provides employment opportunities to people.
 - Promoted international relations through trade with other countries like Britain, China, and Japan.
 - Has led to river basin management hence efficient and sustainable water management.
 - Has led to development of infrastructure such as roads, railways, canals, dams, aqueducts, towns, others.
- (d) **Measures being taken to improve the agricultural sector in California;**
- Cloud seeding to increase the supplement on the amount of precipitation.
 - Recycling of water/waste treatment.
 - Construction of water reservoirs to supplement water for irrigation.
 - Reclaiming of dry lands for crop growing/production.
 - Extension of canals and aqueducts to transfer water to the farms.
 - Spraying of crops with insecticides and pesticides to control pests and diseases.
 - Practicing mixed farming to encourage inter-dependence between crops and livestock.
 - Use of machines for extensive farming.
 - Specialization of farming activities.
 - Use of fertilizers/manure/organic matter.
 - Constant dredging of canals to allow efficient flow of water for irrigation.
 - Market research/international co-operation to widen market.
 - Improved research into better yielding, fast maturing and disease resistant crop varieties.
 - Importation of labour/Hiring during harvesting season.
 - Formation of strong co-operative to give loans to farms.

Problems arising from irrigation farming on the physical environment;

- Use of the chemicals and pesticides contaminates the crops.
- Encroachment on marginal lands like wetlands near urban centres.
- Encourages easy spread of water borne diseases like Bilharzia.
- Silting of river Sacramento and San Joaquin limits navigation.
- Growth of weeds affects growth of crops.
- Over use of fertilizers and chemicals has led to land degradation.
- Over use of irrigation has led to salination and reduced land productivity.
- Has led to land fragmentation that reduces its productivity.

TOURISM IN CALIFORNIA

Study figure below provided and answer the questions that follow;



- (a)(i) Water body **A** is R. Colorado, **B** is Pacific Ocean.
(ii) Dam **C** is Friant Dam (iii) Canal **D** is Delta Mendota Canal.
(iv) Mountain ranges; **1** is coastal ranges, **2** is Sierra Nevada ranges
(v) Tourist Centres; **3** is San Diego, **4** is Los Angeles

(b) Factors for the development of tourism in California;

- Presence of a beautiful scenery like Mountains; Sierra Nevada, coastal ranges, snow capped Mtns, cascading waterfalls, clear blue lakes, coastal beaches, many desert landscape which attract tourists.
- Favorable Mediterranean climate with sunny summers facilitate activities like filming, sun bathing and warm wet winters conducive for tourists
- Variety/Diversity of flora and fauna that is coniferous forests, plants, animals like desert foxes and birds attract people from different parts of the World.

- Presence of many summer sports like swimming, winter sports like ice skating and skiing which attract tourist.
 - Well organized tour packages which ease movement of tourists in California.
 - Highly developed transport like roads, airports, cable cars, electrified railways which enable tourists to reach all tourist destinations.
 - Modern accommodation facilities like hotels, Inns, lodges which offer tourists a comfortable stay.
 - Wide spread advertisement in Print and electronic media that exposes California's tourist potentials.
 - Supportive/favorable government policy of organizing indoor and outdoor tourist activities as well as financing the tourist sector.
 - Availability of large sums of capital to invest in the tourism related activities.
 - Presence of highly hospitable people in California who welcome the tourists.
 - Use of many/diversity of international languages like Latin, French, English which makes communication easy for the tourists.
 - High level of advertisement through internet, Brochures, Televisions, magazines widen the market.
 - Abundant skilled labour to work in tourist related activities.
 - Stable HEP that supports the electrification of the transport sector.
 - Political stability that creates favorable environment for tourists.
 - Advanced technology leading to modernization of the tourism industry like space technology.
- (c) **Importance/Benefits of tourism industry to the people of California;**
- Source of foreign exchange/revenue to the government used to develop other sectors of the economy.
 - Source of income to people (tourist guides, transporters and managers) which has improved their standard of living.
 - Has created employment opportunities to tourist guides leading to better standard of living.
 - Has led to protection of the environment that is flora and fauna for future generation.
 - Has led to development of infrastructure like roads, railways, hospitals, museums, entertainment and recreational centres.
 - Has led to diversification of the economy from agriculture to remove dependence on one sector.
 - Has led to urbanization/growth of towns thus bringing social services, trade and commerce closer to people.
 - Has promoted international relationship leading to more trade opportunities.
 - Advertisement of local industries to the outside world leading to expansion of the foreign market.

- Has led to productive use of idle land which would have been unproductive for other sectors
- (d) **Measures to promote the tourist industry/Steps being taken to improve tourism in California;**
- Control pollution of air/water/land in areas rich of tourism through anti-pollution legislations.
 - Diversifying languages to meet a variety of tourists.
 - Maintenance of security for life and property.
 - Intensify on local and international advertisement of the tourist industry.
 - Increasing accessibility to remote areas by cable cars, tunneling, and modification of highways.
 - Joint venture with neighboring countries like Canada to develop tourist sites like the Rockies where there are trans-boundary tourist attractions.
 - Promotion of foreign relationship with other countries to widen market.
 - Training of more skilled labour force to improve on tourism industry.
 - Conservation of natural heritage/tourist assets like historical sites.
 - Diversifying tourist attractions to attracting more tourists.
- NB: **Maintain the word should in each case.**

REGION II

RHINELANDS REGION (EUROPE)

SWIZERLAND

RELIEF

Read the passage below and answer the questions that follow;

“Switzerland as in other highland areas of North West Europe, the landscape has been created by ice. Glaciers formed in Mountains and flowed down hill, enlarging and widening valleys and leaving jagged Scenery. When the ice melted, Lakes were left on the valley floors”

Source: Waugh, D. The World pg 118.

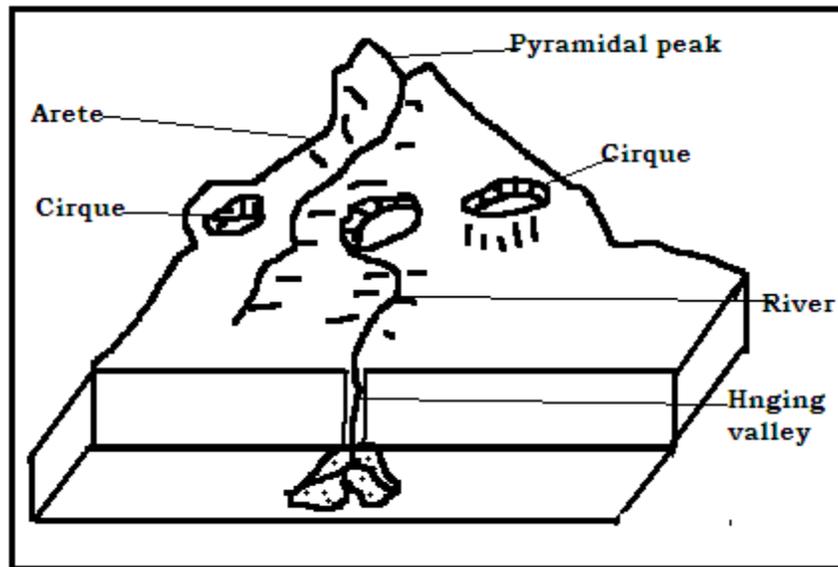
Three glacial features mentioned in the passage; (**Glacial erosion features**)

- Glacial erosion takes through the processes of; Plucking, Abrasion and frost shuttering/Basal sapping/Rotational slip.
- **Plucking** means the removal of rock fragments along the landscape or valley as the glacier moves down wards.
- **Abrasion** is the grinding process in which rock particles like pebbles or boulders in the glacier are used as the grinding tool along the glacial valley.
- **Frost shuttering** is the expansion and break up of rocks due to extreme pressure created by freezing water/ice within the joints. The features formed through these processes include the following;
- **Cirques/ corries**; These are steep sided rock basins/hollows/depressions with a semi-circular shape on a mountain. They formed when a pre-glacial hollow was enlarged by alternating

freezing and thawing of rocks. Abrasion deepened the hollow. When ice melted a tarn lake was formed.

- **Arête**; This is a narrow steep sided ridge between corries / cirques. It formed when two corries widened to form a narrow ridge separating the two corries.
- **Pyramidal peak**; It's a peak of sharp edges radiating from either sides. It is a peak not yet worn out by erosion, formed at the junction of three or more arêtes

Illustration of Glacial erosion features found in the Swiss Alps of Switzerland;



(b) (i) The region is called the Swiss Alps

LAND USE TYPES/; Economic activities taking place in each of the region of Switzerland;

Central plateau/Swiss plateau;

- Agriculture/arable farming,
- Settlement/Urbanization
- industrial development
- Tourism, Transport

The Jura;

- Pastoralism; Sheep and goats rearing.
- Cottage industries. Forestry, mining,
- Transport.

The Alps;

- Tourism,
- Dairy farming/ Pastoralism.
- Forestry, HEP generation.
- Transport.

(b) **The influence of relief on land use in Switzerland;**

- The high relief region of the Swiss Alps offers beautiful sceneries (snow capped mountains, Arêtes) for tourist attractions.

- Mountainous areas are ideal for skiing and skating (winter sports), Mountaineering.
- The rugged high relief areas of the Alps limit areas for agriculture, settlement and transport.
- The Alps have narrow gorges and hanging valleys which are ideal sites for hydro electric power stations.
- The gentle relief of the Swiss plateau is suitable for arable farming, industrial development and settlement.
- The plateau area/region has basins which contain lakes that attract tourists for a variety of tourist activities.
- The Jura has simpler ranges of mountains which are rather flattened and support animal rearing and growing of pastures.

Problems facing land use on the Swiss plateau;

- Land shortage resulting from competition from other forms of land use which makes the cost of land expensive.
- Long winter season (three months of freezing) limits agricultural activities as well as movement of people and goods.
- Over utilization of soils leading to soil exhaustion and heavy dependence on fertilizers.
- High cost of production in the agricultural sector due to use of scientific methods of production.
- Pollution of land, air and water resulting from improper disposal of industrial wastes.
- Seasonal flooding destroys crops and property.
- Occurrence of pests and diseases that affects production activities and quantity of output.
- Limited labour supply due to low population discourages production.
- Short growing period due to long maturing crops.

Measures/Steps taken to address the problems identified above;

- Proper planning for equitable allocation of land to the various industries.
- Planting of fast maturing crop varieties to avoid winter period problems.
- Using of recommended fertilizers to boost the soil fertility of the exhausted soils.
- Specialization and commercialization of agricultural activities to reduce the effects of high production costs.
- Implementing anti-pollution laws to reduce pollution levels.
- Constructing of dams/embankments and dredging of river beds to overcome seasonal floods and siltation of river beds.
- Using of recommended chemicals to check on the effects of pests and diseases.
- Making use of immigrant labour to overcome the problem of labour shortage.
- Mechanizing of farming activities to overcome the problem of limited labour force.

- Using of green house technology in winter to allow crop production in winter.

Problems facing land use in the Swiss Alps/Alpine region of Switzerland;

- The rugged terrain limits land for settlement and agriculture.
- Thin infertile soils on steep slopes limit arable farming.
- Avalanches cause destruction of property, transport, settlement and lives.
- Remoteness of some Alpine areas limits settlement and industries.
- High costs of construction of transport and communication due to rugged relief.
- The North facing slopes are humid and too cold limiting settlement and agriculture.
- Long cold winters restrict human activities like farming and industrialization.

Steps being taken to solve the problems above;

- Establishing of HEP stations to provide electricity for transport and communication.
- Developing of cable cars and electrified railways to improve on transport in mountainous areas.
- Establishing of early warning systems against avalanches and accident.
- Reservation/utilization of North slopes for forestry activities.
- Development of infrastructure for winter sports and summer centres.
- Carrying out transhumance/movement of animals to Alpine pastures in summers and down the valleys in cold winters to be stay fed (indoor).
- Internal heating of houses and cowsheds during winters.
- Using of green house technology to sustain crop growing throughout the year.
- Diversification of landuse like tourism.

(a) A sketch map of Switzerland showing selected features;

Land use in each of the physical regions of Switzerland;

Jura;

- Dairy farming, - Arable farming, - Mining - Tourism
- Pasture production, - Industrialization, - Transport, - Settlement
- Urbanization

Swiss plateau/Central Plateau;

- Arable farming, - industrialization, - Urbanization, Transport
- Dairy farming, - Settlement, - Fishing, Tourism.

Swiss Alps;

- Tourism, - HEP production, - Forestry, - Settlement, Mining,
- Industrialization, - Settlement, - Transport, - Dairy farming.

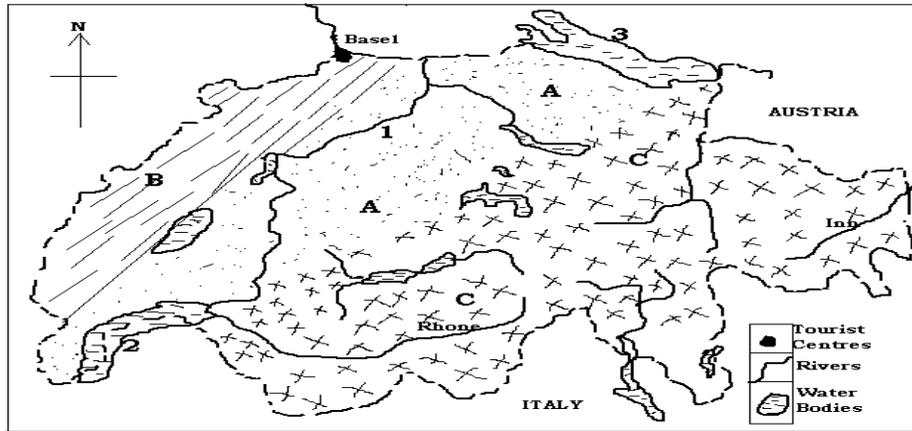
(b) Influence of physical factors on landuse in Switzerland;

Positive influence;

- The Alpine region has rugged terrain/steep slopes encouraging transhumance.

- The flat are ideal/favourable for settlement.
 - The mountains (Alps) have beautiful scenery promoting tourism.
 - The steep slopes are ideal for winter sports like skiing and skating.
 - Waterfalls are suitable sites for generation of HEP.
 - Rugged relief/steep slopes encourage the use of cable cars to access the remote areas.
 - Areas of gentle slopes on the Swiss plateau are ideal/ suitable for arable faming, manufacturing industry, settlement, Urbanization/towns.
 - The beautiful clear blue lakes promote tourism activities like sun bathing, photography, summer sports.
 - Low relief of the Jura favours industrialization like watch making, Craftand Cottage industries.
 - The existence of Alpine forests on the mountain slopes leads to development of forestry industry.
 - Infertile soils promote growth of rough pasture for dairy cattle, sheep and goats.
 - Thin skeletal soils of the Alps favour the growth of pasture on the upper slopes for dairy farming.
 - Fertile soils in the valleys favour growth of fodder crops for dairy farming.
 - The morrainic sandstones of the Swiss plateau are suitable for arable farming.
 - Rivers and lakes on the Swiss plateau are used for water transport.
 - Cold climate of the Alpine region leads to accumulation of snow favouring tourism like winter sports (skiing and skating).
 - Modified temperate/continental climate of the Swiss plateau promote arable farming and tourism.
 - The moist summers of the Jura promotes pasture growth for dairy cattle, sheep and goats.
 - Existence of minerals like salt in Jura at Basel and Rhone Valley has encouraged mining activities.
- Negative influence;**
- The steep slopes on the Alps discourage settlement, transport and arable farming.
 - Thin infertile soils of the Alps discourage arable farming.
 - Infertile limestone soils on the Jura discourage arable farming.
 - Steep slopes in the Alps experience avalanches which are destructive to farming

Study figure below: Map of Switzerland provided below and answer the questions that follow;



(a)(i) **Physical regions;**

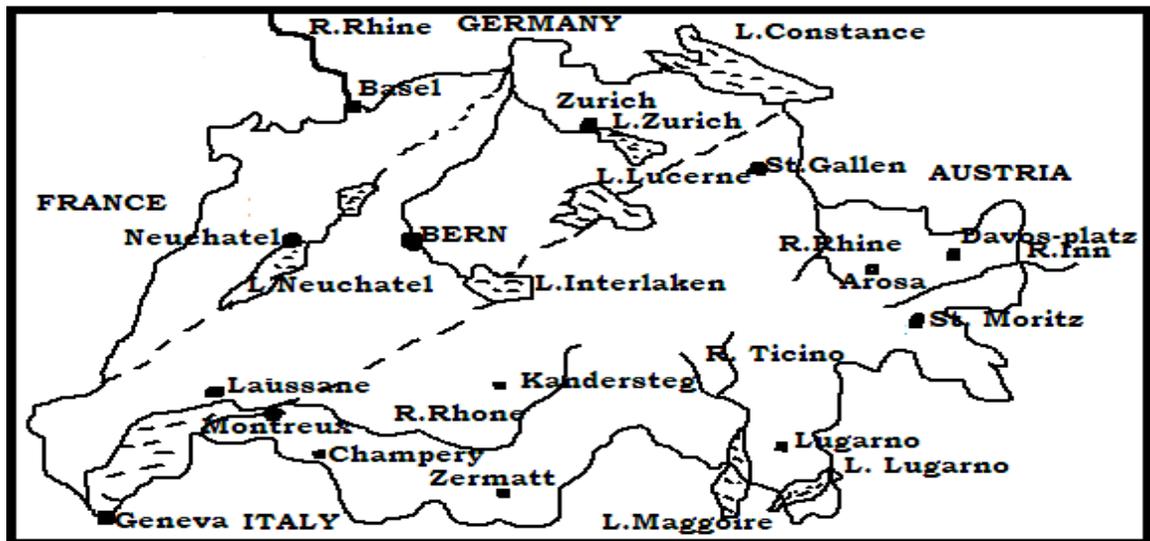
A is Swiss plateau/Central plateau,

B is The Jura, C is The Swiss Alps (ii) River 1 is R. Aare,

(iii) Lakes marked; 2 is L. Geneva, 3 is L. Constance,

TOURISM INDUSTRY IN SWITZERLAND

A sketch map of Switzerland showing major tourist resorts for Summer and winter



Tourist attractions found in both Rhinlands and East Africa;

- Snow capped mountains(mountain Rwenzori and Swiss Alps)
- Wild life inform of Zebras, Lions elephants
- Drainage features e.g. waterfalls, lakes
- Historical sites like Nyero rock paintings, Olduvai Gorge, Kasubi tombs.
- Industries like food processing and tertiary industries.

Identify four tourist attractions found in Switzerland.

- Beautiful scenery based on snow capped mountains, pyramidal peaks and hanging valleys.
- Historical sites.
- The Swiss Alps.
- Lakes in the Swiss plateau and Jura attracts sun bathing and swimming.

- Hot air ballooning in summer.
- Variety of industries.

Identify three tourist attractions in Uganda which are not in Switzerland.

- Block mountains. - Lava dammed lakes
- Wild life. - Diversity of culture.
- Hot Spring. - Volcanic features.

Swiss tourist attraction in summer;

- Clear blue lakes and rivers, - Sun bathing along the beaches.
- Swimming in lakes and rivers, - Hot air ballooning.
- Viewing beautiful scenery like pyramidal peaks, hanging valley,
- Mountaineering, - Boat racing/Sailing - Photography

Swiss tourist attraction in winter;

- Ice skiing and ice skating, - Snow capped mountains for viewing.
- Glaciated landscape for viewing. - Ice fishing.

Tourist centres/Resorts in Switzerland during winter;

- Neuchâtel- Basel, Kandersteg.
- Davo-platz - St. Moritz

Tourist centres/Resorts in Switzerland during summer; (those in Swiss plateau)

- Geneva, - Zurich - Bern, - Lucerne, -Interlaken,

Factors/conditions which have led to development of tourists industry in Switzerland;

Physical factors

- Central location of Switzerland in the heart of Europe and thus easy to access by tourists who come from the European countries like France, Germany and Italy
- Magnificent scenery of snow capped mountains/Beautiful tourist attractions like pyramidal peaks, clear blue lakes, hanging valley, waterfalls.
- Existence of numerous tourist attractions during both winter and summer e.g. winter sports, beautiful scenery, sunbathing, swimming, flora and fauna.
- Existence of various climatic seasons enables Switzerland to diversify the tourism sector.
- Warm sunny summers for sunbathing, clear blue skies attract tourists, winter sports like mountaineering/skiing on the snow-capped mountains are a tourist attraction.

Human factors

- Well developed transport network e.g. electrified railways, cable cars, roads, and water transport for tourists to access the tourist sites
- Industries also act as tourist attractions.
- Huge power that has enabled the electrification of the railway systems that connect to tourist resorts like St.Moritz favouring tourism.

- Well developed and comfortable hotels, lodges, holiday apartments and camping sites that keep pace with tourism demands.
 - Well trained personnel in managing the tourism industry./ Abundant skilled labour to work that is tourist guides, hotel managers.
 - Strong advertisement through various ways like international televisions, brochures, news papers have greatly marketed Swiss tourism.
 - The political stability and neutrality of the Switzerland has greatly led to its development. There are no ravages of wars which attracts many visitors annually.
 - Supportive government policy of neutrality has attracted tourists from various countries.
 - Hospitality of the Swiss people who welcome people from different parts of the world.
 - Modern systems/technology e.g. electronic banking, money transfer, on line booking for easy access of all services.
 - Well developed accommodation facilities e.g. hotels, chalets inns, etc.
 - The Country is a home of many international organizations like Red Cross, World Health Organization. This makes the Country host so many people.
 - Diversity of international languages like English, French, and German eases communication which favours tourism.
 - Development of social travel agencies which organize tour and travel packages on a very large scale.
 - Large sums of capital to invest in the tourist industry.
- Factors which have favoured tourism in the Swiss plateau:**
- Existence of winter and summer tourist attractions like summer (fishing, swimming, sunbathing, clear blue lakes), winter (Skating, skiing snow capped Mtns).
 - The Swiss plateau has a relatively flat area allowing establishment of tourist resorts.
 - Moderate climatic conditions with relatively less severe winters than in the Alpine region and relatively warmer in summer allow sunbathing and other summer sports.
 - Presence of numerous lakes ideal for fishing, swimming and rafting.
 - Swiss plateau has efficient transport by roads, railways and water ways.
 - Relatively flat/gentle relief thus easily accessible.
 - There is ample space/vast land for establishment of tourist centres.
 - Adequate capital to invest in tourism activities.
 - Existence of modern accommodation facilities like hotels attract many tourists.
 - Diversity of languages for easy communication.
 - Presence of skilled labour in hotels as tourist guides and managers.
 - Relative political stability of Switzerland which encourages tourists.
 - Central location of Switzerland which offers it easy access from the rich European countries.

- High degree of advertisement through electronic, print media, internet, Magazines and brochures.
- Hospitality of the Swiss who welcome people from different parts of the world.
- Neutrality of the Swiss government has put them in a friendly relation with other countries.
- Possession of the Headquarters of many international organizations like Red Cross at Geneva.

Factors/Reasons why the tourism industry in East Africa is less developed than that of Switzerland;

- Limited skilled man power work in the tourist industry of East Africa.
- Many poachers who have continuously killed animals yet they are the major tourist attraction of East Africa.
- Political instabilities/terrorism in some parts of East Africa scares away tourists from coming to East Africa.
- Underdeveloped accommodation and tourist resorts that don't match with international standards.
- Some unfriendly and hostile tribes in East like Karamajongs, Turkana, and Masai, scare away tourists from coming to East Africa.
- Presence of many dangerous diseases like Malaria, AIDS scare away tourists from coming to East Africa.
- Under developed transport facilities hinder accessibility to tourist attractions of East Africa.
- Far location of East Africa from the sources of tourists that is Europe and America.
- Low level of advertisement which makes potential tourist unaware of what East Africa can offer in terms of tourism.

Benefits of tourism industry to Switzerland;

- Has earned Switzerland foreign exchange from tourists who pay for the lodging (hotels) and tour charges.
- Provides employment opportunities to many tourists in Switzerland employed in hotels, camp sites, tourists attractions, and transport sector.
- Has facilitated the development of infrastructure like roads, communication networks, and hotels.
- Has promoted the conservation of fauna and flora.
- Provides market for other products like agriculture, industrial and hence increased incomes.
- Promotes international relations/ cooperation with other countries where Tourists come.
- Generates revenue through taxation leading to development of other sectors.
- Has led to urbanization/growth of Towns and related benefits like accommodation at Zurich, Neuchâtel, St.Moritz, and Geneva.
- Has led to productive use of would be wasteland for example the glaciated Alps in Switzerland and utilization of the winter season.

- Has stimulated the growth of light industries like watch making and electronic equipment consumed by the tourists.
- Has led to development of well trained labour in the hotel industry.
- The tourism industry has brought Switzerland to the international fame.
- Has led to economic diversification therefore reducing overreliance on arable farming.
- Development of infrastructure like cable cars and electrified railways

Challenges/problems facing the tourism industry in Switzerland:

- Accidents especially during winter sports like skiing/skating/mountaineering leading to death of tourists.
- Avalanches/Moving ice which destroys life and property.
- Stiff Competition with other European countries as tourist destination.
- Global economic recession/decline leading to increased costs of travel and accommodation thus fewer tourists received.
- Rugged terrain in the Alpine region limits movement to some areas.
- Severe cold winters at times discourage tourist especially in the Swiss Alps.
- Pollution and acidic rains in areas with industrial development.
- Competing land uses especially Jura tourism against Agriculture and industry.
- Shortage of skilled labour due to a small population in Switzerland.

Benefits of the tourist industry to both the Rhinelands and East Africa:

- Tourism industry earns the Countries foreign exchange. Tourist pay for lodges (hotels) and tour charges.
- The industry provides employment opportunities to hundreds of thousands of people in the countries. They are employed in hotels, camp sites tourist attractions and transportation. They get income from this.
- Tourism has led to growth of towns like Zurich, Lucerne, St. Moritz and Geneva. Mombasa, Kampala, Dar-es-salaam in East Africa.
- The Sector has stimulated development of infrastructure like roads, communication networks, Schools and hotels.
- Has led to economic use of regions which would not be viable for any other economic activity e.g. the mountainous Swiss Alps and utilization of winter season, Agriculture resources in East Africa.
- Has led to development of well trained labour force in the hotel industry.
- The industry has brought Rhinelands and East Africa to international fame.
- Tourism has stimulated growth of light manufacturing industries producing items like watches and electronics equipment consumed by tourist, art and craft industry in East Africa.
- Has facilitated industry development of art and craft industry which produce drums, baskets, stools brought by tourist.
- Has promoted economic diversification thus ensuring a steady in-flow of foreign exchange.
- Has promoted international understanding between Rhinelands, East Africa and the origin of tourist e.g. USA and Britain.

What steps has Ugandan government taken to improve the tourist industry?

- The tourist attractions have been advertised intensively on radios, TVs, News Papers.
- The government has put up strict laws against poaching.
- New national parks have been gazzetted like Mt. Elgon.
- Many roads have been constructed to improve accessibility.
- Many lodges and hotels have been constructed.
- Political instability in some parts of Uganda has been suppressed.

Study **Table 16** below showing Switzerland's overnight tourist stays in selected Communes in 2009 and answer the questions that follow;

Table 49: Switzerland's overnight Tourist stays in selected communes (2009)

Region	Commune	Overnight Stays ('000s')
Plateau	Geneva	1,891
	Bern	682
	Zurich	2,469
Jura	Basel	1,016
Alps	Lugarno	565
	St. Moritz	791

Adapted; The Swiss Tourism statistics, FSO (2010), p26.

- (a) Draw a bar graph to represent overnight tourist stays in Switzerland by communes in 2009.
- (b) Calculate the total number of tourist stays in the Swiss;
- (i) Alps, (ii) Plateau.

- (a) A bar graph showing overnight tourist stays in Switzerland by communes in 2009.

(Use your graph book)

- (b) Total number of overnight tourist stays;
- (i) Alps = $565,000 + 791,000 = \mathbf{1,356,000 \text{ tourists}}$.
- (ii) Plateau = $1,891,000 + 682,000 + 2,469,000 = \mathbf{5,042,000 \text{ tourists}}$.

Study **Table 50:** showing overnight tourist stays in selected communes in Switzerland and answer the questions that follow;

Region	Commune	Overnight stays ('000s)
Alps	Lugarno	600
	St. Moritz	800
Jura	Basel	1,000

Plateau	Zurich	2,500
	Lucerne	980
	Geneva	1,900
Total		7,780

Adapted from: Swiss Tourism Statistic, FSO (2010) p26.

(a) Draw a pie chart to show Switzerland's over night tourism stays by communes.

Converting values to degrees;

$$\text{Lugarno} = \frac{600,000}{7,780,000} \times 360^\circ = 27.76 \approx 28^\circ$$

$$\text{St.Moritz} = \frac{800,000}{7,780,000} \times 360^\circ = 37.02 \approx 37^\circ$$

$$\text{Basel} = \frac{1,000,000}{7,780,000} \times 360^\circ = 46.27 \approx 46^\circ$$

$$\text{Lucerne} = \frac{980,000}{7,780,000} \times 360^\circ = 45.34 \approx 45^\circ$$

$$\text{Geneva} = \frac{1,900,000}{7,780,000} \times 360^\circ = 87.71 \approx 88^\circ$$

A pie-chart showing Switzerland's overnight tourist stays by communes.

(Use your graph book)

(b) **Percentage of overnight tourist stays for each region in Switzerland;**

$$\text{Alps} = \frac{1,400,000}{7,780,000} \times 100 = 17.99 \approx 18\%$$

$$\text{Jura} = \frac{1,000,000}{7,780,000} \times 100 = 12.85 \approx 12.9\%$$

$$\text{Plateau} = \frac{5,380,000}{7,780,000} \times 100 = 69.15 \approx 69.2\%$$

AGRICULTURE IN SWITZERLAND

ARABLE FARMING

- (a) Draw a sketch map of Switzerland and on it mark and name;
- (i) Lakes; Geneva and Luzern,
- (ii) River; Rhine and Ticino, (iii) Relief regions; Jura, Alps and Switzerland,

(b) (i) **Crops grown on the Swiss plateau;**

- Wheat, Maize, Barley,
- Fruits like Vines/grapes, peers, cherries.

(ii) **Conditions which have favoured arable farming in the Swiss plateau;**

Physical conditions;

- Lower altitude which provides warmer temperatures that allows growth of crops.
- Generally flat landscape allows the use of machines/mechanization
- Fertile moraine soils which support a variety of crops.
- Warm sunny summers, favour ripening and harvesting of crops.

- Limited economic activities due absence of minerals.

Human conditions;

- Intensive research into high yielding crops.
- Availability for ready market for agricultural products due to a large population that is 2/3 of Switzerland in urban centers like Bern, Geneva and Zurich.
- Availability of large capital to invest in arable farming.
- Supportive government policy of emphasizing arable farming.
- Skilled and semi skilled labour provided by the local people to attend to crops.
- High/modern technology like use of glass house/use of various machines.
- Efficient transport like the use of electrified trains facilitates distribution of products to market centers.

(c) **Problems/challenges facing arable farming in Switzerland;**

- Competition for land between various and use types like urbanization verses agriculture,
- Limited /small domestic market for vegetables and fruits discourages framers.
- Pollution of land, air and water due to industrial deposits and effluents, use of agro-chemicals limits soils productivity.
- Very cold temperatures on the North facing slopes limit crops farming.
- Some areas have infertile sandstones which lead to low yields.
- Shortage of labour due to the small population of Switzerland.
- Winter conditions push production costs higher due to construction of green houses.
- Soil exhaustion due to intensive use of land leads to low output.
- Landlockedness makes the agricultural produce more expensive due to high transport costs.
- Pests and diseases lead to low output.
- Rugged terrain limits arable farming.
- Soil erosion due steep landscape leads to low output.

(d) **Steps being taken to improve agricultural sector in Switzerland.**

- Carrying out large scale production to minimize production costs.
- Using fertilizers to improve on soil fertility.
- Using pesticides/spraying to control pests and diseases.
- Carrying out crop diversification to reduce of over reliance on one crop.
- Adopting scientific methods of crop management to improve on productivity/research.
- Using of modern technology like green houses/glass houses to regulate the cold conditions.
- Importing of labour/Using of students on holidays to reduce labour shortage.
- Carrying out regional cooperation like European Union.
- Terracing/contour ploughing to control soil erosion.

LIVESTOCK FARMING IN SWITZERLAND:

- (a) Draw a sketch map of Switzerland and on it mark and name;
- Rivers; Rhone and Aare,
 - Lakes; Constance and Neuchâtel, (iii) Relief regions; Swiss Alps, Plateau and Jura,
- (a) A sketch map of Switzerland showing selected features;**
- (b) (i) **Livestock products obtained from the Alpine region;**
- Beef, Cheese, Milk, Butter, Cream.

Condition favouring the development of livestock industry in Switzerland;

- (ii) Check on the **Conditions which have led to the development of dairy farming in Switzerland;**

Study **Table 51** below showing agricultural land use in Switzerland and answer the questions that follow;

Table 51: Agricultural Landuse in Switzerland

Landuse	Percentage
Arable (Vineyards and Orchards)	09
Food crops	26
Pasture	35
Forest	30
Total	100

Adapted: Hughes, D. and Randle, T. The Rhine Basin: A study of Development; Longman p.38.

- (a) Draw a pie chart to show the relative importance of the different Landuse types.

Conversion of percentage to degrees;

$$\text{Arable} = \frac{09}{100} \times 360^\circ = 32.4^\circ \approx 32^\circ$$

$$\text{Food crops} = \frac{26}{100} \times 360^\circ = 93.6^\circ \approx 94^\circ$$

$$\text{Pasture} = \frac{35}{100} \times 360^\circ = 126^\circ$$

$$\text{Forest} = \frac{30}{100} \times 360^\circ = 108^\circ$$

A pie Chart showing the relative importance of landuse types in Switzerland;

(Use your graph book)

NB: Should have degrees and percentage values.

- (a) (i) Most important is pasture with 35%
- (ii) Least important is arable with 09%

(b) Conditions which have led to the development of dairy farming in Switzerland;

Physical factors;

- Warm summers allow the growth of pastures thus favouring outdoor grazing.
- Relatively flat land in the Swiss plateau which allows easy movement of animals.
- A wide variety of animal breeds that are high yielding,

- Large quantities of water for drinking by the cattle.
- Moderate rainfall allows proper growth of pasture.
- Cold winters permit indoor grazing.
- Abundant pasture and animal fodder crops on which cattle feeds.

Human factors;

- Well established cooperatives which provide subsidies and also market animal products.
- The well developed milk processing plants to preserve milk and milk products.
- Availability of a large market for milk and milk products both internally and externally (Germany, USA and Canada).
- Availability of large sums of capital to invest in the dairy industry.
- Well development transport system for the delivery of milk and milk products to markets.
- Supportive government policy that aimed at self sufficiency in dairy products.
- Political stability of Switzerland has attracted long term investment in the dairy sector.
- Advanced technology e.g. automated milking machines.
- Skilled labour to work in dairy farms.

(c) Contributions of dairy farming to the development of Switzerland.

- A source of food that is animal proteins from milk and milk products.
- Provision of employment opportunities in animals rearing and related industries.
- A source of raw materials for agro based / food processing industries.
- Provides market for industrial and arable farm products.
- Development of infrastructure that is roads and railways.
- Growth of urban centres with related advantages like social services.
- Provision of government revenue through taxation leading to development of infrastructure.
- Provision of foreign exchange through export of dairy products.
- Generation of income to the people leading to improved standard of living.
- Diversification of the economy thus reducing overdependence.
- International relations as a result of trade links/exportation of dairy products.
- Industrial development that is agro – based.
- Animal wastes are used as manure in the arable farms to increase crop yields.
- Utilization of the would be wasteland for transhumance.
- Source of bio-gas for domestic use.

Problems faced by the livestock farmers in Switzerland.

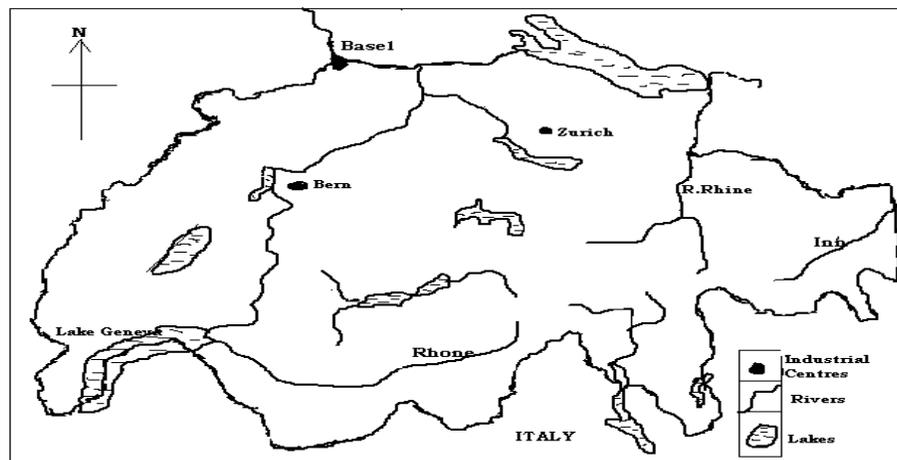
- Labour shortage due to shift of labour of labour to better paying jobs.
- Competition for market from other European Countries that practice livestock farming like Netherlands.
- Steep slopes hinder the development of transport routes.

- Climatic problems like frost and fog hinders proper growth of cattle.
- Scarcity of pasture/fodder crops during winter limits productivity.
- **Measures being taken to improve livestock farming in Switzerland.**
- Growing of fodder crops like maize, and alfalfa to supplement natural pastures.
- Training of livestock farmers through seminars and demonstration ranches to solve the problem of limited skilled labour.
- Modernizing of transport systems to facilitate distribution of livestock products.
- Using of pesticides and chemicals to treat livestock and control pests and diseases.
- Establishing of creameries and milk processors to make use of surplus milk.
- Exporting of tinned milk, butter and Cheese to widen market.
- Using of specialized machines like milking machines to reduce labour shortage.

MANUFACTURING INDUSTRY

- (a) Draw a sketch map of Switzerland and on it mark and name;
- Rivers; Rhine, Rhone,
 - Lake Geneva, (iii) Manufacturing industrial centres; Zurich, Basel and Berne,

(a) **A sketch map of Switzerland showing manufacturing centres and other features:**



- (b)(i) **Types of industries found in each industrial town;**
- **Zurich:** Textiles, Engineering, Food processing, Metallurgical Chemical industries, optical instruments,
 - **Basel:** Pharmaceutical/chemicals, Metallurgical, Food processing, Engineering.
 - **Bern:** Food processing, Chemicals, Textiles, Engineering
 - **Neuchâtel:** Watch making, type writer manufacture, Chocolates making, Cigarettes making.
 - **Lugarno:** Textiles, Food processing, precision industry, Watches, Calculator, tourism.

- **Interlaken:** Food processing, Textiles and tourism
- **PRODUCTS OBTAINED FROM SWISS;**
- **Engineering industries;**
 - i. Engine, iii. Transformers
 - ii. Turbines iv. Type writers, v. Generators
- **Chemical industry;**
 - i. Insecticides, iii. Fertilizers
 - ii. Herbicides iv. Acids
- (ii) **Factors/Conditions which have favoured the development of manufacturing industries in Switzerland;**
 - Abundant and cheap HEP which used to run the industrial machines.
 - Availability of vast land especially on the Swiss plateau for establishment of industries.
 - Cheap transport along the Rhine River, its tributaries, canals, and railway system helps to bring in raw materials and take out fined goods.
 - Highly skilled labour that is employed to work in the precision and heavy engineering industries.
 - The strategic location of Switzerland in the heart of Europe enables her to have access to both external market and large internal markets that exists.
 - Specialization and quality control of products.
 - Presence of the Swiss plateau that is relatively flat for the establishment of the manufacturing industries.
 - Proximity to productive agricultural region which supplies agricultural raw materials for the agro based industries like Textiles, Food processing, others.
 - Availability of large capital for investment in the manufacturing sector.
 - Presence of political stability has attracted long term investment in the industrial sector.
 - The Swiss policy of neutrality where Switzerland has been neutral attracting foreigners to come and invest a lot of money in the Country.
 - Advanced technology for the production high quality goods.
 - The reliable Rhine water way helps in cheap transportation of raw materials and finished goods.
 - Presence of some minerals of great industrial importance.
 - Existence of reliable water supply used for processing purposes, cooling as well as an input in the industries.
 - Intensive advertisement to expand the market for Swiss industrial goods.
 - Positive government policy for development of industries.
 - **Benefits of manufacturing industries to Switzerland;**
 - Development of towns like Interlaken, Basel.
 - Development of infrastructure like railways, roads and housing.
 - Increased incomes hence improved standard of living.
 - Industrial exports earn Switzerland foreign exchange.
 - Taxes imposed on industrialists earn revenue to the economy.

- Has led to diversification of the economy hence reducing over dependence on agriculture.
 - Has promoted international relations through industrial exports and importation of raw materials.
 - Provides employment opportunities to engineers from which they get salary hence improved standard of living.
 - Provides market for agricultural products like dairy, fruits for the agro based industries.
- (c) **Problems/Challenges facing the manufacturing sector in Switzerland;**
- Limited raw materials used in the manufacturing sector as much of heavy industrial raw materials are imported.
 - Landlockedness with no access to the Sea increases the cost of transportation of both raw materials and finished goods.
 - The relief is rugged and accessibility of some markets in the Swiss Alps is costly with the use of electrified railway system.
 - Competition from other producers of heavy engineering and machinery products like Japan, Germany, others.
 - There exists shortage of land for the expansion of industrial areas.
 - Limited domestic market for the industrial goods discourages production/Competition for market with other industrialized nations like Germany.
 - Small domestic market due to a small population.
 - Congestion and delays at the ports during importation and exportation leads to wastage.
 - Winter freezing of River Rhine limits transportation of raw materials and finished goods.
 - High cost of labour that is most of the labour required is skilled but expensive.
 - The precision products are too expensive and complex to manufacture limiting production.
- (d) **Steps/Measures being taken to solve the problems above;**
- **Tense matters so much.**
 - Producing of quality precision goods which conserve raw materials and break the bulk.
 - Producing of goods on order to reduce wastage arising from competition.
 - Importing of raw materials to overcome the problem of scarcity of raw materials.
 - Using raw materials saving technology to reduce the costs.
 - Maintaining political neutrality to minimize trade barriers.
 - Promoting of regional cooperation such as European Union (EU) and European Free Trade Area (EFTA).
 - Promoting of the cottage industries to produce items for sale/assembling at main centres during favourable weather conditions.
 - Increasing specialization to produce massively and cheaply like watches in Geneva, Ribbon and Silk industries at Basel.

- Modernizing of transport by the use of electrified railway system, cable cars to reduce losses.
- Researching for markets of goods to reduce wastage.
- Human resource training/man power development to reduce the problem limited skilled labour.
- Diversifying of the economy into Tourism industry to reduce over dependence on industrial sector.
- Institutionalizing/Setting up of banks to offer credit/loans for industrial development.
- Using of migrant labour from Germany to work in Swiss industrial sector.
- Automating of the industries to reduce problems of limited skilled labour.
- Recycling of industrial materials to solve the problem of limited raw materials and reduce pollution.
- Specializing so as to produce high quality goods.
- Organizing of trade fare/Advertisement.

Study the table below showing Switzerland's foreign trade based on the main categories of goods in percentages (2006) and answer the questions that follow

Table 52

Industry	Percentage imports	Percentage exports
Agriculture	15.5	5.3
Energy	7.0	0.2
Textiles	11.1	9.0
Chemicals	9.7	21.1
Machinery	16.2	31.3
Watches	6.8	18.2
Others	33.7	14.9

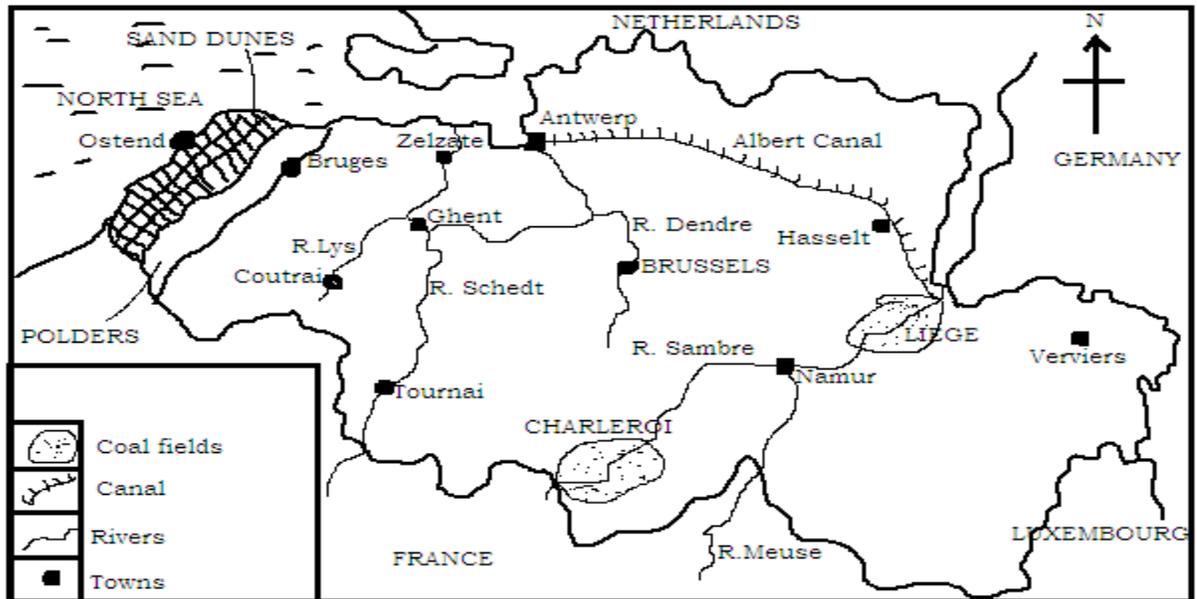
Source; The Swiss Industrial Bureau; European Union Report, Annex 3, 2010.

- (a) Draw pie chart to show the relative importance of Switzerland's export trade in 2006.
- (b) Identify the;
 - (i) Leading export , Least import,
- (c) Explain the factors that have favoured export trade in Switzerland.
- (d) Outline the;
 - (i) Problems facing the Swiss industrial sector,
 - (ii)Steps being taken to overcome the problem of Landlockedness.

BELGIUM MINING INDUSTRY

- (a) Draw a sketch map of Belgium and on it mark and name;
- (i) North Sea and Albert Canal,
 - (ii) Rivers; Meuse, Scheldt and Dendre,
 - (iii) Towns; Brussels, Verviers and Zelzate, (iv) Coal fields.

A sketch map of Belgium showing selected features;



(a) Factors that have favoured Coal mining in Belgium;

- Existence of large quantities of Coal encourages commercial mining.
- Location of coal near the earth's surface reduces the costs of mineral extraction.
- Huge HEP encourages the running of mining machines.
- Modern technology like the use of bucket conveyors for mining has made mining easier.
- Large sums of capital to invest in buying mining machines.
- Supportive government policy to develop the mining sector through providing mining contracts to mining companies and giving loans.
- Political stability since the end of World War II reduced tensions and attracted long term investment in coal mining.
- Intensive research in mineral exploration has led to efficiency and extraction.
- Adequate skilled labour to manage, extract, survey, and transport coal.
- Developed transport based on roads, railways and canals facilitate distribution of Coal.
- Ready market for coal internally and externally allows commercial coal extractions.

(b) Benefits of mining to Belgium;

- Provides a cheap energy source to run industrial machines.

- Provides employment opportunities to miners and transporters hence improving their standard of living.
- Has led to growth of towns like Liege which act as residential centres.
- Provides market to agricultural products like food.
- Has led economic diversification thus reducing over dependence on manufacturing industry.
- Taxes imposed on mines earn government revenue.
- Export of coal to Netherlands earns Belgium Foreign exchange.

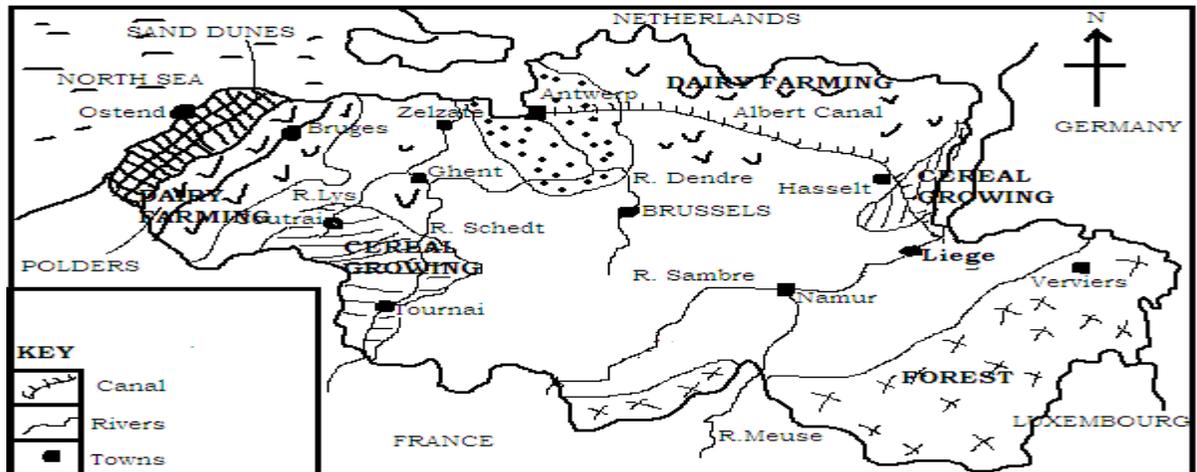
(c) **Effects of mining on the physical environment in Belgium:**

- Accelerated soil erosion and landslides.
- Increased spread of diseases due to stagnant water in depressions.
- Land degradation through creation of depressions and heaps.
- Air and water pollution by the dust particles emitted.
- Destruction of vegetation in the mining fields.
- Lowering of the water table that distorts surface drainage.

AGRICULTURE IN BELGIUM

ARABLE FARMING

A sketch map of Belgium showing selected rivers, Towns and land use types



Study the table below showing cereal production in Belgium ('000 tonnes) in 2013 and answer the questions that follow;

Table

53

Cereal crop	Production ('000 tonnes)
Rice	37
Wheat	1,844
Rye	3
Barley	391
Maize	838
Others	43
Total	3,156

Adapted: Eurostat; Agriculture, Forestry and Fisheries Statistics
(Online data code Apro – cpp crop) p83

(a) Draw a pie chart to show the relative importance of each cereal crop in Belgium.

Conversion into percentage then into degrees;

$$\begin{aligned} \text{Rice} &= \frac{37}{3,156} \times 100 = 1.17\% & \text{Wheat} &= \frac{1,844}{3,156} \times 100 = 58.4\% \\ &= \frac{1.17}{100} \times 360^\circ = 4.2^\circ \approx 4^\circ & &= \frac{58.4}{100} \times 360^\circ = 210.2^\circ \approx 210^\circ \end{aligned}$$

$$\begin{aligned} \text{Rye} &= \frac{3}{3,156} \times 100 = 0.095\% & \text{Barley} &= \frac{391}{3,156} \times 100 = 12.39\% \\ &= \frac{0.095}{100} \times 360^\circ = 0.34^\circ \approx 1^\circ & &= \frac{12.39}{100} \times 360^\circ = 44.6^\circ \approx 44.6^\circ \end{aligned}$$

$$\begin{aligned} \text{Maize} &= \frac{838}{3,156} \times 100 = 26.55\% & \text{Others} &= \frac{43}{3,156} \times 100 = 1.36\% \\ &= \frac{26.55}{100} \times 360^\circ = 95.6^\circ \approx 96^\circ & &= \frac{1.36}{100} \times 360^\circ = 4.9^\circ \approx 5^\circ \end{aligned}$$

A pie chart should have showing relative importance of each cereal crop in Belgium (Show degrees and percentages) **(Use your graph book)**

Already calculated

(b) Calculate the percentage contributed by;

(i) Wheat, (ii) Maize, in the total production in Belgium.

(c) Describe the factors which have favoured the growing of cereals in Belgium/Factors which have favoured the development of Agriculture/arable land use type in Belgium;

Physical factors;

- The generally undulating relief makes it easy for mechanization agriculture.
- Presence of fertile alluvial soils allows the growth of cereals, vegetables and sugar beets.
- Extensive land for large scale production of cereals.
- Abundant water from rivers like R. Sambre, facilitate irrigation farming and navigation.
- Moderate rainfall due to coastal location allows proper growth of crops.
- Presence of skilled labour assists in formation of Polders.
- Water summer temperatures facilitate ripening of crops.

Human factors

- Formation of strong cooperatives of farmers enable them acquire loans and market jointly their products.
- Advanced technology like the use of green house gases in the growing of tomatoes, lettuces, grapes, tractors and combine harvesters for cereals.
- Favourable government policy that support cereal growing by extending subsidies and capital.
- Intensive research into disease resistant and high yielding cereal varieties.
- The ready market for fresh vegetables, flowers fruits. Such market is in Brussels, Ghent.

- Developed/efficient transport based on the R. Rhine offers cheap water transport to the industrialized Europe

Importance/benefits of arable farming (Agriculture) to Belgium;

- Agriculture has helped to diversify the economy of Belgium thus reducing overdependence on iron ore mining.
- Agriculture is a source of raw material for agro based industries in Belgium thus promoting industrialization.
- Agricultural has promoted international relationship between Belgium and countries that import her products.
- Earns revenue to the government of Belgium through taxes imposed on agro based industries.
- Has stimulated infrastructural development like roads and railways that connect farmlands to market centres.
- Provides employment opportunities to Belgium population thus improving the standard of living.
- Agricultural exports to Netherlands earn Belgium foreign exchange.
- Source of food thus improving their diet.

Measures/steps being taken to improve the agricultural sector in Belgium;

- Reclamation of more land from the sea to increase acreage under crops.
- Spraying with chemicals to control pests and diseases.
- Applying of fertilizers and manure to increase on land productivity.
- Selective breeding to increase productivity in dairy and beef production.
- Extending of subsidies to farmers to increase production.
- Specializing in production of high yielding animals and crops.
- Promoting of on-site processing factories to reduce post harvest losses.
- Using glass houses/green house technology to produce crops all the year around.
- Constructing dams to solve sea incursions.
- Carrying out continuous research in universities and colleges to get better varieties.
- Carrying out treatment/recycling of wastes to control pollution of water bodies and land.
- Forming of trading blocs like European Union to widen the market for agriculture.
- Removing of landmines after major wars to make land viable for farming.
- Using immigrant land to boost agricultural production.
- Using machines/mechanization to solve labour shortage.

Effects of farming activities on physical environment in Belgium;

- Has led to pollution of air water and soils due heavy use of fertilizers.
- Have led to deformation of the landscape in farming areas.
- Farming activities have led to increased deforestation hence soil erosion.
- Led to soil compaction hence a hard pan.
- Large scale livestock farms produce vast amounts of animal wastes.
- Fertilizers and pesticides have contaminated surface and ground water.

- Monoculture has led to soil exhaustion.

Study the table below showing land use practices in Belgium and answer the questions that follow;

Table

54

Landuse	Land area ('000Ha)
Arable	939
Permanent pasture	732
Forest	601
Built up/Westland	779
Total	3,051

- (a) Calculate the percentage of land area under;
- (i) Arable, (iii) Forest,
 - (ii) Permanent pasture, (iv) Built up/ wasteland,
- (b) Draw a pie chart/Divided circle to show the relative importance of each land use type
- (c) Identify the;(i) Most dominant, (ii)Least dominant, land use type in Belgium.
- (d) (i) Describe the factors which have favoured the development of arable landuse type in Belgium.
- (i) Outline the problems facing any **one** of the following types of landuse in Belgium; - Arable, - Forest
- Problems facing arable farming in Belgium;**
- High cost of production due to use of glass houses and application of fertilizers.
 - The infertile soils in the Ardennes discourage crop farming.
 - Flooding of water from rivers and the sea destroy crops.
 - Pests destroy crops.
 - Diseases lead to low output.
 - Salination of the soils from the sea waters leads to low output.
 - Shortage of labour especially during harvesting season leads to wastage.
 - Shortage of land limits expansion of farmlands.
- Problems facing forest farming in Belgium;**
- Bush fires destroy valuable timber.
 - Less demand for the forest products leads to wastage.
 - Competition for market from other forested nations like South Africa and Canada.

- Under developed transport routes limits distribution of forest products to market centres and processing centres.

(a) Calculating percentages;

- Arable = $\frac{939,000}{3,051,000} \times 100 = 31\%$
- Permanent pasture = $\frac{732,000}{3,051,000} \times 100 = 24\%$
- Forest = $\frac{601,000}{3,051,000} \times 100 = 20\%$
- Build up/Wasteland = $\frac{779,000}{3,051,000} \times 100 = 25\%$

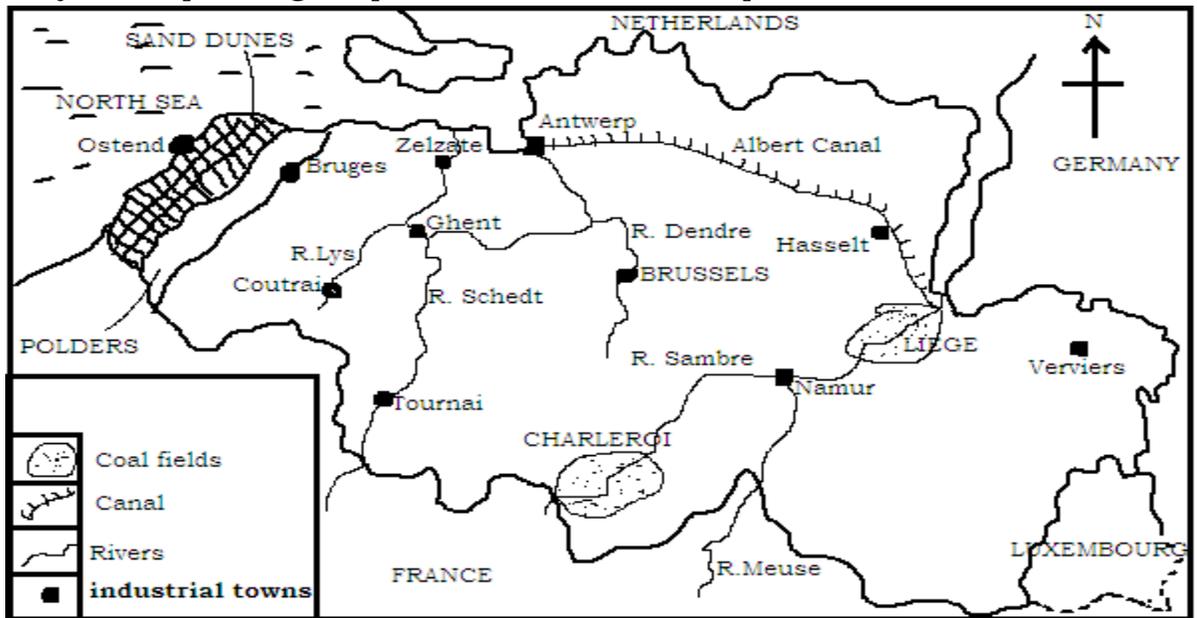
Obtaining degrees;

- Arable = $\frac{31}{100} \times 360^\circ = 112^\circ$ Forest = $\frac{20}{100} \times 360^\circ = 72^\circ$
- Permanent = $\frac{24}{100} \times 360^\circ = 86^\circ$ Wasteland = $\frac{25}{100} \times 360^\circ = 90^\circ$

A pie chart showing the relative importance of arable, permanent pasture, forest and Build up/wasteland (Should have both degrees and percentages)

MANUFACTURING INDUSTRY

Study the map of Belgium provided and answer the questions that follow



- Describe the factors which have favoured the development of manufacturing industries in Belgium.
- Explain the contributions of manufacturing industries to the development of Belgium.
- Outline the effects of industrialization on the physical environment in Belgium.

(a) Factors which have favoured the development of manufacturing industries in Belgium;

Physical conditions;

- Availability of vast land for the construction of industries.
- Abundant supply of huge coal for the provision of energy or raw material from Sambre – Neuse Coal field.
- Availability of imported raw materials like Iron Ore from France, Luxembourg, Sweden, Liberia.
- Strategic location in the heart of Europe close to iron ore mines and markets of Europe.
- Presence of abundant water for industrial use (cooling machines.)

Human conditions;

- Accessibility of Belgium through the Rhine waterway, River Scheldt and Sambre linked through canals.
- Modern technology through developed nuclear energy.
- Supportive government policies such as tax exemptions and conducive conditions for industrial investment.
- Availability of skilled and semi skilled labour to operate industrial machines.
- Availability of large sums of capital from investments in large scale manufacturing industries both foreign and domestic investors.
- Efficient transport for the distribution of raw materials and finished goods.

(b) Contributions of manufacturing industries to the development of Belgium;

- Provides employment opportunities from which they get money hence improve standards of living.
- Source of income through sale of industrial goods hence improved standard of living.
- Source of government revenue through taxes imposed on industries hence facilitating provision of social services
- Provision of high quality products thus improved standard of living.
- Source of intermediate raw materials for other industries.
- Development of infrastructure like roads, railways, canals, HEP stations.
- Promotion of international relationship through industrial exports thus attracting for foreign aid.
- Diversification of the economy thus reducing over dependence of mining.
- Development of urban centres with large market potentials for agricultural and industrial products.

Problems facing the Industrial sector of Belgium;

- Shortage of land limits industrial expansion.
- Inadequate energy resources discourage operation of heavy industries.
- Shortage of skilled labour during winter season leads to low production.
- Limited domestic market discourages production and hence low profits.
- Shortage of raw materials limits industrial output.

IRON AND STEEL INDUSTRIES IN BELGIUM

The major iron and steel industrial centres in Belgium are; **Zalzate, Charleroi and Liege**

(a) Conditions which have led to the growth of iron and steel industries in Belgium;

Physical factors;

- Presence of large/adequate iron deposits to feed the industries.
- Abundant water supply from rivers Scheldt and Meuse to cool machines.
- Presence of huge power supply in form of coal from Sambre-Meuse Valley.
- Adequate land for the establishment of iron and steel industries in the Ghent and Liege.

Human factors;

- Availability of a ready market at Brussels, Charleroi, Liege, and Zalzate.
- Cheap skilled labour to in the industries like technicians and Engineers.
- Adequate capital to buy industrial machines and iron ore from France.
- Supportive government policy by providing tax holidays and attracting foreign investors.
- Modern technology has led to production of high quality products.

Problems facing the Iron and Steel industry in Belgium;

- Limited land limits industrial expansion.
- Low grade iron ore imported from France limits production.
- Competition for market from the high quality iron and steel products from other counties limits production.
- High transport costs of iron ore from France limits production.
- Exhaustion of coal from Sambre-Meuse valley discourages the running of industrial machines.
- Exhaustion of iron ore from Sambre Meuse valley limits production.
- Increasing costs of coal mining increases industrial costs.

Major products from iron and steel industries;

- Iron sheets, Metal bars, Engines, Turbines.

(c) Effects of the industrialization on the physical environment;

- Dumping of industrial solid waste covers the fertile soils.
- Emissions from fumes lead to pollution, poor visibility and acidic rainfall.
- Destruction of aquatic life affects the ecosystem.
- Mining of coals creates deep hollows.
- Destruction of vegetation during industrial establishment.

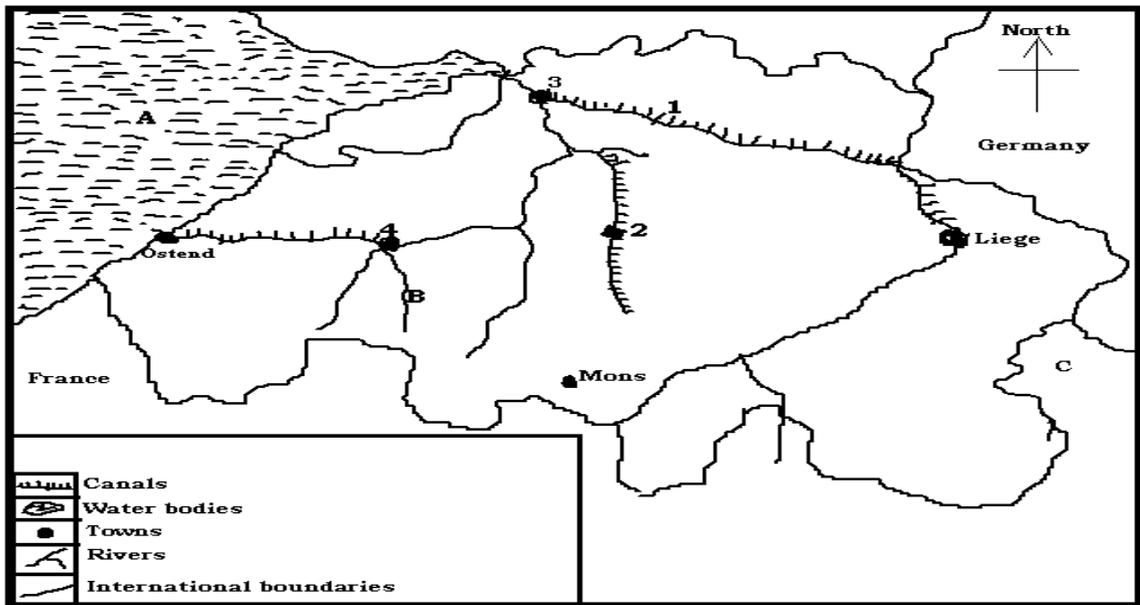
Measures being taken to improve the industrial sector in Belgium;

- Treating of exhaust fumes and industrial discharge before emission.
- Improving on the transport system.
- Developing of precision industry which require few raw materials but produce expensive goods.

- Recycling of waste products like paper to reduce on shortage of raw materials.
- Forming of cooperative s to raise more capital.
- Reducing taxes to lower the cost of production.
- Importing of raw materials like high quality iron ore from Brazil to solve the problem of shortage of raw materials.
- Developing of other energy sources like thermal, and HEP to solve to avoid the exhaustion of coal.
- Producing of high quality goods to reduce competition with imported goods.
- Improving on port facilities to improve on transport facilities/importation of raw materials.
- Relocating of some industries to the coast to reduce on the costs of transport.

URBANISATION IN BELGIUM

Study Figure **below**: Map of Belgium provided below and answer the questions that follow;



- (a) Name the;
- (i) Water bodies marked **A** and **B**, (iii) Country marked **C**,
(ii) Canal marked **1**, (iv) Urban centres marked **2**, **3** and **4**

- (a) (i) Water bodies; **A** is The North Sea, **2** is River Scheldt.
(ii) Canal **1** is Albert canal, (iii) Country **C** is Luxembourg,
(iv) Urban centres; **2** is Brussels, **3** is Antwerp, **4** is

Ghent

(b) **Factors/conditions favouring the development of urban centres in Belgium;**

- Positive/favourable government policy like Brussels is the capital city of Belgium. Each canton (political region) in Belgium has its administrative centre.
- Presence of a variety of mineral resources e.g. coal fields-favour growth of mining centres like the Sambre-Meuse region and the Kemperland regions.
- Presence of many industries has led to growth of towns like Chemical/engineering at Bruges, Antwerp, Liege, others.
- Well developed communication systems based on roads, waterways/canals and railways like Bruges-Ghent land canal, others.
- Nearness to water bodies has led to the growth of ports e.g. Antwerp, Ostend, Zeebrugge, Liege, others.
- Historical factors e.g. the world wars restricted settlement and farming to some areas due to presence of land mines in some areas e.g. Liege was a Fort.
- Strategic location in Europe with access to the North Sea e.g. Ostend, Antwerp. Such easy accessibility opened up the Belgian territories to investors from all over the world.

- Availability of large/adequate capital to develop large cities like Brussels, Antwerp and Ghent.
- High level/modern technology like engineering making. It is easy to connect canals.
- International trade which brings in raw materials and taking out industrial goods encouraged port development like Antwerp.

(c) **Effects of urbanization in Belgium;**

Negative effects;

- Pollution of air, water and land due to poor disposal of wastes.
- Competition for land making it expensive.
- Traffic congestion on canals, roads leading to delays.
- Large population in cities leading to overcrowding which causes easy spread of diseases.
- Unemployment leading to crime.
- Development of slums due to poor housing conditions.
- Deforestation/loss of vegetation cover for settlement and industrial development.
- Poor sanitation due to improper disposal of wastes and overcrowding.

▪ **Positive effects;**

- Growth of infrastructure like roads, waterways, ports, education centres, others.
- Provision of employment opportunities leading to high standard of living.
- Provide administrative, recreational, commercial, industrial and educational functions to people in urban centres like Antwerp, Brussels.
- Provide market to both goods and services leading high standard of living.
- Provide skilled labour which work in industries.
- Promote international relationships leading to increased foreign exchange earnings.
- They are tourist attractions leading to foreign exchange earnings.
- Provides large tax base leading to high revenue to the government.

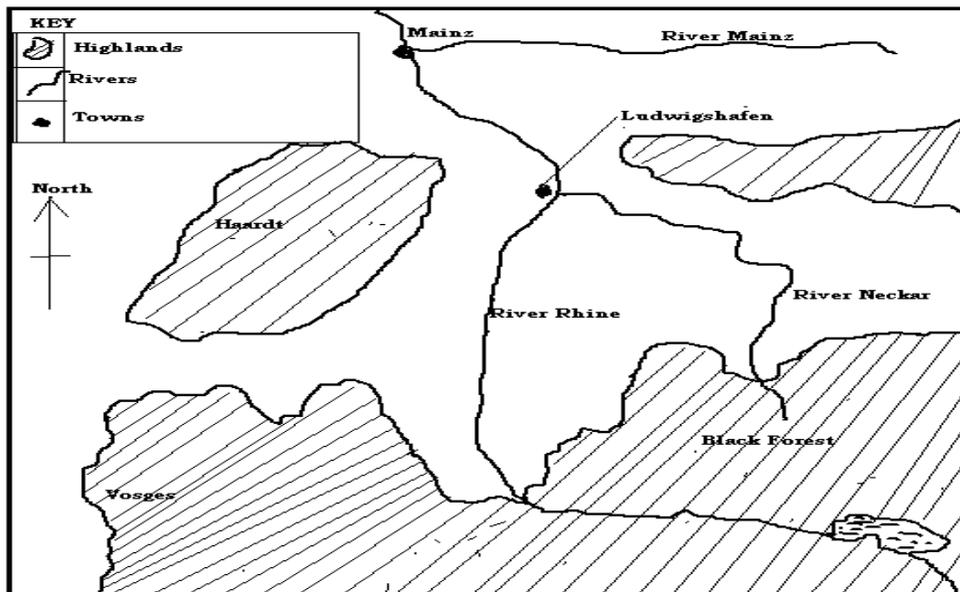
(d) **Steps/Measures being taken to solve the problems of urbanization;**

- Treatment of industrial wastes to avoid water and land pollution.
- Environmental legislation e.g. “clean air Acts” and standards.
- Building of skyscrapers/vertical expansion to accommodate increasing population.
- Widening and dredging of canals to accommodate large vessels.
- Expansion of markets through regional economic integrations like European Union (EU)/European Free Trade area (EFTA).
- Construction of flyovers, tunnels and subways.
- Time tabling of voyages (long journeys of trains and cars) and flights.
- Creation of green belts in urban centres/afforestation.

GERMANY

RELIEF OF GERMANY

(a) A sketch map of Rhine rift valley showing some rivers, highlands and towns;



(b) **Describe the processes that led to the formation of the Rhine rift valley;**

- The rift valley was formed due to faulting by either Compressional forces or tensional forces.
- According to Compressional forces, they acted from either side. They led to multiple faulting which caused reversed faults.
- These continued forces led to up thrust/over ride of the side blocks leaving the central block stable thus a rift valley. The up thrown sides formed the edges of the rift valley.

OR (Diagrammatic representation)
EITHER;

- Faulting by tensional force theory. Forces moving in the opposite direction acted on old rock strata tearing the rocks apart by creating lines of weakness/normal fault lines in the rock strata.
- With continued tensional forces the middle block was forced to sink/subside creating a depression hence a rift valley.

OR Diagrammatic description of faulting by tensional theory; (**Refer to East African Rift Valley**)

(c) **Influence of relief on human activities in the Rhine Rift Valley:**

- The Rhine Rift valley forms a narrow gorge running from the north to south making it cheaper for dam construction hence HEP generation.
- The upper slopes are too steep which discourages settlement and other human activities like agriculture.
- The upper slopes support forests hence lumbering.
- Mountain formation resulted to the presence of minerals hence leading to mining.
- The valleys formed are filled with water leading to fishing.
- The lower slopes are gentle/undulating, have fertile soils suitable for arable farming.
- **The crops grown include;** Sugar beets, maize, tobacco, vines, apricots, plums cherries, pitches.
- South facing favours ripening/harvesting of fruits/crops due to extra warmth.
- Gentle undulating slopes encourage communication routes.
- The valley/bottom experience frequent fog/frost as a result of temperature inversion which discourages settlement and agricultures.
- Gentle slopes and flat valley bottoms lead to development of towns and industries.
- The beautiful scenery has encouraged the development of tourist industry.
- Uplands have pasture which encourages dairy farming/livestock rearing.

(d) **Problems affecting human activities in the Rhine Rift valley;**

- Pests and diseases affect crops.
- Limited mechanization due to rugged/steep relief/terrain.
- Steep relief hinders transport and communication.
- Pollution of air and acid rains received.
- Crop failure due to frost.
- Most of the crops grown are perishable leading to alt of post harvest losses.
- Limited land for agriculture as upper slopes and the rift valley are eroded.
- The biting frown winds adversely affect human activities.
- The labour used is migrant/limited at peak periods of harvesting.
- Flooding of valleys.
- Soil erosion due to steep slopes plus heavy rainfall.
- Soil exhaustion due to over cultivation

Explain the value/Importance/contribution of the Rhine rift valley to the people of Germany;

- The Rift valley is a source of HEP from the various dams on river Rhine, for domestic and industrial use.

- The hilly sides are valuable /important for livestock rearing due to presence of abundant pastures.
- The Rift valley has a beautiful scenery that attracts tourists to Germany who come with foreign exchange.
- There is River Rhine which facilitates water transport thus allowing trade and commerce.
- The valley contains fertile soils which facilitate arable farming like vine growing.
- Has river Rhine which is a suitable for fishing thus providing employment to the Germans.

Problems facing people living along the Rhine rift valley;

- The thin stony soils in the upper slopes limit crop cultivation.
- Labour shortage due to low population limits crop farming.
- The cold temperatures especially during winter lead crop failure.
- The steep landscape limits the land available for crop farming.
- Soil erosion along the steep slopes reduces soil fertility.
- The Rugged relief/terrain discourages mechanized agriculture.

CLIMATE & AGRICULTURE IN GERMANY

Study the **Table 55**: below showing the climatic statistics of Mannheim, in Rhine Rift valley and answer the questions that follow;

Table 55

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp. (°C)	0.5	1.5	5.7	10.0	14.6	17.9	19.6	18.8	15.2	9.6	5.1	1.0
Precipitation	43	35	32	45	55	73	66	73	57	47	41	39

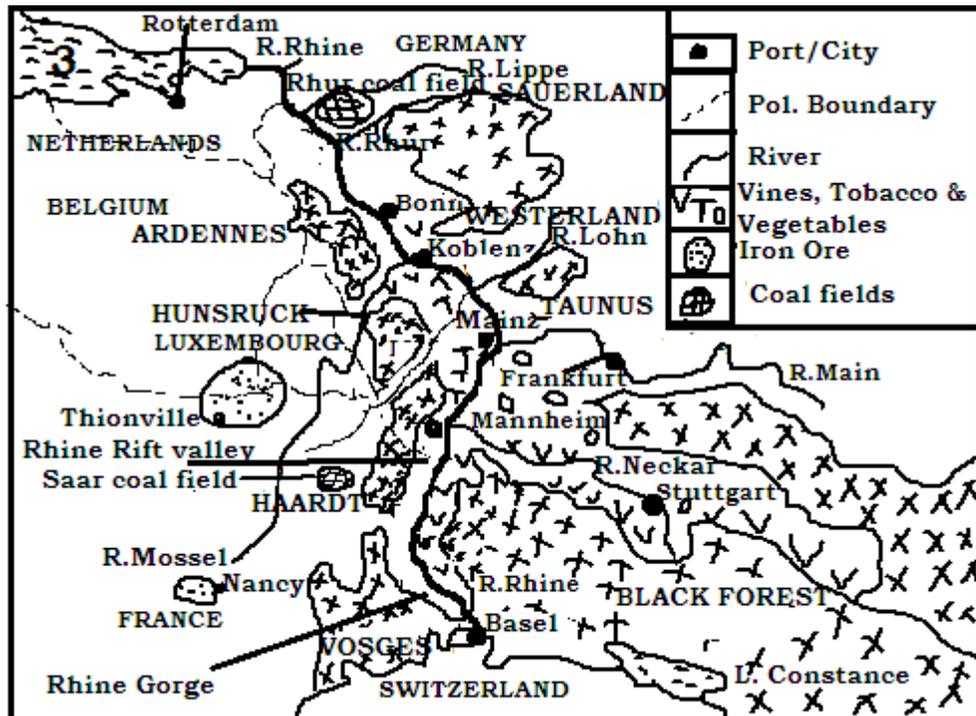
Adapted: David Hughes & Tom Randle (1979) The Rhine Basin: A study of development; Longman p68.

- (a) Draw a suitable graph to represent the climate of the station given in the table above.
- (a) **A combined bar and line graph showing the climatic statistics of Mannheim** (T=02, VS=02, HS=01, ACC=04 **(Use your graph book)**)
- (b)(i) Annual range of temperature for the station
 = Highest temp – Lowest temp (19.6° – 0.5°) = 19.1°C.
- (ii) Rainfall total for the station = sum of monthly rainfall in the year
 = 43+ 35+ 32+ 45+ 55+ 73+ 66 +73 + 57+ 47+ 41+ 39
 = 606mm.
- (c) **Influence of climate on the farmer’s calendar in the Rhine Rift valley;**
- **Presence of cool dry winter** with a lot of snow (December – March)/Limited sunshine cold temperatures influence pruning of vines/application of fertilizers.
 - **During spring (April + may)** with warm temperatures and melting snow activities like planting annual crops like cereals, vegetables/tying vines to wires suspended on stakes in order for the grapes to get maximum sunshine for ripening.

- **During summer (June – August)** activities of farmers include spraying crops, using of insecticides and pesticides/weeding/harvesting of grapes and other fruits/ hiring of labour.
 - **Autumn (Sept – November)** farmers’ activities include harvesting of crops/processing of grapes into wine/Hiring of more labour to complete harvesting/spreading of farm refuse/manure in the garden.
- (d) **Benefits of the agricultural sector to the people living in the Rhine Rift valley:**
- The agricultural sector has led to provision of employment opportunities.
 - It has led to generation of income/improved standard of living for the people on the Rhine Rift valley.
 - The agricultural sector has led to the development of urban centres/towns.
 - Promotion of international relations between the producer and consumers.
 - Exported products from the agricultural sector generate the region foreign exchange.
 - The sector has diversified the economy.
 - The sector has led to development of infrastructure like roads, railways, canal, and waterways.
 - The government has earned revenue from taxing producers.
 - The agricultural sector has provided market for industries/sectors producing agricultural inputs e.g. fertilizers, pesticides, machinery, others.
 - The sector provides raw materials.
 - The sector has led to development of agro-based industries.
 - The sector is a source of food and drinks like wines.
 - Development of research centres.
- (a) Draw a sketch map of the Rhine Rift valley and on it mark and name;
- (i) River; Rhine and Neckar, (iv) Towns; Basel and Frankfurt,
 - (ii) Rhine Rift valley, (v) Vine growing areas.
 - (iii) Rhine Gorge,

AGRICULTURE IN THE RHINE RIFT VALLEY:

- (a) **A sketch map of the Rhine rift valley showing selected highlands vine, tobacco and vegetable growing areas;**



(b) Physical factors/conditions which have favoured the growing of the crops above (arable farming); / physical factors which have favoured the growing of vines in Rift valley

- Existence of a wide valley which allows extensive cultivation. / Location in a valley protects it from strong winds thus allowing proper growth of vines.
- Gently sloping/undulating sides of the rift valley which support agriculture mechanization.
- Presence of well drained fertile soils on the rift valley floor support crop growth like vines, tobacco, vegetables.
- Moderate rainfall received during summer season thus allows proper growth of crops.
- Presence of river Rhine provides water for irrigation.
- Sunny summers suitable for ripening crops.
- Presence of river Rhone for irrigating the vines;

For human factors consider the following

- Easy accessibility of the region by Rhine River allows marketing of vine products.
- Large market for vine products both within and abroad.
- High levels of technology allows planting and wedding of vines.
- Large sums of capital invested in planting and harvesting of vines.

Activities done by the vine growers during;

Spring;

- Pruning of vine trees. - Application of fertilizers.
- Spraying with pesticides and herbicides.
- Vines are tied up to wires, stretched between stakes to get maximum sunshine.

- Weeding is also done. - Bottling previous year's wine.

Summer;

- Harvesting of the vines.
- Collecting, sorting and parking of grapes.
- Transporting to processing centres.
- Processing of grapes starts.

(c) Problems faced by farmers living/vine growers in the Rhine Rift valley;

- Small plots of land limit effective use of machines.
- Frost/temperature inversion and fog conditions during spring destroy crops.
- Rugged terrain and steep sides restrict landuse/mechanization.
- Soil erosion especially on the steep slopes limits vine growing.
- Presence of pests like moths and spiders destroy crops.
- Sometimes drought occurs during the growing periods leads to low output.
- Diseases lead to low crop yields like odium disease.
- Soil exhaustion due to monoculture leads to low output.
- High cost of farming during winter/irrigation leads to losses.
- Perishability of grapes leads to high wastage.
- Pollution of land through artificial fertilizers reduces land productivity.
- Winter frost destroys vine trees.
- Flooding of River Rhine leads to destruction of crops.
- Competition for market with other producing countries like Switzerland, Netherlands, South Africa
- Labour shortage leads to wastage.

(d) Steps/measures being taken to improve agriculture in the Rhine Rift Valley;

- Providing loans to farmers to lower their cost of production.
- Modifying land tenure system through consolidation of land to make the workable plots bigger. / Carrying out land consolidation to increase workable plots.
- Setting up on-site processing factories to reduce wastage.
- Recruiting seasonal labour during the peak harvesting season.
- Applying fertilizers to increase soil productivity.
- Using modern scientific method of production like herbicides, artificial insemination, insecticides in spraying./ Spraying with chemicals to control pests and diseases.
- Hanging of vines to allow reception of maximum sunlight to avoid losses due to frost.
- Emphasizing high quality production to increase competitiveness of vine products.
- Introducing of specialized farming like market gardening around cities, for vegetables, fruits and dairy products.

- Establishing of roads and railways system and improving on the old ones/ Constructing of special paths to transport grapes down the steep slopes.
- Constructing of embankments to control flooding.
- Spraying of warm air to control frost.
- Practicing irrigation farming to reduce negative effects of drought.
- Attracting of part time workers especially women during the busy harvesting periods.

Products which farmers in the Rhine rift valley obtain from their crops.

- Manure from the residues of vines.
- Juice for vines, - Animal and chicken feeds manufactured from the residues.

MINING INDUSTRY IN GERMANY

Mining areas in Germany;

They include; **Ruhr, Bremen and Hamburg.**

Minerals mined are;

- Majorly Coal from Ruhr and Saar fields.
- Others are; Uranium, steel, Potash, Cobalt, lead.

THE RUHR COAL FIELDS OF GERMANY:

Coal is found in two large areas namely; The exposed coal fields and the concealed coal fields.

Describe the Conditions favouring mining in Germany;

- Location of minerals like coal and iron ore near the earth's surface reduces the cost of mining.
- Abundant energy like HEP and coal for processing minerals.
- Large quantities of coal and iron ore make mining lucrative.
- Modern technology like the drilling rigs, bucket conveyors makes mining easy.
- Adequate capital to invest in mining equipment.
- Supportive government policy of giving mining contracts to potential mining companies.
- Intensive research through mineral exploration and surveying has led to maximum mineral extraction.
- Developed transport based on roads, railways and canals allows distribution of minerals to refineries.
- Ready local and foreign market for coal and iron ore encourages mining activities.

Benefits of mining sector to Germany:

- Coal promotes the power and energy sector for domestic and industrial use.
- Has promoted international cooperation through mineral exports and granting mining contracts to foreign mining companies.

- Has reduced expenditure on importation of coal thus facilitating capital accumulation.
- Has led to acquisition of skills like geo-surveying, mining and grading.
- Earns government revenue through taxes imposed on mining companies.
- Has led to diversification of the economy thus reducing over dependence on tourism and agriculture.
- Has led to growth of other sectors like agriculture in the Rhine valley and tourism industry.
- Has led to growth of towns like Bochum and Essen which act as accommodation centres.
- Provides employment opportunities to mineral surveyors and miners thus earning them income.
- Has led to growth of mineral based industries like iron and steel industries.
- Earns German y foreign exchange through mineral exports.

Effect of the mining sector on the environment of Germany;

- Accelerates soil erosion and landslides.
- Too much dust inhaled in by the Miners has led to health hazards.
- Increased spread of diseases due to stagnant water in the depressions created.
- Land degradation due to creation of heaps and valleys.
- Displacement of people near mining areas.
- Air and water pollution by the dust and wastes.
- Destruction of the agricultural land.
- Destruction of vegetation/Devegetation in the mining areas.

Problems facing the mining sector in Germany;

- Depreciation of the mining equipment limits mining activity.
- Limited market for some minerals like coal due improvement in technology.
- Labour strikes in the mining fields have limited the mining activity.
- Shortage of skilled labour limits mineral extraction.
- Competition for market and labour from other mining countries like France discourages mining.
- High transport costs for minerals reduce the profits got.
- Price fluctuations on the world market leads to losses.
- Exhaustion of some minerals has led to closure of some mines.

Problems facing mining in the Ruhr Coal fields;

- Loss of lives due to accidents in the coal fields.
- Competition from other coal producers like UK and USA.
- High cost of mining in the concealed coal fields.
- Competition for clean energy sources like Oil and HEP.
- Exhaustion of coal from the exposed coal fields discourages mining.

Factors/conditions which have led to decline/fall in coal production in the Ruhr fields/Germany;

- The closure of some coal fields in the exposed coal fields.

- The rising cost of mining in the concealed coal fields.
- Shortage of labour due to better paying jobs elsewhere.
- Introduction of energy saving technology/modern technology which requires less coal.
- The discovery of oil substituted coal used in trains, ships and industries.
- Introduction of new clean sources like HEP, Nuclear and natural gas.

Industries that developed after the decline in coal production in Germany;

- Oil refineries, - Petrol-chemical industries like plastics - Food processing.
- Iron and steel industry, - Textiles, - Electronics, - Engineering.

Factors that led to the development of the above industries;

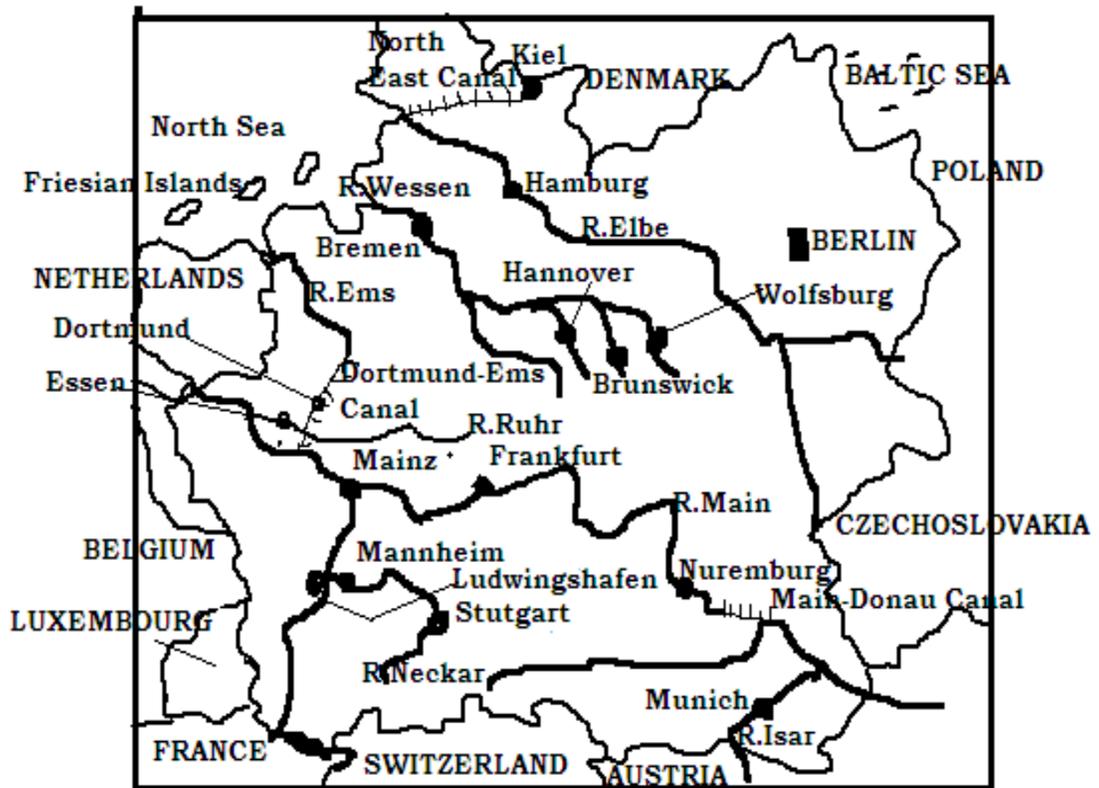
- Availability of large sums of capital to buy raw materials.
- Well developed transport system facilitates distribution of raw materials and finished goods.
- Abundant raw material like iron ore to feed industries.
- Availability of large skilled labour to operate industrial machines.
- The ready market for industries at Frankfurt, Munich, Stuttgart, Essen Wolfsburg and Bremen.
- Supportive government policy of encouraging industrialization.
- Abundant water supply from river Rhine to cool industrial machines.
- Availability of other energy sources like nuclear and thermal to run machines.

Uses of Coal in Germany;

- Bituminous coal is used as a source of energy for domestics and industrial use.
- Anthracite coal is used in heating boilers.
- Choking coal is used in smelting of iron and steel.
- Choking coal is used in production of tar for road construction.

MANUFACTURING INDUSTRY IN GERMANY

A sketch map of Germany showing major industrial towns;



(b) **Factors for the development of the industrial sector/ manufacturing industries in Germany;**

Physical conditions;

- Abundant water supply from river Rhine and its tributaries facilitate cooling of industrial machines and mixing industrial chemicals
- Availability of a variety of energy sources e.g. coal, HEP, nuclear power and natural gas for industrial use/run industries.
- A variety of raw materials e.g. agricultural products, minerals for industrial use.
- Presence of large/vast land for industrial establishment

Human conditions;

- Well developed transport and communication based on roads, railways, airways, canals, others to distribute/transport industrial raw materials and finished goods.
- Abundant supply of skilled labour to work in the industrial sector/operate industrial machines.
- Existence of a wide market for industrial goods both in Germany like at Berlin Essen and abroad.
- High level of specialization in the production of heavy and light precision goods.
- Availability of adequate/wide capital to invest in the industrial sector.
- High level of advanced technology e.g. automation of industrial operations allows quality production.
- Supportive/favourable government policy of encouraging industrialization through offering loans and industrial protectionism.

- Relative political stability after World War II has favoured long term investment in manufacturing industry

Benefits of the industrial sector to Germany;

- Provides consumer and capital goods like canned fish, Televisions sets hence improved standard of living to Germans.
- Has promoted self sufficiency through reduced importation of consumer goods from USA.
- Has led to economic diversification thus reducing over reliance on agriculture.
- Earns Germany revenue through taxes imposed on industries.
- Has incased capital inflow through increased foreign industrial investment.
- Has led to acquisition of skills by workers like welding, motor mechanic.
- Has promoted international cooperation through export of industrial goods.
- Earns government foreign exchange through industrial exports.
- Provides employment opportunities to the people employment in textiles thus better living conditions.
- Provides market to mineral and agricultural products like iron ore, milk, skins, cotton.
- Has led to urbanization/growth of towns which offer education and accommodation facilities.
- Has led to infrastructural development like roads, water ways and airports thus facilitating labour mobility.

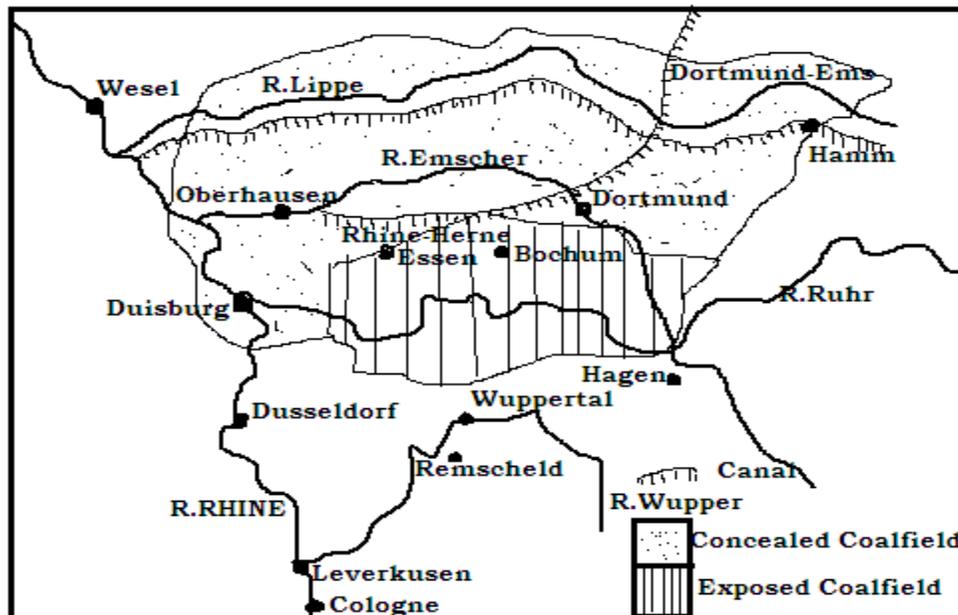
(d)(i) **Environmental problems which have resulted from the establishment of industries in Germany;**

- Pollution of air, water and land causing health problems.
- Congestion/overcrowding in industrial areas leads to delays.
- Destruction of vegetation due to open cast mining/industrial establishment.
- Competition for land in industrial areas. /Limited land for expansion.
- Urban related problems such as slums, theft, and drug abuse.
- Over exploitation of mineral leading to their exhaustion/depletion.
- Creation/growth of ghost towns in former mining areas.
- Creation of open pits/hollows due to over exploitation of minerals.

(ii) **Steps being taken to solve the above problems;**

- Recycling of industrial wastes to reduce pollution of land and water.
- Strict legislation on waste management has been undertaken.
- Undertaking massive re-afforestation programmes/Green belt creation to reduce environmental pollution.
- Encouraging raw material saving and labour saving technology.
- Importation of raw materials e.g. irons ore from France and Sweden.
- Diversification of the economy to reduce overdependence on industries/solve unemployment.
- Use of alternative sources of energy especially oil and natural gas which has less pollution effects on environment.
- Vertical expansion/building shy scrappers to solve the limited land problem.
- Refilling of old pits/mines to reduce land degradation.
- Using of containers/containerization to reduce congestion.

- Construction of subways/underground tunnels/flyovers to reduce congestion.
- A sketch map of the Ruhr industrial region of Germany showing selected features;**



- (b) (i) Name any **three** industries found in the **Ruhr industrial region**.
- Textile industry, Iron and steel industry,
 - Engineering industry, Chemical industry
- (i) **Describe the factors which have favoured the development of the iron and steel industries in Germany;**
- Availability of high grade iron ore to feed the industries.
 - Well developed transport system facilitates the distribution of iron and steel products to market centres.
 - Modern /high levels of technology facilitate quality production.
 - Availability of a large skilled labour force from Germany and immigrant to operate the industrial machines.
 - Availability of large sums of capital from the government and private investors to boost the industry.
 - Variety of energy sources like coal, oil and natural gas to run the industrial machines.
- (c) **Explain the problems resulting from the development of large scale industrial centres in the Ruhr region;**
- Exhaustion of minerals due to over exploitation.
 - Coal extraction has led to land degradation.
 - Traffic congestion during the rush hours leading to accidents.
 - Limited land for expansion.
 - Competition for high skilled labour force.
 - Loss of vegetation cover/Devegetation.
 - Pollution of air, land and water due industrial discharge.
 - High rates of unemployment due to highly mechanized industrialization and the used of robots.

- Urban related problems like high crime rates.
- (d) **Outline the measures being taken to solve the problems above;**
- Creating of green belts through planting of trees to reduce environmental degradation.
 - Emphasizing containerization at the port to reduce congestion.
 - Constructing of subways and underground tunnels and flyovers to reduce traffic congestion.
 - Setting up strict laws/legislation against pollution/Anti –pollution laws.
 - Using of pipelines insured of tanks to transport oil.
 - Constructing of industries in other areas to reduce congestion/ Relocation of industries.
 - Recycling of industrial wastes to reduce pollution/Industrial waste treatment.
 - Using energy saving sources with less polluting effect like natural gas and nuclear energy.

Study the table below showing Germany exports and Imports (2001) answer the questions that follow;

Table 56

Type of Commodity	Imports (%)	Exports (%)
Fuel	08	01
Agricultural raw materials	02	01
Manufactured goods	70	89
Food	07	04
Ores and Metals	03	02
Others	10	03
Total	100	100

Adapted: 2003 World Development Indicators; The World Bank, Washington DC pp 206.

- (a) Draw pie chart to show Germany's imports in 2001.
 (b) Mention the; (i) Largest type of commodity exported from Germany.
- (a) **Converting values percentages to degrees;**

- Fuel = $\frac{08}{100} \times 360^\circ = 28.8^\circ$
- Agric. Raw materials = $\frac{02}{100} \times 360^\circ = 7.2^\circ \approx 7^\circ$
- Manufactured goods = $\frac{70}{100} \times 360^\circ = 252^\circ$
- Food = $\frac{07}{100} \times 360^\circ = 25.2^\circ \approx 25^\circ$
- Others = $\frac{10}{100} \times 360^\circ = 36^\circ$

A pie chart showing Germany's imports in 2001. (Use your graph book)

- (b) (i) Largest exports - Manufactured goods with 89%
(ii) Smallest imports - agricultural raw materials with 2%
- (c) (i) **Manufacturing centres in Germany:**
Ruhr Industrial Region
- Duisburg, - Wuppertal - Bochum - Ludwigshafen
- Essen - Stuttgart - Mannheim - Nuremburg
- Dortmund. - Munich - Bremen
- (d) **Conditions/factors which have influenced the volume of Germany's exports:**
- A large population consumes most of food produced within leaving only 4% for export.
 - A well developed industrial sector which consumes most of the agricultural raw materials leaving only 1% for export.
 - The industrial sector consumes most of the ores and metals leaving only 2% for export.
 - Over production of manufactured goods leaves a lot for export that is 89%.
 - Less agricultural products are exported due to less land surface for agriculture.
 - High quality products manufactured that has increased competitiveness.
 - Strategic location in the major market destination of the World.
 - Improved communication in market research.
 - Improved transport network.
 - Improved storage facilities that enable safe storage of high volume of goods.

Study the table below showing steel production in former West Germany between 1977 and 1983 and answer the questions that follow ;

STEEL PRODUCTION IN FORMER WEST GERMANY ("000 tonnes) (1977-1983)

Table 57

1977	1978	1979	1980	1981	1982	1983
39,000	45,000	46,000	44,000	42,000	40,000	26,000

Source: Adapted from Waugh, Europe pg 68.

- (a) Draw a bar graph to show the information given in the table. **(Use your graph book)**
- (b) State the year when steel production was;
(i) Highest (ii) Lowest,
- (c) **Using the table and the graph drawn, describe the pattern of steel production.**
- Generally steel production increased and then declined.
 - Between 1977 and 1978, there was a sharp increase in steel production.
 - Between 1978 and 1979, there was a gradual increase in steel production.
 - Between 1981 and 1982, there was a gradual decline in steel production.
 - Between 1982 and 1983, there a sharp decline in steel production.

- (c) **Using your knowledge of Iron and steel industry in former West Germany, explain the factors responsible for the pattern of steel production between 1977 and 1983.**

Factors for a rise in production; (Between 1977 and 1979);

- The positive attitude of the Germany government towards industrialization.
- Increase in capital invested in industries.
- The huge deposits of coal which was used as a source of energy in the iron and steel industries.
- Availability of huge deposits of iron ore to feed the iron and steel industries.

Factors for the fall in production (Between 1979 – 1983);

- Decline in market due to competition from USA and UK.
- Exhaustion of iron ore deposits.
- Decline in labour supply.

- (d) Name ;(i) **One industrial Centre for iron and steel production in Germany,**

- Hamburg, - Brunswick, - Wolfsburg.

- (ii) **Two uses of steel and iron in Germany.**

- Used in making motor engines.
- Used in making railways locomotives.
- Used in making steel turbines.

Study the table below showing the decline of the Coal industry in Germany (1955-71) and answer the questions that follow; **Table 58**

Year	Employment in In the coal industry	Production of Coal (metric tons)
1955	400,000	125,000,000
1970	250,000	100,000,000

Adapted from: D Hughes and T. Randle: The Rhine Basin. A study in Development.

- (a) Calculate the percentage decline in;

- (i) Employment in the Coal industry, (ii) Production of Coal,

Percentage decline the formula is $\frac{\text{Old value} - \text{New value}}{\text{Old value}} \times 100$

(i) $\frac{400,000 - 250,000}{400,000} \times 100 = 37.5\%$

(ii) $\frac{125,000,000 - 100,000,000}{125,000,000} \times 100 = 20\%$

Study Table **59**: showing energy production in Germany (2005) and answer the questions that follow;

Table III Germany: Energy Production (2005) Table 59

Type of Energy	% of Total Energy
Coal	49.8
Gas	11.3
Oil	1.7
Hydro power	3.2
Nuclear power	26.6
Others	7.4

Adapted: 2008 World development Indicators. The World Bank, Washington D.C pp166-168.

- (a) Draw a pie-chart to show energy production in Germany.
- (b) Identify the type of energy produced in;
 - (i) Largest,
 - (ii) Smallest, t amount in Germany.

(a) **Conversion of percentage to degrees;**

$$\text{Coal} = \frac{49.8}{100} \times 360^\circ = 179.3^\circ$$

$$\text{Oil} = \frac{1.7}{100} \times 360^\circ = 6.1^\circ$$

$$\text{Gas} = \frac{11.3}{100} \times 360^\circ = 40.7^\circ$$

$$\text{Others} = \frac{7.4}{100} \times 360^\circ = 26.6^\circ.$$

$$\text{Nuclear power} = \frac{26.6}{100} \times 360^\circ = 95.8^\circ$$

A pie-chart showing energy production in Germany. (Use your graph book)

- (b) Type of energy produced in;
 - (i) Largest amount is coal
 - (ii) Smallest amount is oil

MANUFACTURING INDUSTRY IN THE RHINE RIFT VALLEY

- (b) (i) Two industries found in any **one** town;

Ludwigshafen;

- Food processing, - Textiles
- Chemical industries - Heavy engineering industry

OR

Mainz;

- Engineering - Printing and Publishing
- Chemical industry - Food processing
- Car manufacturing - Textiles - Electronics;

- (i) Candidates should **select one industrial town** but the conditions are more or less the same;

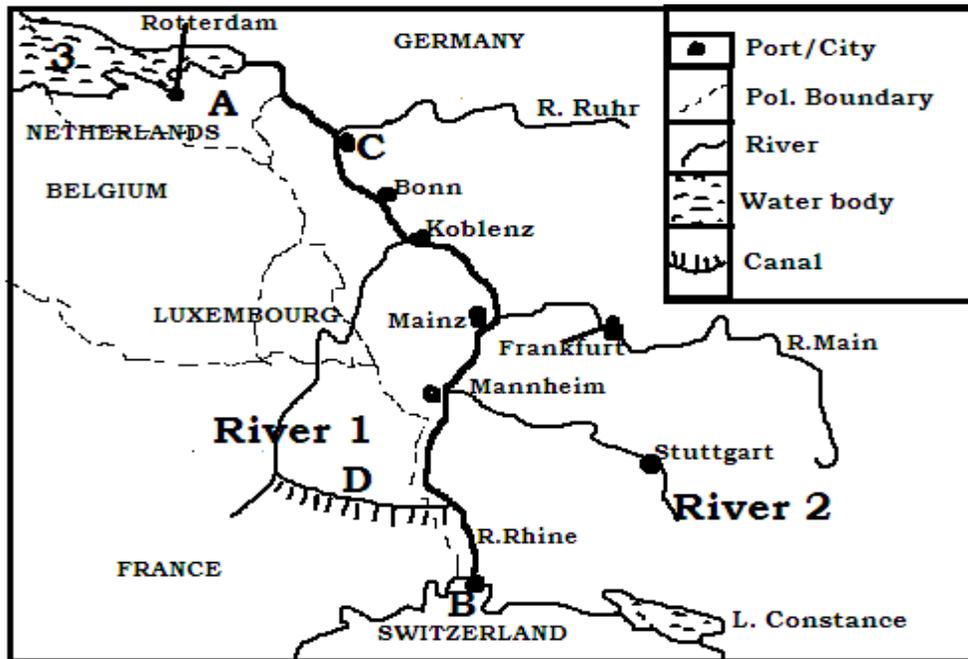
Conditions which have led to the development of industries

- Availability of a large market both local and external for industrial goods.
- Well developed technology to produce engineering and electronics equipment.
- Highly developed transport and communication by roads, railways and water to transport raw materials and finished goods.
- Port location of industries gives easy access to some of the raw materials and markets.
- Availability of adequate capital to invest in the industrial sector.
- Rich agricultural hinterland. The agricultural lands along the R. Rhine with specialized activities and also has minerals and forest raw materials.
- Favourable/supportive government policy of seeking financial assistance from other Countries.
- Regional cooperation of European Union to widen market.
- Plenty of water for use in industries and a coolant or mixing materials.
- Variety of power e.g. HEP, natural gas, nuclear used in industries.
- Adequate skilled and semiskilled labour for setting up industries.
- Relatively flat land for setting up industries.

- Intensive research giving rise to precision goods.
- (c) **Problems faced by the industrial sector in the Rhine rift valley area;**
 - Pollution as result of wastes from the industries.
 - Overdependence on imported raw materials/Shortage of raw materials like coal, oil, iron ore, limestone makes the cost of production high.
 - High cost of labour/labour shortage makes the production costs high.
 - Competition for market of the finished industrial goods from mother industrialized nations like USA.
 - Land shortage due to rugged terrain limits the area where industries are set up.
 - Congestion at the ports leads to delays along the Rhine.
- (d) **Steps being taken to solve the problems above;**
 - Creating of satellite towns e.g. Ludwigshafen as a means to de-congest Manheim.
 - Adopting of raw material saving technology which produces precision products.
 - Recycling of waste products from industries to reduce shortage of raw materials.
 - Passing of anti-pollution laws to regulate environmental pollution.
 - Carrying out regional cooperation to widen market e.g. formation of European Union.
 - Carrying out automation in industries to solve labour shortage.
 - Carrying out market research/advertisement to widen market for industrial products.
 - Importing of raw materials to solve the inadequate raw materials.
 - Producing of quality products to solve competition for market.
 - Carrying out containerization/timetabling to solve congestion and delays.

INLAND WATER TRANSPORT IN GERMANY

Study the figure below showing the Rhine Basin and answer the questions that follow;



- (a) Name the following;
- (i) Rivers marked 1 and 2, (ii) Water body 3,
 (iii) Country A, (iv) Ports B and C, (v) Canal D.

- (a) (i) Rivers; 1 is R. Mosel 2 is R. Neckar
 (ii) Water body 3 is North Sea. (iii) Country A is Netherlands
 (iv) Ports; B is Basel, C is Duisburg (v) Canal D is Rhine – Mosel Canal

(b) **Conditions/factors which contributed to the development of River Rhine as an important waterway;**

- The presence of River Rhine and its tributaries like Mosel, Ruhr, Lippe and Mainz. The river is also navigable for significantly long distance from Basel to the North Sea and can accommodate large ocean going vessels.
- Presence of large rich hinterland. This exposes the river to handling large exports and imports, a factor that stimulates its development.
- The waterway is ice free throughout the year hence can be used throughout the year.
- The Rhine flow to the North Sea which is one of the busiest shipping routes in the World.
- Deep river channel which accommodates large Ocean going vessels.
- Presence of melting glaciers in the Swiss Alps to constantly increase the volume of the Rhine waters.
- Landlockedness of Switzerland has made her use river Rhine as the only alternative route hence its development.
- Presence of large capital for modifying the water way by establishing canals like Rhine-Mosel canal.

- Modern technology in form of canals like Rhine-Mosel Canal that bypasses gorge. /Extension of navigable stretches by construction of Canals like Dortmund-Ems Canal, Main-Danube Canal and Rhine -Mosel Canal.
- A long navigable route from Basel to North Sea allows sailing of large water vessels.
- Strong cooperation of the Rhineland Countries to develop water transport.
- Supportive government policy of Switzerland and Germany in form of dredging.
- Abundant skilled labour needed to construct canals.
- Large sums of capital provided by Germany and Switzerland to buy the needed machines.

(c) **Benefits/Importance of the Rhine waterway to the Rhinelands;**

- The Rhine water way has opened up remote areas for trade, leading to economic development.
- Has led to development of towns such as Mainz and Cologne in Germany, these offer commercial and administrative services.
- Development of other modes of transport like roads allowing trade and commerce./ Has helped in transportation of imports and exports in terms of raw materials for industries and agricultural sector, finished goods/Provides cheap transport for bulky goods.
- Has led to agricultural development through provision of accessibility to agricultural regions such as vine growing for wines in the Rhine rift in Germany.
- Has stimulated international trade by handling exports and imports from Germany, France, Switzerland and Netherlands.
- Has encouraged settlement along the waterway for example at Cologne and Mainz in Germany.
- Provides local revenue through taxes imposed on ships along the waterway.
- Has promoted tourism by facilitating river cruises and the spectacular drainage features. From this foreign exchange is earned for the Country.
- Has led to acquisition of foreign exchange to Germany by handling exports. This is used to construct roads and schools in Germany.
- Has led to acquisition of both local revenue through taxation of ships and boats that use the waterway.
- Has led to technological development such as marine technology and construction of various locks, canals and various ports.
- Has led to generation of HEP which is used for home and industrial use.
- The Rhine waterway has strengthened cooperation between Germany, Netherlands and Switzerland and this has led to political and economic stability.
- Provides employment opportunities to various form of labour like traffic wardens, marine engineers. This helps them earn incomes thus improving their standard of living.

- Development of agriculture through provision of accessibility to agricultural areas especially for the vines.
- Has facilitated the development the mining sector in the Ruhr region and Alsace, Lorraine in Germany and France respectively.
- Has facilitated development of other forms of transport like roads and canals. These facilitate industrialization, trade and commerce.
- Provides water for domestic and industrial use for example the textile and Brewer industries in Bochum and Mainz.
- Has led to development of industries in Western Europe.

Challenges/problems faced by the Rhine waterway/Problems hindering the effective use of Rhine water way;

- Some points are narrow hence limiting the use of large water vessels.
- Pollution of the waterway from surrounding coastal industries affects the users of the waterway./ Pollution of water, land and air leads to poor health
- Flooding of the River due to heavy rains. / Occasional floods lead to delays/Sea incursions.
- Poor visibility along the waterway due to smog.
- Traffic congestion on the water waterway leads to delays.
- Accidents due to collision of vessels.
- Silting of the river and coastal lands hinders sailing and anchoring of water vessels.
- High taxes imposed on the shipment of goods along the waterway.
- Siltation of Canals which discourages sailing of water vessels./ Siltation which calls for expensive dredging.
- Poor visibility during spring causes accidents.
- Differences in water volumes limit the use of the water way throughout the year.
- Freezing of the waterway during winter discourages navigation.
- Congestion along the waterway leads to delays.

Steps/measures being taken to solve the above challenges/ Steps being taken to improve navigation on the Rhine waterway

- Carrying out Containerization to ease loading and avoid congestion.
- Emphasizing among Cooperation amongst the member countries to clean the waterway.
- Regular dredging to deepen the canals and rivers.
- Using radars system to determine the direction, size and distance of other vessels when there is fog.
- Building embankments along River Rhine to control flooding.
- Time tabling/scheduling arrival and departure of vessels to reduce congestion and accidents.
- Construction of other modes of transport to reduce congestion.
- Using traffic police to control congestion.

- Constructing Canals to avoid waterfalls along the waterway.
- Constructing other transport routes such as roads and railway to reduce traffic on Rhine waterway.
- Removing of silt from the water way/dredging and widening of the waterway to allow sailing of large vessels.
- Constructing of artificial levees and dykes to control floods.

State other water routes in Germany;

- Lippesite canal
- Dortmund – Ems Canal.
- Weser – Meuse canal.

Outline the problems resulting from the establishment of Rhine Waterway in Germany;

- Has resulted to delays caused by single locks along the waterway.
- High cost of water treatment due to polluted water as well as constant dredging to reduce siltation.
- Destruction of aquatic life due to marine activities along the waterway.
- Led to growth of towns and associated evils like slum development.
- There is congestion due to heavy traffic along the waterway leading to delays.
- Pollution of the waterway due to oil spills from the vessels.
- Has led to over exploitation of resources like coal from the exposed Ruhr coal field, deforestation in the Vosges and black forest.

THE NETHERLANDS

AGRICULTURE (ARABLE AND LIVESTOCK REARING)

Study the table below showing land use type in The Netherlands and answer the questions that follow;

Table 60

Landuse type	Total land are in hectares
Arable farming	770,000
Horticulture	140,000
Pastures	1,505,000
Wood and wasteland	525,000
Others	560,000
Total	3,500,000

Source: Adapted from Gibbs, C. W The Rhineland pp 111 -113

- (a) Draw a bar graph to show land use types in The Netherlands.

(Use your graph book)

- (b) State the type of land use which occupies the;
- (i) Largest area, (ii) Smallest are.
- (b)(i) Largest is Pasture with 1,505,000 hectares,
(ii) Smallest is Horticulture with 140,000 hectares.

(i) Farmland = Arable + Horticulture + Pasture

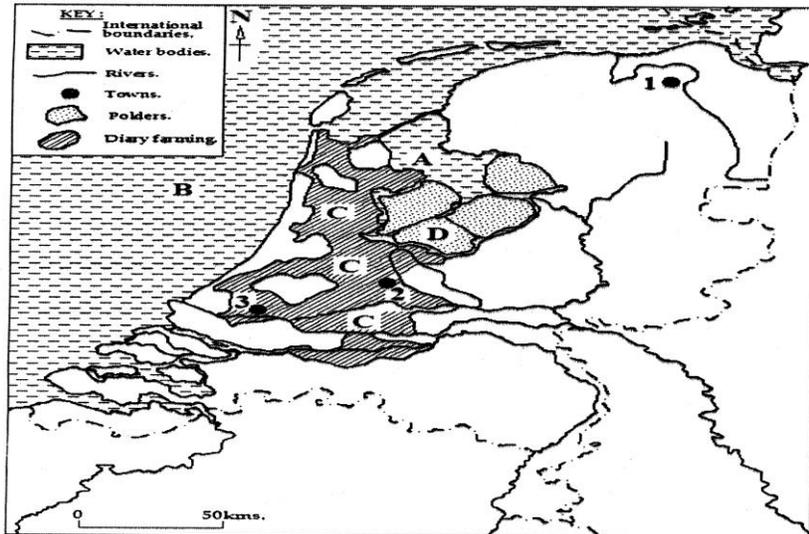
$$= \frac{770,000+140,000+1,505,000}{3,500,000} \times 100 = 69\%$$

(ii) Factors that have influenced the development of agriculture in The Netherlands.

- Generally flat area makes mechanization easy at Yssel polder region.
- Mild temperatures allow proper growth of crops.
- Low incidence of incidence o pests and diseases.
- Adequate land provided by polderisation.
- Abundant skilled manpower to reclaim land.
- Large capital to cultivate polders.
- Modern technology like glass house and machines to cultivate the polders.
- Accessibility to the North Sea by the North Sea – Rhine River allows distribution of crops.
- The creation of strong cooperative societies and credit banks funded the buying and selling of agricultural inputs.
- Ready market at Rotterdam for agricultural produce
- (i) **Problems facing agricultural sector in the Netherlands;**
- Loss of agricultural land to other land uses like expansion of land under woodland.
- Periodic flooding due to sea breaking dykes and flat areas.
- Soil deterioration/exhaustion in the reclaimed areas leads to low output.
- Salination brought about by sea water reduces land productivity.
- Price fluctuation of the agricultural produce limits faming.
- Competition for market with other agricultural national like USA and Canada.
- Cold conditions limits the growing period in the Polders.
- Pests and diseases limit the crop output.
- (ii) **Steps being taken to solve the problems above;**
- Using glass houses to encourage crop growing throughout the year.
- Importing of feeds by cooperatives societies.
- Constructing of dykes to control.
- Establishing of pumping stations.
- Using of artificial fertilizers to improve soils fertility.
- Specializing in livestock rearing (Poultry, piggery, dairy) in order to overcome competition.
- Using lime to solve overcome salination/Applying of fresh water on the polders to reduce soil salinity.
- Growing of fodder crops to supplement natural pastures.
- Establishing agro-processing industries to add value on agricultural produce.
- Seeking external market for agricultural products/market research.
- Spraying to control pests and diseases.
- Reclaiming of more land to reduce land shortage

LIVESTOCK FARMING

Study figure below showing dairy farming in The Netherlands and answer the question that follow;



- (a) Name the;
- | | |
|------------------------------|-------------------------------------|
| (i) Towns marked 1, 2 and 3, | (iii) Dairy farming region marked C |
| (ii) Water bodies A and B, | (iv) Polder marked D. |
- (a)(i) Towns; 1 is Groningen, 2 is Utrecht, 3 is Rotterdam.
 (ii) Water bodies; A is Yssel/IJssel, B is North Sea.
 (iii) Dairy farming region C is Holland (North/South)
 (iv) Polder market D is South Flevoland.

(b) **Describe the conditions that have favoured the development of dairy farming in the Netherlands;**

Physical factors;

- Fresh water for animals provided by Lake Yssel and other Rivers for animals to drink.
- Gently sloping relief allows easy movement of animals without staggering to break their legs.
- High quality of animal breeds like Friesians, Red and White Meuse that are more productive.
- Nutritious pasture for the animals to feed on.
- Low lying altitude has promoted mild climatic conditions for proper of dairy cattle.
- Expansive land for establishment of dairy farms.
- Fairly fertile clay and peat soils promoted growth of fodder crops.
- Warm summer temperatures led to outdoor grazing.
- Moderate cool temperate conditions ideal for rearing of dairy cattle.
- Moderate rainfall promotes growth of abundant pasture for dairy cattle.

Human factors;

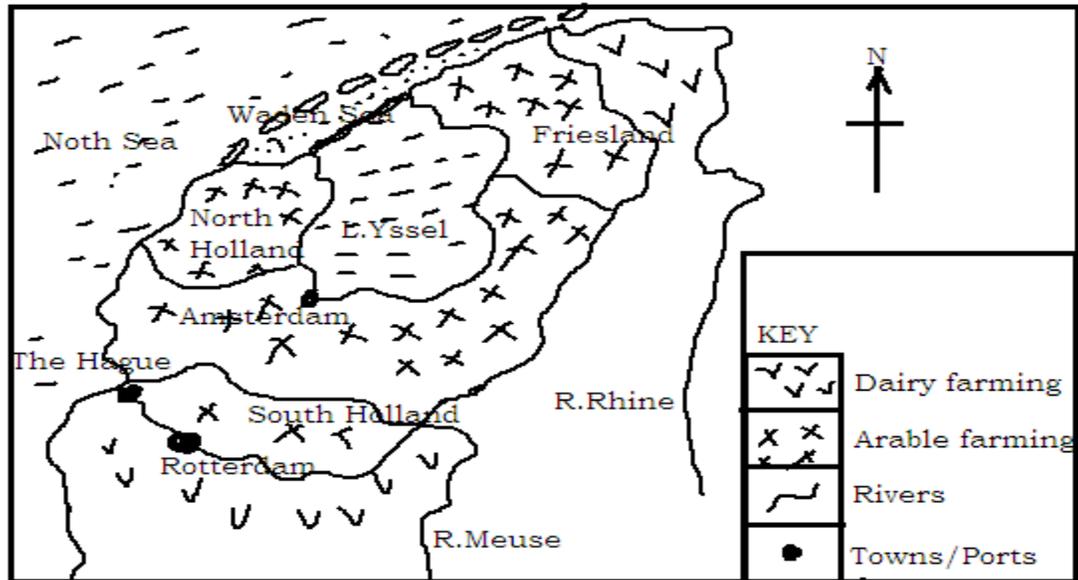
- Modern/high level of technology to support dairy farming e.g. use of milling machines, use of wind mills to pump water, etc simplifying work on the farms.
 - Wide/large market for dairy products both at home and abroad.
 - Presence of adequate/sufficient capital to invest in the dairy industry.
 - Well developed/efficient transport system e.g. by air, water, road, railway etc, for east transportation of dairy products to the market.
 - Intensive research in dairy farming by universities and other agricultural institutions on market, New breeds,
 - Supportive/positive government policy through provision of capital/loans to the farmers and creating good investment climate.
 - Skilled labour to work on the farms.
 - Presence of well developed cooperative societies/movement for easy marketing of processing loans, transporting of dairy products.
 - Political stability giving peace and a conducive climate for dairy farming.
- (c) **Explain the contributions/Benefits of dairy farming to the development of Netherlands:**
- Provision of employment opportunities thus improving standards of living.
 - Provision of market for industrial products e.g. machines, sprays.
 - Development of infrastructure like roads, railways for easy transport of dairy products to market.
 - Revenue for the government through taxation.
 - International relationship/regional cooperation through trade and exports.
 - Development of industries making cheese, butter, yoghurt, powdered and condensed milk.
 - Increased income for the households thus improving standards of living.
 - Growth of urban area/urbanization in the rich agro-processing zones e.g. Rotterdam./ Has led to growth of urban centres and ports e.g. Rotterdam, Amsterdam with associated advantages.
 - Diversification of the economy thus reduction overdependence on one economic activity
 - Has promoted economic diversification thus reducing over reliance on one sector.
 - Source of valuable animal protein/food e.g. milk products leading to improved nutrition./ Source of rich animal proteins from milk and milk products leading to improved health
 - Source of foreign exchange for the government from exportation of animal products.
 - It's a source of power/biogas used for domestic purpose.
 - It is a source of manure from animal wastes.
 - Has increased incomes leading to better standard of living.
- (d)(i) **Dairy products;** - Cheese/ghee, Butter, Yogurt, Powered, powdered milk.
- (ii) **Countries where Netherlands products are exported to;**
- Belgium, Any African Country, USA, United Kingdom, Any Asian Country.

4. Draw a sketch map of The Netherlands and on it mark and name;
- Towns; Amsterdam, Rotterdam and The Hague,
 - The North Sea,
 - Any one major arable farming area,
 - Any one major dairy farming area.

Arable farming is the cultivation of land to grow crops like cereals, fodders, potatoes. **While**

Dairy farming is the rearing of animals mainly for milk and milk products.

- (b) **A sketch map of Netherlands showing Dairy farming, Arable farming areas, The North Sea and selected Towns;**



Study the table below showing different types of farming on the Dutch Polders and answer the questions that follow;

Table 61

Type of farming	Percentage of land Area covered
Market gardening	07
Mixed farming	35
Arable farming	53
Orchards	05
Total	100

Adapted: Beddis, R. Place, Resources and People, Book 2 p75.

- (a) Identify the type of farming which occupies the;
- Largest,
 - Least, percentage of land area on the Dutch Polders.
- (b) Draw a pie chat to show the relative importance of each type of farming.
- (c) (i) Name any **two** polders in The Netherlands.
- (ii) Describe the processes involved in the formation of a Polder.
- State **two** products from each of the following farming practices;
- **Products from Mixed farming;**

- Arable farming; Sugar beets, cereals, Potatoes,
- Animal rearing; Cheese, Butter, milk.
- **Products from Orchards;**
 - Peers, Cherries, Apples.
- **Products from Market gardening;**
 - Lettuce, Cabbages, Tomatoes, Cumber, Onions, Flowers, fruits, Mushrooms.

(a)(i) Largest type of farming in terms of landuse is arable farming with 53%.

(ii)Least area is occupied by Orchards with 05%.

(b) Calculating degrees from percentages;

$$\text{Market gardening} = \frac{07}{100} \times 360^\circ = 25.2 \approx 25^\circ$$

$$\text{Mixed farming} = \frac{35}{100} \times 360^\circ = 126^\circ$$

$$\text{Arable farming} = \frac{53}{100} \times 360^\circ = 190.8 \approx 191^\circ$$

$$\text{Orchards} = \frac{05}{100} \times 360^\circ = 18^\circ \text{ (Cal 04 marks)}$$

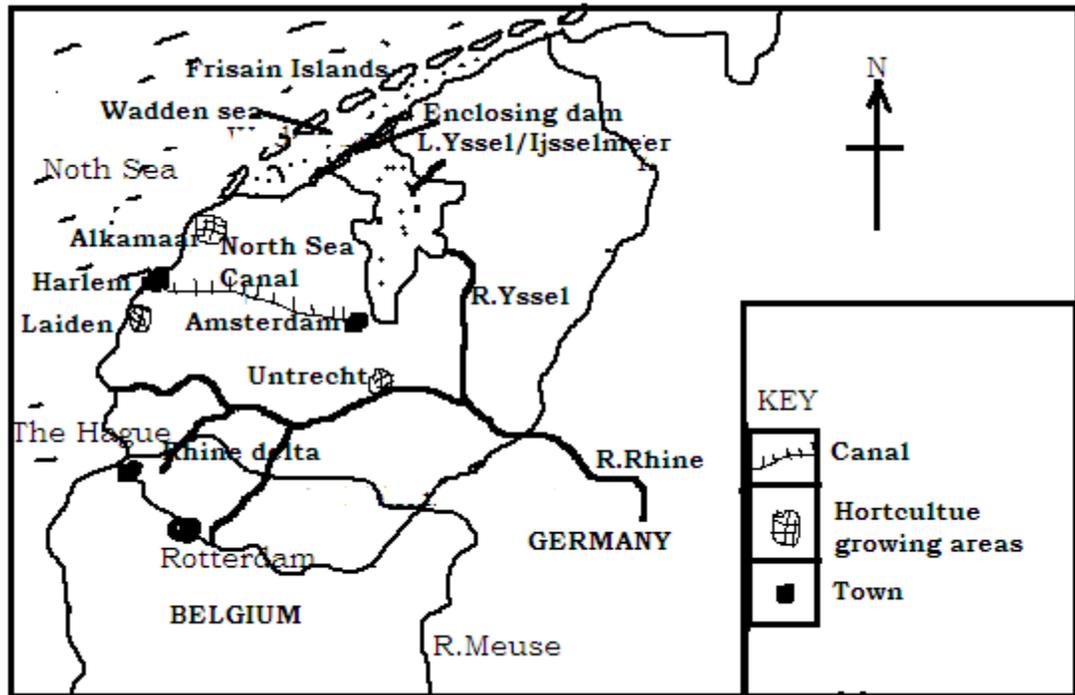
A pie chart showing the relative importance of each type of farming on the Dutch polders. **(Use your graph book)**

(Only percentages to be portrayed in the Pie Chart) (ACC =04marks)

HORTICULTURE IN NETHERLANDS:

- (a) Draw a sketch map of The Netherlands and on it mark and name;
- (i) River Rhine, (iii) Towns; Haarlem, The Hague, and Amsterdam,
 - (ii) Lake Ijsselmeer, (iv) Any two areas under horticulture,

(a)A sketch map of The Netherlands showing selected features;



- (b) (i) **Crops grown under horticulture** in the areas named in (a)(iv) above.
- Flowers, Cherries, Plums, Apples, Fruits, Pears.
- (ii) **Factors which have led to the development of horticulture in The Netherlands.**
- The flat landscape allows mechanization.
 - The fertile alluvial clay soils facilitate luxuriant growth of horticultural products.
 - Strategic location of Netherlands near densely populated countries of over 200 million people provide a ready market to the Dutch horticultural products,
 - The cool summer temperatures and mild winters of about 10°C favour growth of horticultural products.
 - The moderate rainfall of about 750mm pa allows proper growth of horticultural products.
 - Extensive research that has led to high yielding and quick maturing crops.
 - Modern technology like the use of green houses where water, temperatures and moisture are regulated.
 - The ready market for horticultural products both within Netherlands and abroad.
 - Strong farmers' cooperatives have increased capacity for loans and collective marketing of horticultural products.
- (c) Problems affecting horticultural industry in The Netherlands.**
- Salination of soils due to underground seepage of the salty sea water limits crop growth.
 - River flooding which leads to destruction of crops and farmlands.
 - The large sums of capital needed to run the business limits its expansion.
 - Inadequate rain fall especially during the winter season limits drop growth.

- Overdependence of foreign market due to limited home market leads to wastage.
- Shortage of labour during harvesting season leads to wastage.
- River flooding which leads to destruction of crops and farmlands.
- Soil exhaustion due to intensive cultivation leads to low output.

(d) Measures being taken to solve the problems above:

- Exporting excessive production to foreign market to eliminate excessive harvest.
- Building embankment to control flooding.
- Reclaiming of more land from the sea to reduce land shortage.
- Using green houses to reduce overdependence on natural conditions.
- Acquiring loans from farmers' cooperative banks to increase capital.
- Using fertilizers to improve soil fertility.
- Growing high quality products to cover-up the high costs.
- Practicing intensive farming which requires less land.

POLDERISATION IN THE NETHERLANDS

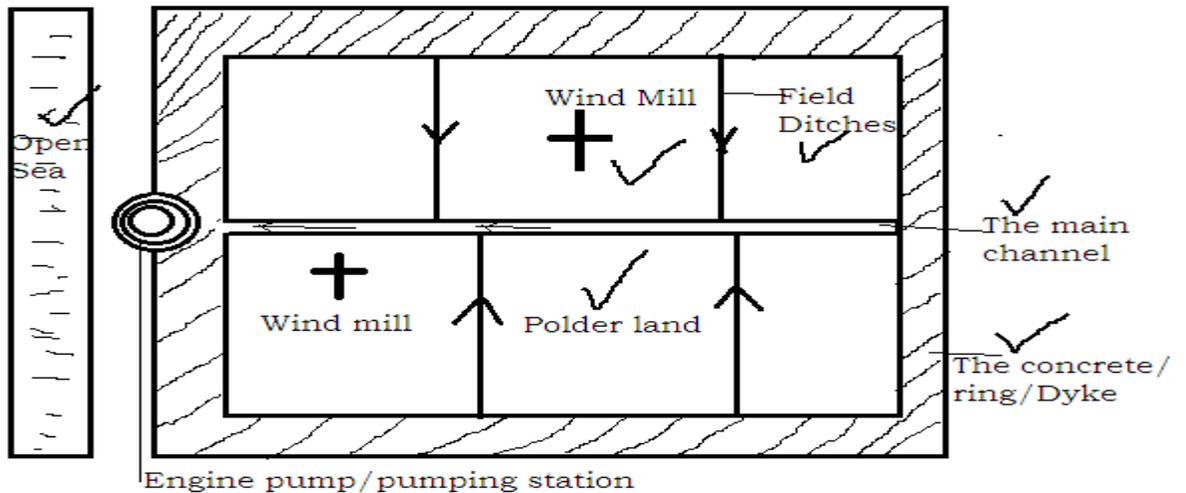
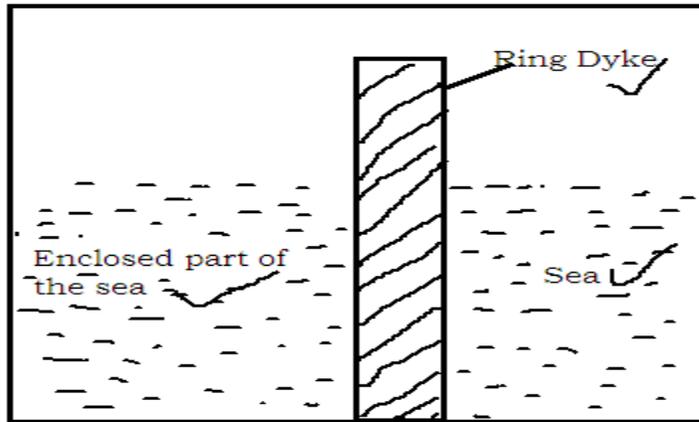
Any two polders in The Netherlands;

- | | |
|---------------------|----------------------|
| -Markerwaard, | - South Flevoland |
| -Eastern Flevoland, | - Eastern Flevoland |
| -Wieringermeer, | - North East Polder. |

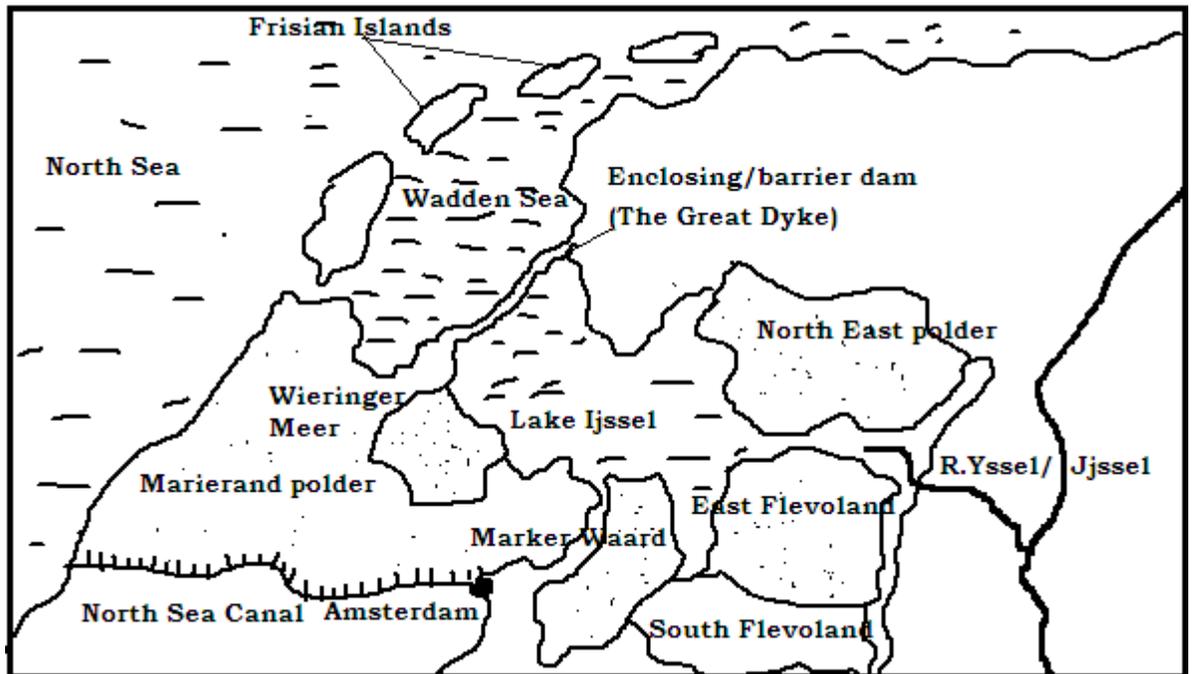
The process of land reclamation in the Netherlands; /Polder formation

- Survey/exploration to establish the nature of rocks/soils dept is done.
- Ring dykes are constructed around the areas to be drained using materials such as concrete, Blocks, clay and sand.
- The water from the reclaimed area is then pumped out by wind/pump run by wind energy.
- Trenches/Ditches are then constructed to drain out water from the enclosed land.
- A major central channel/canal is constructed to take the water from the drained area.
- Desalination of land using reeds and lime to remove excess salts from the land is done.
- Irrigation is done using fresh water from the nearby rivers/water sources to further reduce the saline conditions.
- Deep ploughing/cultivation for further softening of the soils using deep ploughing equipment.
- Pasture is then planted in the reclaimed land.
- Polders are finally used food production and animal rearing, settlement, recreation and industrialization.

OR **Illustration by a diagram;**



A sketch map showing the Zuider Zee polders;



(b) Explain the conditions which necessitated the establishment of the Zuider Zee polders.

- Need to create fresh water source for domestic and industrial use.
- Advanced technology by invention of wind mills leading to easy reclamation of land.
- Need to control sea incursions from the North Sea.
- Need to create more land for agriculture.
- Need to create more land for industrial development.
- Need to create more land for forestry.
- Need to create more and for recreation/tourism.
- Need for land for development of transport and communication.
- To desalinate the soils for better crop yields.

Factors which favoured the establishment of Zuider Zee polders;

- Highly developed technology to construct/establish polders.
- The low lying areas that made it possible to block the sea from the land.
- Large capital base to invest in the establishment of polders.
- Abundant skilled labour to construct dykes and to pump water out of the Polder areas.
- Availability of wind energy due to strong wind to run the wind mills for further draining of the area.
- Supportive government policy towards land reclamation in Netherlands.
- The large population that needed land for settlement and farming practices.
- The narrow gap area between Wadden Sea and Lake IJssel that was easy to connect with the Great Dyke/Barrier dam.
- The need to have fresh water for both domestic and industrial uses.

Environmental problems which resulted from land reclamation in

Netherlands; /Problems faced by farmers on the Dutch Polders;

/problems which resulted from the establishment of polders in The Netherlands

- Pollution of land, air, and water sources due to application of agro-chemicals, fertilizers, herbicides, etc.
- Saline conditions as a result of underground seepage which reduces soil productivity.
- Rapid growth of weeds discourages crop growth
- Rapid growth of winds which compete with crops and pastures.
- High population density with its associated disadvantages such as slums, congestion, employment.
- Water logging conditions which lead to water borne diseases and unhealthy conditions for the people.
- Siltation of the channels leading to constant flooding that needs regular dredging that is costly.
- Sea incursions/floods leading to destruction of property in the reclaimed areas.
- Unstable/sinking of land making it unsuitable for human activities like farming, settlement, industrialization.
- High cost of maintaining the polders.

- Soil exhaustion leads to low yields/ Infertile sandy soils lead to low yields.
- Sinking of the land threatens farmers.
- High cost of leasing land for agriculture coupled with high taxes which have increased the prices of agricultural products.
- Soil salination still continues from underground leading to yields.
- Higher cost of agricultural land due to high costs of inputs./ Shortage of land limits expansion of farmlands.
- High maintenance cost of the polders.

Study the table below showing land use on a typical polder in The Netherlands and answer the questions that follow;

Table

62

Form of land use	Percentage of land area
Arable land	22
Buildings, roads, and water	18
Grasslands	43
Woodlands, Heath and dunes	13
Horticulture	04
Total	100

Adapted: Gibbs, C.W The Rhineland, Revised Editions pg 112.

(a) Draw a pie chart to show the information contained in the table.

(Use your graph book)

(b) State the form of land use which occupies the;

- (i) Least (ii) Largest land area on the polders in The Netherlands.

Study the table below showing land reclamation in the Netherlands and answer the questions that follow;

Table

63

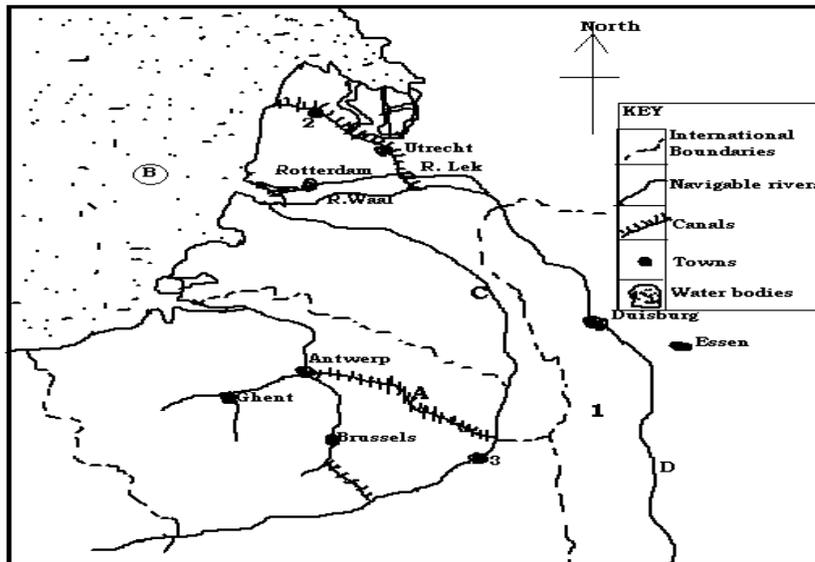
Century	Land reclaimed (KM)
1400 – 1500	430
1500 – 1600	730
1600 – 1700	1,150
1700 – 1800	510
1800 – 1900	1,200
1900 – 2000	730

Adapted: Gibbs; C.W The Rhineland. Revised Editions pg 96.

(a) Draw a line graph to show the trend of land reclamation in the Netherlands. **(Use your graph book)**

(a) (i) The century when the largest area of land was reclaimed is 1800 – 1900.

(ii) **Factors/Reasons which have led to the increase in the area reclaimed during the period identified above;**



- (a) Name the;
- | | |
|-----------------------------|---------------------------|
| (i) Canal marked A, | (ii) Water body marked B, |
| (ii) Rivers marked C and D, | (iv) Country marked 1, |
| (iii) Towns marked 2 and 3. | |

(a)(i) Canal A is Rhine Scheldt canal. (ii) Water body B is The North Sea.
 (iii) Rivers; C is Maas/Meuse, D is Rhine.

(iv) Country 1 is Germany (v) Towns; 2 is Amsterdam. 3 is Liege.

(b) **Factors which influenced the location of Rotterdam port;**

- Proximity to the coast- Its location near the North Sea making it a gateway to Europe and the rest of the World.
- Its strategic position at the head of navigable rivers like Rhine, Maas and Waal.
- Rich and productive hinterland both agriculturally and industrially in Germany, Switzerland, Luxembourg, Belgium and France.
- Advanced technology of establishing modern port facilities such as dredging of shallow areas, construction of canals, polders, locks, and dock gates.
- Historical factors- Area of ancient settlement which gained importance overtime through trade and establishment of agro based industries.
- Existence of a sheltered harbour from strong winds.
- Low tidal range which allows navigation of large Ocean/sea Vessels.
- Generally flat landscape for establishment of port facilities.
- Ice free conditions all the year round due the North Atlantic Drift which allows the functions of the port throughout.
- Existence of vast land for construction of Rotterdam port.

- Large capital provided by the government for construction and establishment of port facilities.
- Supportive government policy towards construction of port facilities.
- Availability of large population provides a large market.
- Abundant skilled labour like engineers needed in construction of port facilities.

Exports handled by Rotterdam port;

- Cars, Watches, Engines, Chemicals, Air Crafts, Textiles, Newsprints.

Imports handled by Rotterdam port;

- Tobacco, Sugar, Maize, Tropical hard wood, Minerals like Iron ore.

(c) **Functions of Rotterdam Port;**

- It serves as an EntrePort that is an international EntrePort for Rhineland.
- Serves as a centre of commerce and trade like banking, trading, others.
- Industrial centre with numerous industrial establishments.
- It is a transport and communication centre with water, air and railways.
- Serves as an administrative centre.
- It is a tourist centre.
- It also serves as a residential centre.
- It's a cultural centre.
- It is a recreational centre.

Problems facing Rotterdam Port;

- Constant flooding due to situation of the area below sea level.
- Silting of the seaway due to location at the delta of the Rhine.
- Constant dredging makes its costly.
- Congestion at the port. Leads to delays.
- Water and air pollution due to oil spillage, industrial wastes, fumes emission.
- High crime rates due to unemployment.
- Limited land limits expansion of the port.
- Marshes and water logging limits expansion of the port.
- High spread of pest and water borne diseases.

(d) **Steps being taken to improve Rotterdam Port.**

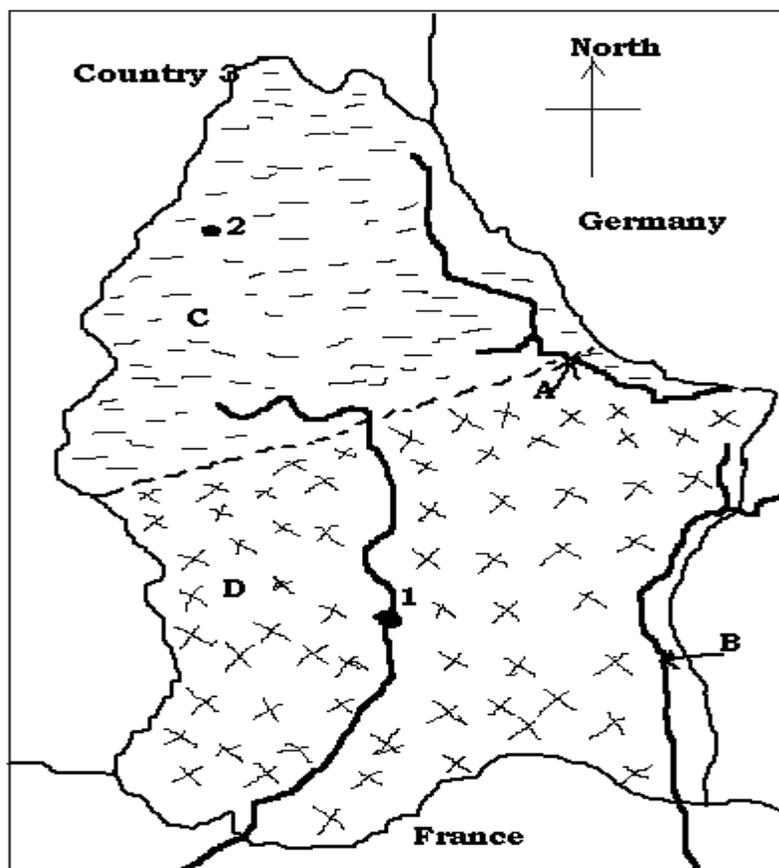
- Drawing of time tables to minimize delays and congestion.
- Containerizing of goods for quick loading and off loading.
- Expanding of port facilities to include Europort.
- Constructing of by-pass canals to minimize congestion.
- Establishing of Europort project to shorten the coastline and minimize sea incursion.
- Forming regional co-operation of Rhineland countries for Joint development of Rotterdam port and Rhine waterway.
- Using of strong/flood lights to improve on visibility.
- Using of radars to detect the incoming ships.
- Dredging of canals/New water ways to allow large water vessels sail.
- Treating/recycling of wastes to reduce pollution.

- Using of roll on and roll off facilities (Vehicles are directly driven on/off the ship) at the port to reduce congestion.
- Reclaiming of more land around the port to create more room for expansion

LUXEMBOURG

AGRICULTURE

1. Study figure below: Map of Luxembourg provided below and answer the questions which follow;



- (a) Name the;
 - (i) Rivers marked A and B,
 - (ii) Physical regions marked C and D,
 - (iii) Towns marked 1 and 2.
 - (iv) Country marked 3.
- (a) (i) Rivers; A is R. Sure, B is R. Mosselle / Mossel
- (ii) Physical regions; C is Oesling highland D is Guiterland Lowland
- (iii) Towns; 1 is Luxembourg, 2 is Wiltz
- (iv) Country 3 is Belgium.
- (a) (i) **Crops grown in Oesling Highlands;**

- Oats, - Barley - Rye - Potatoes

Crops grown in Guiterland lowlands;

- Wheat, Rye , Vines/grapes,

(ii) Conditions which have favoured mixed farming in Luxembourg;

- Low land areas/Guiterland which is relatively flat favours mechanization.
- Fertile soils deposited in the lowland (Guiterland) support both the growth of pastures and crops.
- Relatively warm temperatures favour both crop growing and animal rearing.
- Availability of adequate capital for investing in mixed farming.
- Availability of a ready markets both internally externally for the agricultural produce.
- Efficient transport system by road, railway and water to facilitate the movement of inputs and products.
- Availability of skilled labour to work on the farms.
- Advanced technology employed in arable and dairy industry.
- Favourable government policy that promotes agricultural sector by providing capital for agricultural development.
- Adequate pasture on which animals feed.
- Availability of adequate water supply for animals to drink.

(b) Contributions of agriculture to the development Luxembourg;

- Source of revenue to the government through taxation leading to the development of infrastructure.
- Provision of employment opportunities to a large population leading to improved standard of living.
- Source of food for the population leading to better nutrition and health.
- Development of infrastructure like roads, railways, water canals facilitating movement of goods, services and people.
- Improved international relations through exportation of agricultural products/trade links.
- Waste from animals industry acts as manure used to improve crop productivity.
- Growth of towns/urban centres and their associated advantages like market and labour.
- Diversification of the economy thus reducing overdependence on other sectors.
- Provision of income leading to improved standard of living.
- Provision of foreign exchange through export of agricultural products.
- Provides raw a materials for agro-based industries that use agricultural products like food processing industry.

(c) Countries that import agricultural products from Luxembourg;

- Belgium
- Holland/The Netherlands, Spain
- France. – Switzerland,
- Germany – Britain,

POPULATION OF LUXEMBOURG:

POPULATION DISTRIBUTION

(a) Conditions which have influenced population density in Luxembourg;

- **Nature of soils**, areas with fertile soils in the south support agriculture leading to high population density while areas with infertile soils have discouraged agriculture leading to low population density.
- **Nature of altitude**, Areas of low altitude have warmer temperatures leading to dense population while areas with high altitude have very cold temperatures thus sparsely populated.
- **Nature of relief**; Areas with rugged relief are inaccessible hence discourage settlement leading to low population density while areas with family flat relief in the South West have attracted transport and communication hence dense population.
- **Nature of economic activities**, Areas with agricultural and industrial activities have attracted high population densities due to high population due to provision of employment opportunities while areas with limited economic activities especially agricultural and industrial activities have low population densities due to low chances of employment and low level of productivity.
- **Nature of drainage** especially in the South East has attracted medium population density because it's prone to flooding while well drained areas like the South West have attracted dense settlement.
- **Well developed transport and communication** attracts dense population due to easy movement and trade.
- **Presence of forest vegetation** in the North discourages settlement hence sparse/low population density.
- **The government policy** of keeping the North under forest cover discourages crop farming and hence low population density.

(b) Advantages of a high population density in South West of Luxembourg;

- The population is a potential source of cheap labour supply where some people are employed in the industrial and agricultural sector.
- Large population density offers market for goods and services.
- There is better utilization of the available resources and infrastructure.
- It is easy to extend social amenities and services.
- The high population density increases the revenue to the government because of increased tax base.
- The high population offers security to the country like in form of defense force.

(c) Disadvantages/problems of a high population density;

- It creates land shortage due to too much pressure on land.
- Traffic congestion leading to delays.
- Overcrowding of people leading to easy spread of diseases.
- Poor housing conditions/ development of slums leads due to low incomes.
- Environmental pollution leads to degradation of land, water and air.

- Food shortage leads to poor health.
- High crime rates due to unemployment.
- Over utilization of available resources leading to their degradation.

(d) Measures being taken to solve the problems in High population density areas;

- Encouraging vertical expansion/constructing storeyed buildings to maximize the available space.
- Constructing of underground tunnels to decongest surface roads and railways.
- Emphasizing industrialization to check on unemployment rate.
- Establishing of well planned housing estates to solve the problem of slum development.
- Carrying out family planning to control population growth.
- Using of strict laws/police to control the problem of high crime rates.
- Importing of food/agricultural modernization.
- Establishing of green belts to control environment degradation.
- Establishing of hospital and health centres to control diseases.
- Rural transformation programmes/peripheral development to minimize rural to urban migration.
- Establishing of industries in the low population areas.
- Encouraging migration to the areas of low population/setting up resettlement schemes in areas of low population.

AGRICULTURE IN LUXEMBOURG

2. Study **table 64:** showing cereal production in Luxembourg ('000' tones) in 2013 and answer the questions that follow;

Table 64: Luxembourg: 2013 Cereal Production in '000s tones (2013)

Cereal	Production
Rice	7
Wheat	91
Rye	5
Barley	42
Maize	2
Others	26
Total	173

Adapted: Eurostat: Agriculture, Forestry fisheries statistics

(a) Draw a pie chart to show the relative importance of each cereal crop in Luxembourg.

Calculations;

$$\begin{aligned} \text{Rice} &= \frac{7,000}{173,000} \times 360^\circ = 14.6^\circ \approx 15^\circ && (4.04\%) \\ \text{Wheat} &= \frac{91,000}{173,000} \times 360^\circ = 189.4^\circ \approx 189^\circ && (52.6\%) \\ \text{Rye} &= \frac{5,000}{173,000} \times 360^\circ = 10.4^\circ \approx 10^\circ && (2.9\%) \end{aligned}$$

$$\begin{aligned} \text{Barley} &= \frac{42,000}{173,000} \times 360^\circ = 87.39^\circ \approx 87^\circ && (24.3\%) \\ \text{Maize} &= \frac{2,000}{173,000} \times 360^\circ = 4.2^\circ \approx 4^\circ && (1.2\%) \\ \text{Others} &= \frac{26,000}{173,000} \times 360^\circ = 54.1^\circ \approx 54^\circ && (15\%) \end{aligned}$$

A pie-Chart showing the relative importance of each cereal crop in Luxembourg; **(Use your graph book)**

(NB: showing percentage values and degrees in the pie chart)

(b)(i) Percentage contributed by

$$\text{Wheat} = \frac{91,000}{173,000} \times 100 = 52.6\%$$

(ii) Percentage contributed by

$$\text{Barley} = \frac{42,000}{173,000} \times 100 = 24.3\%$$

(c) **Conditions favouring cereal production in Luxembourg;**

- The presence of fertile soils derived from sandstones and limestone favour cereal production.
- The southern part of Luxembourg is not exposed to extreme winter season.
- The presence of large pieces of land encourages cereal production.
- The gentle landscape in the southern Luxembourg encourages mechanization of agriculture.
- Abundant supply of labour due to high population density in the Southern Luxembourg.
- The availability of large capital for purchase of machinery for cereal production.
- Existence of large market for cereals due to big populations in neighbouring Southern areas of Luxembourg.
- The positive government policy that supports agricultural production for self sufficiency.
- Availability of efficient transport system to bring in agricultural inputs and take away agricultural outputs for exports.
- Advanced technology with intensive use of agricultural inputs for high production.
- Intensive research encourages high crop production.

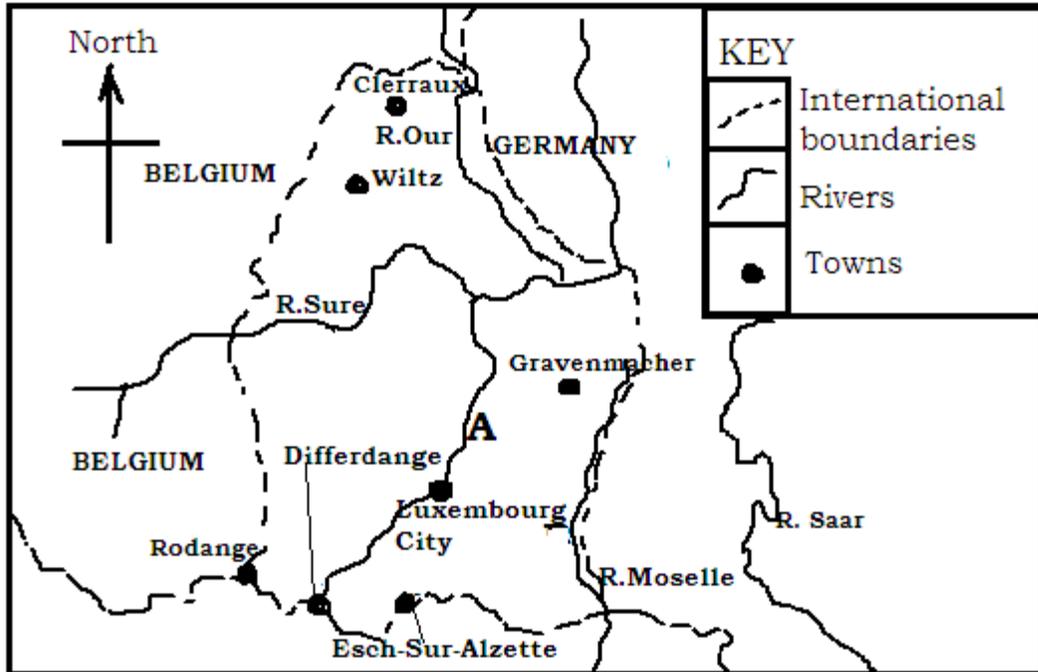
(d) **Benefits of agricultural sector in Luxembourg;**

- A source of food for the population.
- Increased self sufficiency in food and savings on food imports.
- Provision of employment opportunities to the people of Luxembourg.
- It is a source of Government revenue for the development of other sectors.
- A source of raw materials for agro-based industries.
- Increased income and standards of living for the people.
- There is diversification of economy in Luxembourg.
- Leads to development of infrastructure like roads, railways, canals.
- It has generated foreign exchange to the country.
- It has led to growth of urban centres and associated advantages,

- There is promotion of international relations.
- Agricultural sector as served as market for industrial goods in Luxembourg.

MANUFACTURING INDUSTRY IN LUXEMBOURG

3. Study figure 4, Showing industrial centres in Luxembourg and answer the questions that follow;



- (a) Name the; (i) Rivers marked A, B and C,
(ii) Neighbouring countries marked 1 and 2,
(iii) Iron and steel industries centres marked 3 and 4.
- (a) (i) Rivers; **A** is R. Alzette, **B** is R. Moselle, **C** is R. Sure.
(ii) Neighbouring countries; **1** is Belgium, **2** is Germany
(iii) Iron and Steel industrial centres; **3** is Esch-sur-Alzette, **4** is

Dudelange.

- (b) **Factors which favoured the development of iron and steel industries in the above industrial centres; (LUXEMBOURG)**

- Presence of a variety of raw materials like locally available iron ore in the Southern part of Luxembourg at Differdange, Dudelange.
- Easy accessibility to imported coal from Ruhr coal fields of Germany.
- Efficient transport by railway and water to distribute raw material to industries and finished goods to markets.
- Availability of a large capital base from large companies like A.R.B.E.B to invest in development of iron and steel industries.
- Availability of a ready market provided by European countries like Belgium, Germany, Sweden.
- Availability of advanced technology to develop industries like use of machines.

- Availability of skilled labour from Luxembourg and surrounding countries to work in the iron and steel industries.
- Presence of large volume of water from numerous rivers like Alzette, Moselle, Sure for cooling machines/industrial use.
- Availability of a stable power for industrial use/to run the industrial machines.
- Positive government policy that encourages industrial development through giving incentives to industrialists.
- Relatively stable political climate that is conducive for industrial establishment.
- Intensive industrial research leading to production of quality iron and steel products.

(c) **Contribution of the industrial sector to the development of Luxembourg;**

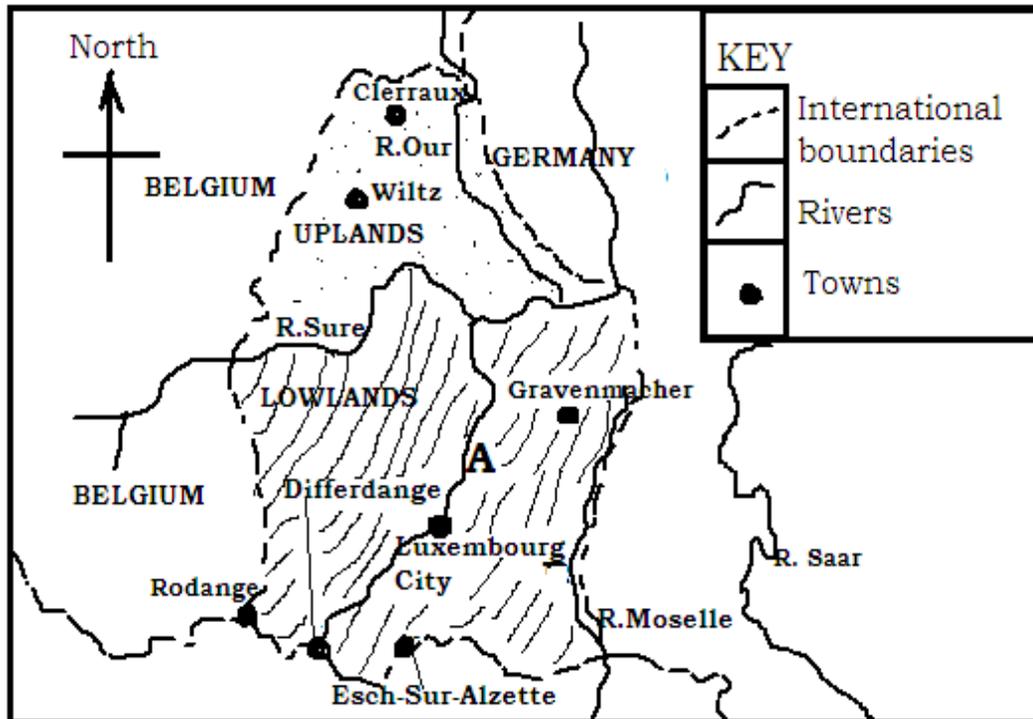
- Provides employment opportunities to the people of Luxembourg leading to better standard of living.
- Has increased incomes for the people leading to better Standard of living.
- Has led to growth of towns/urbanization leading to increased access to urban facilities like market, accommodation, employment.
- Has led to development of infrastructure like roads, railways, waterways, leading to economic development.
- Has led to diversification of the economy which reduces overdependence.
- Has encouraged regional cooperation and international relations hence more trading opportunities.
- Generates government revenue from taxes that is used to provide social services.
- Provides consumer goods like iron and steel products hence reducing dependence on imported steel products.
- Provides market for goods from other sectors like mining, agriculture leading to development of such sectors.

(d) **Problems facing the industrial sector in Luxembourg;**

- Exhaustion of Local iron ore deposits necessitating importation of expensive iron ore from Alsace and Lorraine of France.
- Competition for market with other iron and steel producing countries like Belgium, France, Germany.
- General economic recession in Europe and America affects the market for iron and steel products.
- Increased cost of transportation of raw materials and finished good/Landlockedness increases the transport costs.
- Shortage of skilled labor limits industrial operations.
- Competition for land with other forms of landuse/land shortage.
- High cost of reducing pollution of air, land and water/stringent anti – pollution laws.
- Environmental pollution of air. Land and water.
- High production costs due to use of imported raw materials and power.

MANUFACTURING INDUSTRY IN LUXEMBOURG

- (a) A sketch map of Luxembourg showing selected physiographic regions, rivers, towns and neighbouring countries.



- (b) **Conditions which have led to the development of industries in Luxembourg:**

- Huge power from coal and major rivers like Mossel to run industrial machines of Iron and Steel, Textiles in Luxembourg City.
- Abundant raw materials like iron ore from the South Western corner of Luxembourg to feed industries for example Iron and Steel industries in Luxembourg City and Differdange.
- Abundant skilled labour to work in industries for example chemical engineers needed in the textile industries found in Luxembourg City.
- Large capital to purchase industrial raw material and equipment like cotton to feed textile industries in Luxembourg City.
- The wide market from Luxembourg and neighbouring countries to buy the products from food processing industries in Differdange.
- Efficient transport network based on roads and railways for distributing Cotton and garments to and from textile industries found in Luxembourg City.
- Modern technology such as conveyor belts, automatic machines which increase efficiency in Textile industries of Luxembourg City.
- Influence of foreign investors from USA, Germany and France who have invested in textile industries in Luxembourg City.
- Supportive government policy such as tax free conditions has favoured Iron and Steel industries in Differdange and Luxembourg City.

(c) **Contributions of the industrial sector to the development of Luxembourg;**

- Has stimulated development of roads and railways thus facilitating trade and commerce in Luxembourg.
- Has created employment opportunities from which people earn income to improve their standard of living.
- Source of foreign exchange through exportation of manufactured goods to USA and France.
- Has led to growth of towns like Differdange and Luxembourg City which provide accommodation and other social services to the people.
- Has promoted economic diversification thus reducing over reliance on tourism industry and Banking.
- Has promoted international cooperation between Luxembourg and her trade partners like USA and France.
- Provides consumer and capital goods to people thus leading to improved standard of living.

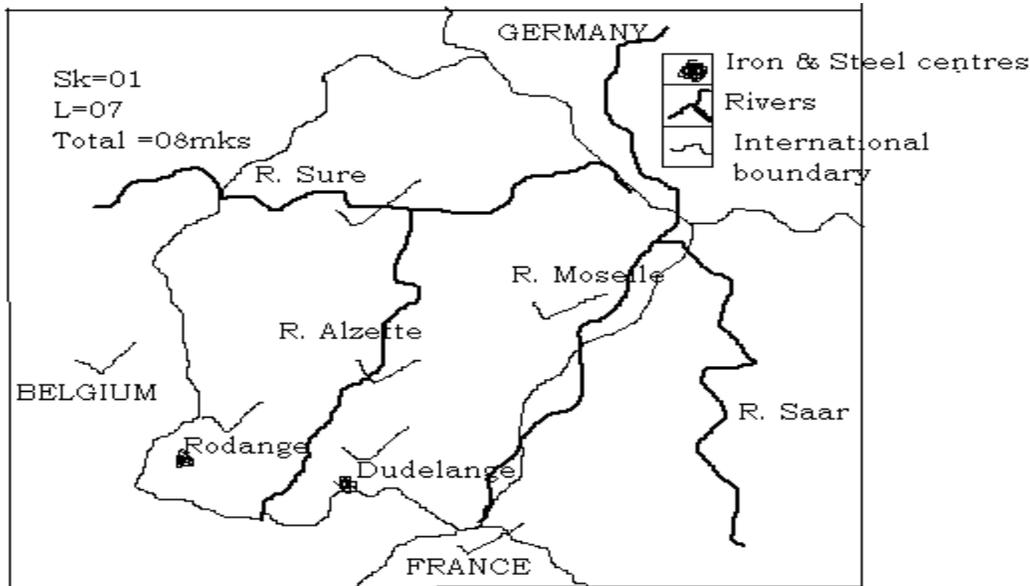
(d) **Challenges faced by the industrial sector in Luxembourg;**

- Limited domestic market due to small population of about 420,400 people discourages production.
- Shortage of skilled labour during busy hours leads to wastage and limited production.
- Exhaustion of raw materials like iron ore limits production.
- Competition for market with other developed countries.
- Limited land for expansion of industries limits output.
- Pollution from fumes and industrial discharge affects labour efficiency.

(a) Draw a sketch map of Luxembourg and mark and name;

- (i) Rivers; Alzette, Moselle and Sure,
- (ii) Neighbouring countries; France and Belgium,
- (iii) Iron and Steel industries; Dudelange and Rodange.

(a) **A sketch map of Luxembourg showing Iron and Steel Industries;**



(b) **Describe the conditions for location of Iron and steel industries:**

- Large iron ore alluvial deposits which are located near industries centres of Dudelange and Rodange.
- Large supply of water for use in iron and steel industries/proximity to rivers such as Moselle.
- Supportive government policy towards industrial development e.g. provisions of loans, searching for market, etc.
- Well developed/cheap means of transport by water, railways to link industrial centres to market centres.
- Strategic location in the most densely populated regions of Luxembourg for both labour and market.
- Presence of Gazzetted land for establishment of industries.
- Reliable source of HEP from rivers such as sure and Moselle.
- Skilled labour for industrial products due to large production.
- Large sums of capital to invest in the industries.
- Modern/advanced technology leading to quality production.

(c) **Explain the effects of industrialization on the environment.**

NB: The effects should be both positive and negative;

Negative effects include;

- Pollution of water, land, and air by industrial gases and wastes.
- High cost of land due to competition with other forms of lands use.
- Overcrowding leading to poor sanitation.
- High rates of crimes like gambling, pick pocketing.
- Creation of hollows that destroy soil structures.
- Los s of vegetation/Destruction of wetlands leading to loss of bio-diversity.
- Unemployment due to large population leading to high cost of living
- Displacement of people leading to high cost of resettlement.
- **Positive effects;** Increased standard of living due to increased income.

- Growth of infrastructure such as schools, roads, railways, others.
- Diversification of the economy reducing overdependence on one sector.
- Foreign exchange is earned through exports.
- Promotes tourism which earns foreign exchange.
- Urbanization like Rodange and Dudelange which provide employment.
- Employment which earns people income.
- Provides market for agricultural, mineral and forestry products.
- Has created international relations between Luxembourg and her importing Countries hence attracting more aid.

(d) **Suggest measures that should be taken to improve the industrial sector in Luxembourg;**

- Relocation of industries to less congested areas.
- Diversification of energy resources to supplement HEP and coal.
- Recycling and re-use of industrial materials.
- Creation of industrial linkages forward and backward to raw material and market respectively.
- International cooperation for the efficient use of shared resources e.g. iron ore shared with France/Extension of markets in the European Union.
- Human resource development and training.
- Importation of raw materials from countries where raw materials are abundant.
- Aggressive marketing/extensive marketing strategy through advertising beyond European Union.
- Employing more skilled labour to work in industries.
- Modernization of transport network for faster movement of raw materials.

HISTORY

THE LUO MIGRATION

Origins

- The Luo are also referred to as the **River-lake nilotes.**
- They originated from Bahr el- Ghazel in southern Sudan.
- They are known as River –Lake Nilotes because they settled along Rivers and lakes.
- Their migration took place between 1350 - 1500 A.D.
- They entered East Africa through the Northern part of Uganda following the Albert Nile.
- They included tribes like Alur, Langi, Acholi, Japadhola and Ja-luo of Western Kenya.

Causes of the Luo migration

- ❖ Search for water and pasture, the Luo migrated from their cradle land because they lacked enough water sources and pasture for their animals.
- ❖ Population pressure: Their cradle land was over crowded and due to over grazing of their animals in Bahr-el-Ghazel.
- ❖ Internal conflicts: Some Luo migrated to E.A because they were constantly included in civil wars over land and animals.
- ❖ External-conflicts: There was a lot of pressure from their neighbors especially the Galla from Ethiopia which forced the Luo to migrate into E. Africa.

- ❖ The hostile climate of the southern Sudan also led to the Luo migration into E. Africa. i.e. prolonged drought.
- ❖ The Luo also had the desire to export their political culture and organization. E.g. some of them wanted to exercise their political rights.
- ❖ Band Wagon effect: i.e. some of the Luo migrants simply migrated as a result of seeing their relatives moving.
- ❖ Love for adventure: Some Luo migrants especially the youth were interested in knowing what was happening in other areas.
- ❖ Natural calamities: e.g. drought and famine also led to Luo migration into E. Africa.
- ❖ The southward movement of the Sahara desert also led to the Luo migration into E. Africa.
- ❖ Some historians attribute the Luo migration to over flooding since they lived along the banks of R Nile.
- ❖ Misfortunes and epidemics e.g. sleeping sickness and Nagana led to the Luo migration into E. Africa.
- ❖ The Luo also migrated to look for fertile areas that could support agriculture since some of them were farmers.
- ❖ The Natural aggressive tendencies of the Luo also led to their migration into E.A so as to conquer the weak people.
- ❖ The need to settle around water bodies and rivers since they did some fishing also forced them to move.

Course/organisation of the Luo migration

- The Luo left Bahr-el-Ghazel around the 15th century.
- They then moved southwards following the River Nile under their leader Olum.
- Around the 16th century, the Luo settled at Pubungu (present day Pakwach).
- Therefore Pubungu became their area of dispersal/separation.
- From Pubungu the Luo split into two groups.
- Each group was under its own ruler and moved into a different direction.
- One group led by Gipir moved westwards, crossed the Nile and settled in the Northern parts of Lake Albert.
- They intermarried with the Lendu, Okebo and Madi to form the Alur presently found in Nebbi district.
- Another group under Labongo moved southwards and settled at Pawir (Chope) in Northern Bunyoro kingdom.
- One group still under Labongo that remained at Chope, moved southwards to come into contact with the Bachwezi to form the Luo-Babito Dynasty.
- Labongo left Chope and moved East wards to form Acholi people presently found in Gulu and Lira.
- Another group of the Luo moved eastwards from the Pubungu through Acholi land, Lango, Teso land up to Eastern Uganda in the Budama area.
- They gave birth to the present Japadhola found in Tororo District.
- However some of the Luo continued into Western Kenya e.g. the Joka—Jok moved directly from Pubungu and settled in the Lamogi hills of the Nyanza province.
- The Jok—Omollo migrated through Busoga, Samia and Bukedi and finally settled in the Nyanza region to form the Samia of Western Kenya.
- The Jok-Owiny moved from Pubungu and settled temporarily in Budama before finally settling in Singoma Alego in the Nyanza province of Western Kenya.

- The Abasuba were the last group of the Luo to move into Kenya.
- These were refugees from Buganda, Busoga and Ssesse Islands and they settled in the southern Nyanza province.

Effects of the Luo migration

- ❖ There were inter-marriages between the Luo and the local people leading to the formation of new tribes i.e. Alur, Langi Japadhola.
- ❖ The coming of the Luo led to the formation of new kingdoms which were all using centralized system of administration e.g. Buganda, Bunyoro and Ankole.
- ❖ The Luo introduced chiefdoms in Northern Uganda and western Kenya e.g. Rwotship in Northern Uganda was a Luo creation.
- ❖ The coming of the Luo led to the final collapse of Bunyoro-Kitara Empire / Chwezi Empire and led to the formation of the Luo-Bito Dynasty.
- ❖ The Luo introduced pet names (Empaako) erg Akiiki Abwoli, Amooti, Apuuli, Atwooki etc especially in Bunyoro and Toro.
- ❖ The Luo introduced new crops in E.A e.g. millet, sorghum, groundnuts which are staple food for many tribes in Western, Northern and Eastern Uganda.
- ❖ The Luo introduced new economic activities in E.A e.g. nomadic pastoralism and also introduced the short horned cattle.
- ❖ *8The population of E.A increased as a result of the Luo influx and this created conflicts over land.
- ❖ The Luo put to use what would have been idle land due to population increase.
- ❖ The Luo also developed trade within E.A because they introduced new commodities e.g spears and arrows.
- ❖ The Luo introduced royal burial grounds for the kings e.g. in Bunyoro the jaw bones of the Omukama have to be removed before burial and buried separately.
- ❖ The Luo led to the civil wars increasing in E.A as a result of their contacts with the local people of E. Africa.
- ❖ Many people were displaced from E.A to other regions as a result of the Luo migration into Tanzania to form Karagwe kingdom.
- ❖ In Bunyoro, they introduced new items of the royal regalia e.g. royal crown, royal fire, and royal drums e.t.c

NGONI MIGRATION (1820—1860)

Origins

- THE Ngoni were close relatives of the Zulu and Ndwandwe people from South Africa.
- They were Bantu who belonged to the negroid race.
- They originally lived in Natal province in the south East of the Drakensburg Mountains.
- The Ngoni were Nguni speaking people.
- They are believed to have left South Africa around 1820.
- They left South Africa because of Shaka Zulu's expansionist wars.
- This was during the **Mfecane** period where there was a lot of war and suffering in South Africa.
- The Ngoni were forced to flee and moved northwards.
- They left South Africa under different leaders e.g. Zwangendaba, Maputo and Zulugama.
- They moved through central Africa and finally settled in East Africa (southern Tanganyika).

Causes of Ngoni migrations

- ❖ Shaka created a period of wars (Mfecane) that forced many people to migrate including the Ngoni.

- ❖ Population pressure in their cradle land also led to the Ngoni migration into East Africa.
- ❖ Internal conflicts e.g. land and clan conflicts also led to the Ngoni migration.
- ❖ The Ngoni were farmers and therefore migrated in search of new lands that were fertile to support agriculture for example Ufipa plateau.
- ❖ The influence of good leaders e.g. Zulugama, Zwangendaba, Maputo etc also led to the migration of the Ngoni into East Africa.
- ❖ Love for adventure also forced the Ngoni to migrate especially the youth who wanted to explore new areas North of River Limpopo.
- ❖ Misfortunes and natural calamities e.g. diseases, floods, e.t.c also led to the Ngoni Migration.
- ❖ The ruthless army training of Shaka Zulu also forced some of the Ngoni fighters to escape to East Africa.
- ❖ The Boer invasion of South Eastern Africa from the cape made the Ngoni lose their land which forced them to move to East Africa.
- ❖ The need to export their culture also led to Ngoni migration into East Africa especially by the youth.
- ❖ Band Wagon effect i.e. some of the Ngoni Migrants moved into East Africa after seeing their relatives and friends moving.
- ❖ Search for water and pasture since the Ngoni kept animals they migrated into East Africa in search of fresh pastures and water for their animals.

Course of the Ngoni migrations

- The Ngoni left South Africa in two (2) distinct groups.
- They left around 1820 and each group took a different direction.
- The first and biggest group was led by chief Zwangendaba.
- They moved through central Africa crossed R. Zambezi, traveled through Malawi and finally settled around Ufipa where they destroyed the small settlements.
- The second and smaller group was led by chief Maputo.
- It moved through Mozambique, Eastern Malawi and finally settled around Songea among the Yao.
- This group was known as the Maseko Ngoni.
- Around 1848, Zwangendaba died and his group split into 5 small groups.
- Three of these groups went back to central Africa settling in present day Malawi and Zambia.
- The two remaining groups settled permanently in Tanganyika and these were the Tuta and Gwangara Ngoni.
- The Tuta Ngoni moved northwards to the lands of the Holoholo where they were defeated.
- They continued up to Nyamwezi land in 1850 where they captured a young Mirambo.
- The Gwangara Ngoni led by Zulugama moved East wards destroying the Hehe.
- By 1860, they had reached Songea where they clashed with the Maseko Ngoni whom they defeated and forced them to flee.
- The defeated Maseko Ngoni split into two groups.
- One group under chief Maputo moved southwards crossed river Ruvuma and finally settled in Mozambique.
- The other group fled northwards to Morogoro and these came to be known as the Mbuga Ngoni.
- During their movements the Ngoni always captured people.
- The boys were absorbed into their army and girls were married off and this swelled their number.

Reasons why the Ngoni were successful against the people of E.Africa

- ❖ They had a strong army e.g. they always recruited captured boys into their army which strengthened their army.
- ❖ The Ngoni had superior military organization which they had copied from Shaka.
- ❖ Their army was divided into battalions or regiments called Impis for effectiveness in battle.
- ❖ The Ngoni always used Guerilla tactics and this would scare other societies which easily gave up.
- ❖ The Ngoni had superior weapons e.g. the short stabbing spear (Assegai) and they had shields.
- ❖ They had superior tactics of fighting e.g. they surrounded the enemy using the cow-horn method.
- ❖ Ngoni fighters were professionals who had received a lot of military training and were always free from duties at home.
- ❖ The Ngoni were determined to remain in East Africa because they feared to go back to South Africa in case of defeat.
- ❖ The Ngoni invaders were fully united under their leaders and this helped them to defeat the East African societies with a lot of ease.
- ❖ The Ngoni fighters had a lot of experience in warfare because they had participated in large scale wars during their stay in South Africa.
- ❖ The Ngoni always used surprise attacks e.g. at night and on market days hence always caught their enemies unaware.
- ❖ The East African societies were disunited and couldn't offer any support to their neighbours against the Ngoni.
- ❖ E.African societies had already been weakened by slave trade which had claimed all the strong men.
- ❖ East Africa had also been weakened by attacks from Segeju and Zimba man eaters who also reduced on the population.
- ❖ Ngoni fighters were never affected by famine because they always looted for food wherever they passed.
- ❖ Ngoni also used the scorched Earth policy on those that tried to resist them e.g. Burning villages, food stores, and huts and scared others who simply gave in without a fight.
- ❖ Most of the Ngoni enemies were weak and small societies that were disorganized and therefore could not challenge the Ngoni military might.
- ❖ The East African societies had poor economies that could not sustain the fights against the Ngoni.
- ❖ The East Africans had inferior weapons that could not compete with those of the Ngoni.

Effects of the Ngoni Migration

- ❖ Their migration created a period of wars in areas that were previously peaceful e.g. the Ufipa communities were destroyed and devastated.
- ❖ The Ngoni migration resulted into the spread of epidemic diseases in the southern and central Tanganyika e.g. smallpox and Malaria.
- ❖ Their migration created a new generation of war lords and leaders e.g. Nyungu ya mawe and Mirambo.
- ❖ There was increase in slave trade because of the Ngoni confusion, Chaos and disorganizations.
- ❖ The Ngoni spread their culture e.g. most people who were captured and absorbed by the Ngoni copied their Nguni language.
- ❖ The Ngoni invasion also disrupted the long distance trade caravans especially along the Southern route which was dominated by the Yao.

- ❖ The Ngoni invasion led to the formation of warrior groups e.g. The Maviti and Ruga Ruga .These were bandits who terrorized southern and central Tanganyika.
- ❖ The Ngoni invasion led to the people of southern Tanganyika losing their land to the Ngoni.
- ❖ There was population increase in Southern Tanganyika were they settled e.g. among the Yao.
- ❖ Famine broke out in many societies since no farming and harvesting could take place because of the Ngoni raids.
- ❖ Many people copied the Military tactics i.e. cow horn method and adopted their weapons e.g. Assegai (short stabbing spear) for defense.
- ❖ Their migration led to the decline of some states e.g. Bena and Sangu because they never had the capacity to resist the Ngoni aggression.
- ❖ The Ngoni raids led to heavy loss of lives especially those that tried to resist their movement e.g. the Yao.
- ❖ There was deculturalisation and detribalisation e.g. the Ngoni displaced people from their original homelands making them lose their culture.

Revision questions

1. a) Who were the Bantu? **OR** Describe the origins of the Bantu speaking people?
b) What were the causes of the Bantu migrations into East Africa?
2. a) Describe the course of their migration in East Africa before 1800 A.D.
b) What were the effects of their migration and settlement in East Africa?
3. a) Describe the movement and settlement of the **Eastern Bantu** into East Africa. **OR** Describe the movement and settlement of the **Western Bantu** into East Africa.
b) What were the effects of their invasion on the people of East Africa?
4. a) Describe the organization of the migration of the Bantu speaking people into East Africa.
b) How were the people of East Africa affected by their coming?
5. a) Who were the River-Lake Nilotics? **OR** Describe the origins of the Luo speaking people.
b) Why did they leave their cradle land? **OR** What were the reasons for their migrations into East Africa?
6. a) Describe the course of the migrations of the Luo (**River - Lake Nilotics**) into East Africa.
b) What were the effects of their migration and settlement on the peoples of East Africa?
7. a) Who were the Ngoni? **OR** Describe the origins of the Nguni speaking people.
b) Why did they leave their cradle land for East Africa in the mid 19th century?
8. a) Describe the migration and distribution of the Ngoni peoples into East Africa in the mid 19th century.
b) What were the consequences of this invasion on Tanganyika by 1860?
9. a) Why was the Ngoni invasion of East Africa in the mid 19th century successful?
b) What were the **results/impacts/outcomes** of their migration into East Africa by 1860?
10. a) Why did East African resistance against the Ngoni fail in the mid 19th century?
b) How did this migration affect mainland Tanganyika by 1860?

11. a) Who were the Plain/Highland Nilotes? **OR** Describe the origins of the Plain/Highland Nilotes.

b) Why did they migrate from their cradle land?

12. a) Describe the course of the migration and settlement of the Plain/Highland Nilotes.

b) What impacts did their migration have on the people among whom they settled?

THE RISE OF THE INTERLACUSTRINE KINGDOMS

- This is the area surrounding Lake Victoria.
- Many Kingdoms flourished in this region and the most important of these were Bunyoro – Kitara, Bunyoro, Buganda, Ankole, Toro, Karagwe, and Wanga.

ABATEMBUZI

- The Batembuzi were the first to inhabit the interlacustrine region.
- Their origins are not clear and are surrounded in myths and legends.
- Traditions in western Uganda suggest the Tembuzi fell from heaven.
- They were semi gods and were able to perform miracles.
- The Tembuzi couldn't die but just disappeared and went back to heaven at the end of their earthly life.
- The Tembuzi dynasty is believed to have been founded by Ruhanga (creator or god) assisted by his brother Nkya.
- Ruhanga had no sons but Nkya had four, namely Kairu, Kahima, Kakama – Twale and Kintu.
- Kairu became the ancestor of cultivators, Kahima the ancestor of herders and Kakama – Twale the ancestor of rulers.
- Local traditions claim that Ruhanga and Kintu went back to heaven.
- Upon Ruhanga's ascending to heaven, Kakama – Twale took over the kingdom.
- Kakama – Twale later disappeared to heaven and was succeeded by his son Baba who was later succeeded by Ngonzaki.
- Ngonzaki was succeeded by Isaza who was recorded as the last ruler of the Tembuzi.
- When Isaza disappeared, his gate keeper - Bukuku imposed himself as the ruler but people refused to recognize him as their leader.
- The Tembuzi were farmers growing mainly cereals and also kept animals.
- They also slept in grass thatched huts.
- This Kingdom lasted for 4 to 5 generations between 1200 – 1350 A.D.
- The Tembuzi divided their Kingdom into Ssazas each under a chief.
- They introduced the succession system in Bunyoro-Kitara.
- After the collapse of the Tembuzi dynasty, the Chwezi took over the interlacustrine region.

THE CHWEZI RULE (1350 – 1500 A.D)

Origins

- Their origin is not clear.
- Most of what is known about them is derived from myths and oral traditions.
- The Bachwezi were the successors to the Batembuzi.
- They were also semi gods and wandering pastoralists.
- Some historians believe that they were Galla or Cushitic people from Ethiopia.
- Others suggested that they must have been Greeks, Portuguese or possibly Egyptians.
- Others claim that they were probably Bantu speaking people.

- They were believed to have entered Uganda through the North or North East.
- Unlike the Tembuzi, they were true human beings.
- They were tall and light skinned people.
- They were demi-gods who possessed super natural powers and performed miracles.
- They were pastoralists and mainly kept the long horned cattle.
- They were known by various names e.g. Chwezi, Tutsi, Hinda and Hima.
- The Bachwezi formed the Bunyoro-Kitara Empire.
- The first ruler of the Bachwezi was Ndahura and their last ruler was Wamara.

ORGANISATION OF BUNYORO KITARA EMPIRE

Political organization

- ❖ The Bachwezi were organized under one central authority i.e. they had a centralized monarch.
- ❖ The overall leader of the Bachwezi had the title Omukama.
- ❖ Omukama had absolute powers to life and death.
- ❖ The empire was divided into small states or provinces, districts and counties each under a chief.
- ❖ The chiefs were close relatives of the Omukama and formed a council of representatives.
- ❖ Bigobyamugenyi was the capital of Bunyoro-Kitara Empire.
- ❖ The rulers lived in reed palaces with palace officials, Women and Slave artisans
- ❖ The Chwezi palaces were protected by enclosures called **Ebirembo**.
- ❖ The Chwezi Empire had a large standing army that fought using spears, bows and arrows.
- ❖ The Chwezi army also dug ditches around their capital and cattle kraals for purposes of protection.
- ❖ The Chwezi had a Royal Regalia which included the royal crown, royal drum and spears.
- ❖ These were symbols of power respected by everyone.

Social Organisation

- ❖ The Bachwezi had two classes of people in society i.e. the Bahima and Bairu.
- ❖ Bairu were cultivators while Bahima were pastoralists and rulers.
- ❖ They built grass thatched huts smeared with cow dung and decorated inside with a variety of hand crafts.
- ❖ They were great sportsmen who spent their free time playing games e.g. Omweso and wrestling.
- ❖ They were great hunters who used long spears.
- ❖ They built reed palaces for the Omukama to stay in.
- ❖ Religiously, they believed in many gods.
- ❖ They had many strange and super natural powers and could even disappear when annoyed.

Economic Organisation

- ❖ They were a pastoral group who mainly kept the long horned cattle.
- ❖ The Chwezi were also farmers who grew coffee, beans and millet.
- ❖ The Chwezi also carried out Iron working and made implements like hoes, pangas and spears.
- ❖ They were also involved in pottery and made round bowls; Jars and shallow basins.
- ❖ Basket weaving also came with them.
- ❖ The bark cloth industry also formed part of their economy.
- ❖ They also made cow-hide sandals.
- ❖ They involved themselves in barter trade with their neighbors exchanging Iron implements and salt for food.

THE DECLINE OF CHWEZI EMPIRE

- ❖ The empire had grown too big to be effectively administered.
- ❖ The empire lacked strong and capable rulers especially after the death of Omukama Wamara.
- ❖ Misfortunes e.g. death of the darling cow **Bihogo** scared the Bachwezi who were forced to migrate.
- ❖ Wide spread internal rebellions especially from the Bantu also led to the decline of the Chwezi empire.
- ❖ Epidemics like Small pox and Malaria claimed many of their animals since they were a pastoral community and they ended up migrating to other areas
- ❖ Famine also broke out in the region forcing many people to leave the area in search of new areas that could provide them with food.
- ❖ The Chwezi rulers were greedy and oppressive which annoyed their subjects hence creating rebellions within the empire.
- ❖ The Chwezi also lost their popularity especially after people had realized that they were ordinary human beings not semi-gods which undermined their power.
- ❖ Conflicts among the various princes over power also weakened their hold on power and influence.
- ❖ Several communities broke away from the Chwezi empire for example Buganda, Bunyoro, Ankole leading to the decline of their power and influence.
- ❖ The Luo invasion is what finally broke the backbone of the Chwezi Empire i.e. the Luo set up the Luo-Bito Dynasty and forced the Chwezi to flee in different directions.

The importance of the Bachwezi in the History of E.Africa

- ❖ They introduced the centralized system of governance which was later adopted in many societies.
- ❖ They introduced hierarchical system of administration whereby administration was broken down into smaller units.
- ❖ The Chwezi are also remembered for introducing the idea of a standing army in the kingdom.
- ❖ The Chwezi also introduced the system of having a royal regalia comprising of the symbols of power in a community e.g. drums, spear e.t.c
- ❖ The Bachwezi were the founders of ancient Bunyoro- Kitara Kingdom which spread from Western Uganda to Western Kenya and Northern Tanganyika.
- ❖ They introduced games which are still popular in Uganda today e.g. local wrestling and Omweso.
- ❖ The Bachwezi also introduced coffee and banana growing in E.Africa which are still cash crops.
- ❖ The Chwezi introduced the idea of palace officials, royal women and slave artisans who were trained in administration.
- ❖ The Chwezi are also remembered for their super natural powers i.e. they were a strange group of people who performed miracles and could disappear when annoyed.
- ❖ They introduced a religion called Abashomi which is still evident up to today in Western Uganda particularly in Bunyoro.
- ❖ They built their capital at Bigobyamugenyi which is still a tourist attraction for Uganda today.
- ❖ The Bachwezi introduced the idea of royal enclosures (Ebirembo) in palaces such as Bigo, Mubende, Ntusi and kibengo. These were mainly for protecting cattle.
- ❖ The Chwezi also introduced the idea of grass thatched houses smeared with cow-dung and decorated with a variety of handcrafts inside.
- ❖ The Chwezi also introduced social classes in society especially in Western Uganda where the Bairu are the cultivators and subjects while the Bahima are the cattle keepers and ruling class.
- ❖ They introduced iron working and they made implements such as spears, Pangas, Hoes e.t.c.
- ❖ Discovered hot springs e.g. Kitagata in Western Uganda.

- ❖ They also developed the art and craft industry e.g. they introduced basket weaving.
- ❖ They also introduced bark cloth manufacture.

1. BUNYORO KINGDOM ORIGINS

- Bunyoro was under Bito rulers and sprung up after the collapse of the Chwezi Empire.
- Local traditions state that Isingoma Rukidi Mpuga was the founder of Bunyoro kingdom.
- Bunyoro was a loose confederation of provinces or Ssazas ruled by the chiefs.
- The growth and expansion of Bunyoro greatly depended on its rulers i.e. Abakama e.g. Omukama Kamurasi (1852- 1869) and Omukama Kabalega (1870 – 1897).
- The Kingdom stretched as far as Buganda, Toro and Ankole in the west to Busoga in the East and West Nile in the North.

Factors for the growth and expansion of Bunyoro

- ❖ Presence of able leadership i.e. Bunyoro was gifted with strong, active and ambitious leaders for example Omukama Kamurasi and Omukama Kabalega who expanded the Kingdom.
- ❖ The Kingdom had a highly developed centralized system of administration which ensured easy administration.
- ❖ The strong army of Abarusula built by Kabalega also contributed to the growth of Bunyoro. It was armed with guns got through trade with the Khartoumers and Coastal Arabs.
- ❖ Bunyoro was also gifted with fertile soils which ensured constant supply of Bananas, Yams and millet to sustain the population.
- ❖ Her good climate with heavy rainfall also supported agriculture to sustain the population.
- ❖ Bunyoro also expanded because it constantly raided her weak neighbours for example Ankole, Toro and Busoga.
- ❖ Bunyoro also participated in trade with her neighbours and also participated in the long distance trade (L.D.T) with the Arabs and Khartoumers where she got guns.
- ❖ Bunyoro had Iron deposits and through Iron working she was able to make spears and arrows for defense.
- ❖ Bunyoro also had plenty of salt deposits which she used to exchange with her neighbours.
- ❖ The decline of the Chwezi dynasty also favoured the growth and expansion of Bunyoro Kingdom. This gave a chance to Rukidi Mpuga to start up his own empire i.e. Bunyoro.

THE STRUCTURE/ORGANISATION OF BUNYORO KINGDOM

Politically

- ❖ The kingdom had a centralized system of administration with the Omukama as the political head.
- ❖ Omukama had absolute powers i.e. to appoint, promote and dismiss any of his chiefs.
- ❖ The Kingdom was divided into provinces, districts and counties each under a chief for effective administration.
- ❖ Most of the chiefs came from distinguished Families and they ruled on behalf of the Omukama.
- ❖ Most of the chiefs resided at the Omukama's palace to ensure their loyalty to him.
- ❖ The Chiefs had to provide the Omukama with gifts such as cattle, beer, grains and men to serve in the army and at the palace.
- ❖ Chiefs were also responsible for tax collection and ensuring law and order within the kingdom.
- ❖ Initially, Bunyoro had no standing army and therefore all able bodied men would be called upon to form an army and the General would be appointed by the Omukama.
- ❖ The army had the duty of defending the Kingdom against external threats, expanding the kingdom, carrying out raids and spying on the Omukama's enemies.

Social Organisation

- ❖ The Banyoro had classes in their society with the Bahima as the rulers and the Bairu as the Subject class.
- ❖ Religiously the Banyoro believed in a supreme being called Ruhanga (God) who was believed to be the creator of all things.
- ❖ Apart from Ruhanga, the Banyoro had many other small gods and each clan and family had its own favourite god.
- ❖ The Banyoro had national gods like Wamara god of plenty, Mugizi –god of Lake Albert and Muhigo the god of war.
- ❖ Sacrifices were always offered to these gods to please them.
- ❖ The Banyoro also had royal regalia which included drums, spears, animal skins, the throne, royal crown and these were highly respected as symbols of power.
- ❖ The Banyoro were always united by a similar culture, language and way of dressing.

Economic Organisation

- ❖ Cattle rearing were the main economic activity of the Bahima and the herdsmen always moved with their cattle in search of pastures and water.
- ❖ Agriculture or crop growing was practiced by the lower class of peasants (Bairu) and they mainly grew millet.
- ❖ Salt mining was another economic activity in Bunyoro got from Lake Katwe.
- ❖ Salt was used for feeding animals and the rest was exported to her neighbours like Buganda.
- ❖ The Iron working industry was also developed in Bunyoro and they manufactured hoes, spears, and pangas. e.t.c.
- ❖ Trade was another economic activity of Bunyoro e.g. she traded with her neighbours and also participated in the long distance trade with the coastal Arabs.
- ❖ Bark cloth making was also done in Bunyoro to provide clothes to the people.
- ❖ Banyoro also involved them in pottery and sold the products outside the Kingdom.
- ❖ These who stayed near Lake Albert and rivers carried out fishing.
- ❖ Revenue was also collected from vassal states e.g. Buganda and Acholi which were supposed to pay tribute to the Omukama.
- ❖ The Banyoro also engaged in hunting for food, Elephants for Ivory and the Rhino for horns.
- ❖ The army of Bunyoro always raided it's neighbours for slaves and Ivory hence contributing to the economy.

REIGN OF OMUKAMA KABALEGA

- Kabalega was born in 1830 to Omukama Kamurasi.
- He spent his early years in Bulega where he acquired the name Kabalega meaning son of Bulega.
- After the death of his father in 1869, Kabalega was involved in a power struggle with his brother Kabigumire.
- Kabigumire was supported by the royal family and provincial chiefs.
- Kabalega used the support of the commoners, Arab mercenaries and his father's body guards to defeat his brother.
- Kabalega ascended to power in 1870.

CONTRIBUTIONS OF KABALEGA

- ❖ He started with the defeat of the opposition from the royal family by killing and exiling members of the royal Family and chiefs who supported his rival brother Kabigumire.
- ❖ Kabalega established a highly centralized administration with him as the political head.
- ❖ He had a chain of chiefs in the provinces to ensure stability.
- ❖ Kabalega built a strong standing army of the Abarusula well armed with guns acquired from the L.D.T with Arabs.
- ❖ Kabalega destroyed the social system of classes in the society and even appointed commoners to positions of responsibility.
- ❖ Kabalega expanded the Kingdom to occupy areas such as Toro, Bwamba, Bulega, Katwe, Lango, Buganda e.t.c and many others. This was done with the help of the Abarusula.
- ❖ Kabalega encouraged trade with the coastal Arabs and Khartoumers from the North e.g. Bunyoro supplied Ivory and salt and in return she got guns.
- ❖ Kabalega encouraged the Banyoro to grow enough food especially millet to reduce famine.
- ❖ He also built enough granaries (food stores) which ensured proper food storage.
- ❖ Kabalega encouraged the spirit of nationalism among the Banyoro for example he always reminded them of the Baganda threat and that if they didn't unite Buganda would finish them off.
- ❖ However Kabalega's programme of building Bunyoro was interfered with by the British.
- ❖ In 1891, he engaged the British in the guerilla warfare as he resisted colonial rule.
- ❖ In 1898, he was captured in Lango with Mwangi and was sent to exile in Seychelles Island.
- ❖ Kabalega died later in 1923 in Jinja as he tried to return to Bunyoro from exile.
- ❖ Kabalega was buried at Mparo in present day Hoima district.

DECLINE OF BUNYORO

- ❖ The Kingdom had grown too big which made it very hard for effective administration.
- ❖ Weak leadership especially after Omukama Kabalega also led to the decline of Bunyoro.
- ❖ The steady growth of Bunyoro's neighbours e.g. Buganda, Ankole, Toro also weakened her.
- ❖ Internal conflicts within Bunyoro also led to her decline e.g. vassal states constantly revolted against Bunyoro.
- ❖ The loose confederation of chiefdoms and break away of areas such as Buganda, Toro and Ankole also meant Lose of revenue for the Kingdom.
- ❖ The Iron rich deposits of Kooki were taken away by Buganda which meant that Bunyoro would not make enough arrows and spears for defense.
- ❖ Frequent revolts by the Bunyoro princes also weakened the kingdom for example Omukama Kasagama established the Kingdom of Toro.
- ❖ In the late 19th century Buganda started trading with the Arabs who supplied her with guns to strengthen her army that managed to defeat Bunyoro.
- ❖ The arrival of the British increased Buganda's power and supported her campaigns that led to the final defeat of Bunyoro.
- ❖ Famine and hunger also led to massive loss of lives which reduced the population of the kingdom.
- ❖ Diseases and natural calamities like floods also led to the decline of the kingdom.

2. BUGANDA KINGDOM

Origins

- Buganda is one of the numerous Kingdoms that sprung up after the collapse of the Chwezi dynasty.
- A number of theories have been put forward to explain the origins of Buganda.

- According to oral traditions in Buganda, Kintu was the first Muganda believed to have come from the direction of Mt. Elgon (Kintu came from the East).
- He is said to have come with 13 or 14 of the present day clans in Buganda.
- According to traditions in Bunyoro, the founder of Buganda was Prince Kato Kimera who was a twin brother to Prince Isingoma Rukidi Mpuga the founder of the Bito dynasty in Bunyoro.
- He is said to have come with 5 or 6 of the present day clans in Buganda.
- Other traditions claim that Buganda originated from the Bantu clans that migrated from Congo basin.
- Buganda sprung up after the collapse of the Chwezi Empire with only three countries i.e. Kyadondo, Mawokota and Busiro.
- In the 17th century, Kabaka Kateregga began her systematic expansion by annexing Gomba, Singo, Butambala and Kyaggwe.
- Around the 18th century (1750) many immigrants arrived from Bunyoro, Mt.Elgon area and Ssesse Islands to increase her population.
- Between 1780 – 1789 (18th century), Kabaka Jjunju waged war against Bunyoro and managed to annex Buddu and Kooki which were rich in Iron.
- Between 1814 and 1881 Kabaka Ssekamanya annexed Buwekula and Bwera and added them to Buganda.
- Between 1831 – 1851, Kabaka Ssuna finally attacked Bunyoro and crashed it.
- Still in the same period, Kabaka Mawanda tried to annex Busoga but failed in his attempt not until Kabaka Kyabaggu's reign that Busoga was finally crashed.
- In the late 19th century Buruuli, Mawogola, Bulemezi and Bugerere were annexed to Buganda as Bunyoro was declining.
- In the 1900 Buganda agreement, Buganda was given the two lost counties of Buyaga and Bugangaizi.
- This stretched her territory from Lake Albert in the west to River Nile in the East up to Northern Tanzania in the South.

FACTORS FOR THE GROWTH AND EXPANSION OF BUGANDA

- ❖ Buganda started as a very small state which made it easy to defend and administer effectively.
- ❖ Buganda was gifted with fertile soils and good climate which ensured production of Matooke to feed her big population.
- ❖ Buganda established trade links with the coastal Arabs and was able to obtain guns that helped her to expand.
- ❖ Buganda had well developed roads that connected the whole Kingdom which eased the movements of people and their goods.
- ❖ Buganda had a highly centralized system of administration which ensured stability in the Kingdom.
- ❖ Buganda had strong and capable leaders, e.g. Kabaka Ssuna, Kabaka Jjunju, Kabaka Ssekamanya .e.t.c who expanded the Kingdom to greater heights.
- ❖ The Kabaka married from all the major tribes of Buganda which created unity and loyalty of the people.
- ❖ Buganda took advantage of her weak neighbours to expand e.g. Bunyoro lost a lot of land to Buganda.
- ❖ The Kiganda society had division of Labour where by women engaged in agriculture while the men concentrated on trading, fishing and fighting to defend the empire.

- ❖ The geographical location of Buganda also gave her a security advantage e.g. Lake Victoria in the south, river Nile in the East and Lake Kyoga in the North provided natural defense barriers against enemies.
- ❖ Buganda also absorbed / conquered small communities which led to increase of her population.
- ❖ The coming of the British also led to the expansion of Buganda because they offered her enough support in defeating Bunyoro.
- ❖ The constant supply of tributes from conquered states also strengthened Buganda's economy e.g from Busoga.
- ❖ Buganda had a royal guard where by all able bodied men were supposed to go for compulsory military training so that they could defend the Kingdom.

STRUCTURE OF BUGANDA KINGDOM

Political organisation

- ❖ Buganda had a highly centralized system of administration.
- ❖ The Kabaka was the head of the Kingdom with absolute powers e.g. Kabaka could appoint, promote, demote and dismiss his chiefs.
- ❖ The Kabaka's powers were hereditary and leadership was passed on to his elder son.
- ❖ The Kabaka was assisted by 3 prominent chiefs i.e. Chief Justice (Omulamuzi), Treasurer (Omuwanika) and the Prime minister (Katikiro).
- ❖ The Kingdom was subdivided into counties (Ssazas), sub-counties (Gombolola), parish (Muluka), sub-parish (Ekitongole) and village (Kyalo).
- ❖ Each of these was led by a chief for effective administration.
- ❖ The Chiefs were supposed to mobilize people for public works e.g. construction of roads.
- ❖ Buganda had a legislative council called Lukiiko (parliament) which was to formulate laws and advise the Kabaka.
- ❖ The Kabaka had royal body guards called Abambowa and these were charged with protecting the Kabaka at his palace and on journeys and functions.
- ❖ The Kabaka received gifts from his subjects and chiefs as a sign of loyalty and in return they would be rewarded with large chunks of land.

Social Organization

- ❖ Socially, Buganda was organized on clan basis.
- ❖ Every Muganda belonged to a particular clan e.g. Lion (Mpologoma) Monkey (Enkima) Buffalo (Mbogo).
- ❖ Marriage in Buganda was Polygamous.
- ❖ Members of the same clan were not allowed to get married.
- ❖ Each of the clans had a clan head (Omukulu we Kiika) and a special area of origin (Obutaka).
- ❖ Kabaka was the head of all clans (Ssabataka) and belonged to the clan of his mother.
- ❖ The Baganda were divided into classes i.e. royal class for men (Abalangira) Women (Abambejja), Nobles (Abakungu), Peasants/ Commoners (Abakopi) and slaves (Abaddu).
- ❖ The Kabaka was the spiritual leader of Buganda and was considered semi-divine.
- ❖ The Baganda believed in small gods (Lubaale) whom they consulted on various occasions e.g. Ddungu (hunting), Musoke (rain), Mukasa (fishing), and Walumbe (death) e.t.c
- ❖ The Baganda also believed in witchcraft and sorcerers (Abalogo) who were consulted by those who wanted to harm others.
- ❖ The Baganda had a royal regalia which included, drums, backcloth, spears which were highly respected.

- ❖ Virginty was highly respected in Buganda because it was a sign of good upbringing and respect.

Economic organisation

- ❖ The Baganda carried out agriculture as the major activity and grew crops like Matooke, Cassava, Yams and beans.
- ❖ They also domesticated / kept animals like, cows, sheep, goats, chicken, and rabbits e.t.c
- ❖ Fishing was also carried out on the shores of Lake Victoria.
- ❖ Iron working was also practiced and they made implements such as knives, pangas and spears.
- ❖ The back cloth making industry was also developed in Buganda.
- ❖ The Buganda also participated in the long distance trade with the coastal Arabs mainly acquiring guns in exchange for slaves and Ivory.
- ❖ Buganda also received tributes from her vessel states to supplement on her revenue e.g. from Busoga and Toro.
- ❖ Taxation was another source of revenue and it was the duty of chiefs to collect taxes.
- ❖ Raids were also important in Buganda's economy e.g. she raided Bunyoro, Busoga for cattle, slaves, Ivory e.t.c.

Reasons for Buganda's decline

- ❖ The Kingdom was too big to be effectively administered.
- ❖ Lack of able leadership especially after the death of Kabaka Muteesa 1 in 1884.
- ❖ Attacks from vassal states e.g. Busoga greatly weakened the kingdom.
- ❖ Land conflicts with Bunyoro also increased hostilities with her neighbours.
- ❖ Internal conflicts especially power struggles led to disunity in the kingdom.
- ❖ Disunity because of social classes also weakened her military strength.
- ❖ Natural calamities e.g. floods and diseases especially sleeping sickness which killed many people.
- ❖ The coming of Missionaries also led to disunity within the kingdom hence her decline.
- ❖ The coming of colonialists who effectively led to the loss of her independence.

3. ANKOLE KINGDOM

ORIGINS

- Ankole was one of the Kingdoms that made up after the decline of Bunyoro- Kitara.
- Traditions in Western Uganda claim that Rukidi Mpuga a son to Wamara was the founder of Ankole Kingdom.
- The Kingdom was established in the South Western part of Buganda around the 15th century.
- Initially, Ankole was called "Karo Karungi" meaning peaceful land or 'Land of Milk'.
- Ankole remained a small Kingdom around the 18th century and Ankole produced a number of ambitious Kings who extended her boundaries.

Political organisation

- ❖ Ankole had a centralized system of administration.
- ❖ Omugabe was the political head of the kingdom.
- ❖ The Omugabe's position was hereditary with absolute powers.
- ❖ The Omugabe, Queen mother, Princes and princesses formed the royal family and resided in the royal palace.
- ❖ The Omugabe was assisted by the Nganzi (Prime minister) who was the most important of all chiefs.

- ❖ Ankole was divided into 10 districts each headed by Omukungu (chief).
- ❖ Some of the districts included Mbarara, Ibanda, Nyabushozi, Bunyaruguru and Kashari.
- ❖ The Omugabe and Nyanzi came from the upper class of the Hima and always kept large herds of cattle and estates.
- ❖ The Abakungu also kept cattle and were in charge of keeping peace and sending beer and millet to the royal palace.
- ❖ Ankole had royal regalia that included spears, a crown and the royal drum. (Bagyendanwa).
- ❖ Ankole also had a “royal fire” that was never allowed to go out until the reigning Omugabe died.
- ❖ Ankole had no standing army but in case of war, all able bodied men were supposed to gather at the Omugabe’s palace with spears, bows, arrows and shields.

Social organisation

- ❖ Ankole society was divided into two distinct classes i.e. Hima and Iru.
- ❖ Bahima who were the rulers and pastoralists and Bairu who were the peasants and subject class.
- ❖ Marriage between the Bairu and the Bahima was considered a social disgrace and was highly discouraged.
- ❖ Religiously, the Banyankole believed in a supreme being called Ruhanga who was thought to be the creator of the world.
- ❖ No prayer and sacrifices were offered to Ruhanga because they believe there was no need of bothering him after bringing them into the world.
- ❖ Below Ruhanga were other lesser gods e.g. kagoro, kazoba, Omusisi e.t.c to whom prayers and sacrifices were offered.
- ❖ The Banyankole highly respected spirits of the dead and sacrifices e.g. beer and milk were offered to them at family shrines.
- ❖ Owning cattle was a sign of prestige and those with few cows were always despised.
- ❖ The Banyankole were united by a similar culture, Runyankole language and same way of dressing e.g. Omushanana.

Economic organisation

- ❖ Pastoralism was the main occupation of the Banyankole and they kept long horned cattle mainly dominated by the Bahima.
- ❖ The Bairu also carried out cultivation and mainly grew millet.
- ❖ Blacksmithing was another activity of the Banyankole and they made spears, hoes and arrows.
- ❖ Trade was also carried out and they exchanged commodities like ivory with their neighbours and with coastal Arabs.
- ❖ Carpentry was also carried out by the Banyankole and they made very beautiful wooden pots, dishes and other items.

4. KARAGWE KINGDOM

Origins

- Karagwe kingdom extended between Rwanda and Burundi, Lake Victoria and the North western part of Tanganyika.
- The settlers in this area were Bantu who carried out farming and grew crops like millet, sorghum.
- They had come from the south west around the 15th and 16th century.

- However the Bantu are said to have stayed in this region for 43 centuries before migrating north East to Bunyoro and Toro.
- Later a section of these returned to Karagwe after the Luo invasion.
- By the time of their return, they had combined with the Chwezi.
- They reached Karagwe around the 16th century and set up the Hinda dynasty.

ESTABLISHMENT OF RUHINDA'S RULE IN KARAGWE

- After the Luo invasion, Ruhinda led his Chwezi immigrants from Bunyoro - Kitara to Karagwe.
- He deposed over the local leader known as **Nano** and he set up the Hinda dynasty.
- He established his rule in Karagwe and built his capital at Bwehangwe.
- He then sent his sons with royal regalia like spears to establish Hinda dynasty in all the surrounding areas.
- This gave rise to small sub dynasties under his sons.
- These sub dynasties included: Gisaka, Kyamtware, Ihangiro, Buzinza, Busubi, Ukerewe and Nasa.
- The creation of several independent Hinda sub dynasties by Ruhinda's sons created rivalries and these weakened the Hinda rule in Karagwe.
- These small Kingdoms were not directly under the authority of Ruhinda.
- When he died they became independent.

Political organisation

- ❖ Ruhinda introduced a centralized system of government.
- ❖ The centralized system replaced the clan system headed clan leaders called Muharambwa.
- ❖ Upon the death of Ruhinda; many areas that made up his Kingdom declared themselves independent.
- ❖ Ruhinda used the clans for efficient administration. These clans were not destroyed by the Chwezi immigrants.
- ❖ The clan leaders (Muharambwa) were charged with a collection of taxes, tribute and were also in charge of religious rights.
- ❖ The clans were grouped into eight bigger units for easy administration.
- ❖ The units included Kianja, Bukara, Kyamtware, Kiziba, Ihangiro, Misenyi, Bugabo and Karagwe.
- ❖ Each of these chiefdoms became a nation called Ihangwa and chiefs would dismiss a clan head if his people appealed.
- ❖ The clan heads had political, religious and judicial powers. These were supposed to head clan courts that settled disputes.
- ❖ Age sets were encouraged among the Banyambo and young boys of the same age were called at the chief's residence where they would be trained in military art.
- ❖ After military training, they would be sent home and only recalled in times of military emergency.
- ❖ The few, who were outstanding and very skillful, were sent to the king's court where they learnt correct court manners and language.

ECONOMIC ORGANISATION

- ❖ They were mainly agriculturalists and they grew crops like sorghum, millet and bananas.
- ❖ They also kept the long horned cattle.

- ❖ Iron working was another economic activity and tools which were made included hoes, spears and arrows which were used in agriculture and defense.
- ❖ The people of Karagwe also carried out trade.
- ❖ They exchanged trade items like Ivory, and iron products with Buganda and coastal traders.

SOCIAL ORGANISATION

- ❖ The people of Karagwe believed in ancestral spirits.
- ❖ The Muharambwa was supposed to lead over religious functions.
- ❖ A Caste system (class systems) existed in Karagwe Kingdom with the pastoralists as rulers and farmers as the subjects.
- ❖ Settlement of conflicts was entrusted to the clan leader (Muharambwa) but the head of the chiefdom (Ihanga) was the final man in everything.

Revision questions

1. a) Who were the Chwezi/Bachwezi? **OR** What were the origins of the Bachwezi/Chwezi?
b) Explain their importance in the history of East Africa. **OR** Why are they still remembered in the history of East Africa?
2. a) What were the origins of Bunyoro-Kitara Empire/kingdom?
b) How was the empire organized by 1350 A.D? **OR** Describe the political, social and economic organization of Bunyoro-Kitara Empire by 1350.
3. a) What is the importance of the Bachwezi/Chwezi in the history of East Africa?
b) Why did their empire collapse/decline? **OR** What led to the eventual **collapse/downfall** of their empire?
4. a) What were the origins of Bunyoro Kingdom?
b) Describe the organization of Bunyoro kingdom before the coming of Europeans.
5. a) Describe the political, social and economic organization of Bunyoro kingdom before 1850.
b) How did Kabalega try to rebuild Bunyoro kingdom?
6. a) Describe the career and achievements of Kabalega for the kingdom of Bunyoro.
b) What led to the decline of his empire after 1890? **OR** What led to the eventual collapse/downfall of Bunyoro kingdom?
7. a) Describe the origins of Buganda kingdom.
b) What factors led to her growth and expansion up to 1850?
8. a) Describe the rise and expansion of Buganda kingdom up to 1850.
b) Why did it become so powerful during this period?
9. a) Describe the political, social and economic organization of Buganda kingdom before 1850.
b) Why did the kingdom start collapsing after 1850?
10. a) How did Ruhinda establish his rule over Karagwe? **OR** How was the Hinda dynasty established?
b) What changes did Ruhinda introduce?

11. a) Describe the origins of Ankole kingdom.
- b) Describe the political, social and economic organization of Ankole by 1850.

PRE – COLONIAL SOCIETIES IN EAST AFRICA

NYAMWEZI

ORIGINS

- The Nyamwezi are Bantu speaking who belong to the central and Northern Tanzania Bantu.
- They are closely related to other tribes such as Sukuma.
- They are an example of a de-centralized society.
- They had fairly organized political, social and economic features.
- They first settled in central Tanzania around Tabora between 1000—1500 AD.
- They migrated from the Congo basin and entered Tanganyika through the western part.
- They used the route between Lake Tanganyika and Lake Edward.
- The name Nyamwezi means people from the moon.
- It was given to them by the coastal traders who saw them coming from the direction of the new moon (west).
- Originally, they lived in small chiefdoms bound together by ethnic association.
- During the 19th century, they developed centralized administration during the reigns of Mirambo and Nyungu Ya Mawe.

The structure of the Nyamwezi

Political organisation

- ❖ The Nyamwezi lived in small independent chiefdoms of about 1,000 people.
- ❖ They were united together by ethnic clan ties.
- ❖ The Nyamwezi had a decentralized system of administration.
- ❖ Each chiefdom headed by a chief with the title **Ntemi**.
- ❖ The position of the Ntemi was hereditary i.e. his son / close relative succeeded him upon his death.
- ❖ The Ntemi had political powers and was in charge of law and order in his chiefdom.
- ❖ In case of population explosion in one chiefdom or succession disputes, splits were done and a new chiefdom would be created.
- ❖ The Ntemi was assisted by a council of elders called **Wanyampala**.
- ❖ **Wanyampala** comprised of old, experienced and knowledgeable elders.
- ❖ Chiefdoms were further split into small political units headed by clan heads called **Gunguli**.
- ❖ Other important chiefs among the Nyamwezi included ritual officer (**Mgawe**), Army commander (**Mtwale**) information officer (**Kikoma**) Tax /revenue officer (**Minule**).
- ❖ All these took orders from the Ntemi.
- ❖ Each chiefdom had an army with a commander appointed by the Ntemi.
- ❖ Before going for any battle, the Ntemi had to bless the army.
- ❖ The Nyamwezi copied the royal regalia from neighbouring societies such as Bunyoro.

Social Organization

- ❖ The Ntemi was the religious leader of his people and linked them to their ancestors.
- ❖ The Ntemi was the fountain of the society and received a lot of respect from his people.
- ❖ The Ntemi could marry as many wives as he wanted.
- ❖ Upon the death of the Ntemi, his body would be buried upright with beer, food and weapons.
- ❖ The Nyamwezi also believed in life after death and the spirits of the dead.

- ❖ Ntemi would always preside over sacrifices to ancestors on behalf of his people.
- ❖ The Ntemi was supposed to stop any calamity that would hit his people, their fields and animals.

Economic Organisation

- ❖ The Nyamwezi were farmers and mainly grew cereals e.g. millet and sorghum.
- ❖ The Ntemi always mobilized his people to grow enough food, settle land disputes and guard against misuse of land.
- ❖ The Nyamwezi also kept animals for example goats and cattle.
- ❖ The Ntemi and his chiefs always kept large herds of animals.
- ❖ Tax collection was also part of their economy and the Nyamwezi always collected food as tax.
- ❖ The Nyamwezi had established food granaries which were directly under the Ntemi.
- ❖ These were used to feed his body guards, members of his palace and other people in case of hunger and famine.
- ❖ The Nyamwezi also carried out some fishing to supplement their diet.
- ❖ The Nyamwezi locally traded with their neighbours e.g. the Vinza for salt and Zinza for Iron.
- ❖ The Nyamwezi also participated in the long distance trade with the coastal Arabs.
- ❖ They controlled the central trade route and provided slaves, bee wax, Ivory.
- ❖ In return they got guns , beads and clothes .
- ❖ Raiding on their neighbours was also a major economic activity carried out by the Nyamwezi.

Mirambo's Empire

- Mirambo was born around the 1830s in Nyamwezi land to one Ntemi chief.
- He spent his early years in Bugomba where he had been captured by the Ngoni.
- He mastered the Ngoni tactics of warfare and used them to build a strong army of the Ruga Ruga.
- It was this army that helped Mirambo to build a big empire.
- Mirambo attacked the Vinza, Sukuma and Iramba to extend his influence.
- By 1876, Mirambo established his capital at Urambo.
- His empire extended Northwards and Eastwards to control the central caravan trade route from Tabora to Karagwe, Ujiji, Buganda and Bunyoro.

Why Mirambo was able to build such a big empire

- ❖ Mirambo was a person of boundless courage and energy which he used to build his empire.
- ❖ He personally led his army in battle which encouraged and gave morale to his army to fight on.
- ❖ Mirambo spent a lot of years in Bugomba as a captive of the Ngoni which helped him to master the ngoni military tactics.
- ❖ He used the ngoni military tactics to build a strong army called Ruga-Ruga that was very instrumental in his rise to prominence.
- ❖ He absorbed the conquered people, recruited the youth into his army to boost his fighting force.
- ❖ Mirambo was a man of high determination who took no nonsense from any one. E.g. he insisted on homage and tributes from foreigners passing through his territory.
- ❖ The acquiring of guns and gun power from the coastal Arabs helped Mirambo to extend his empire wide.
- ❖ Mirambo highly paid the Ruga –Ruga who helped him to build such a big empire.
- ❖ Mirambo's empire was strategically located in central Tanganyika which made it the center of trade.

- ❖ Mirambo exploited the weaknesses of his neighbours like Vinza, Zinza, Sukuma, Ha and Samba to acquire territories from them.
- ❖ The Nyamwezi lived in small chiefdoms that were weak and disorganized and this made it easy for Mirambo to conquer them.
- ❖ Mirambo was also far-sighted and an ambitious man who knew what he wanted and always looked for a way of getting it.
- ❖ Trade also helped Mirambo extend his power and influence because it brought in revenue or taxes e.g. He controlled two trade routes, one to Ujiji and the second one to Bunyoro and Buganda.
- ❖ Mirambo also established diplomatic ties with many Europeans, Arabs e.g. He invited missionaries to come to his area.
- ❖ Mirambo also made friendly relations with many African chiefs. He tried to establish diplomatic ties with Muteesa 1 of Buganda, sultan of Zanzibar and Tippu Tip.
- ❖ Mirambo equally respected foreigners/strangers passing through his land. This brought in many visitors that he benefited from in terms of skills and trade.

The collapse of Mirambo's empire

- ❖ The death of Mirambo led to collapse of the empire because it lacked a strong foundation.
- ❖ The empire was built around Mirambo's personality and without him it was bound to collapse.
- ❖ Mirambo's successor Mpandashalo was too weak and could not keep the empire intact.
- ❖ The empire was too big to be ruled effectively by one person.
- ❖ Mirambo always found it hard to enforce law and order from his subjects due to the vast size.
- ❖ Unity was also lacking i.e. Mirambo had left the various areas he had conquered under their traditional rulers and upon his death many of them declared themselves independent.
- ❖ Mirambo's neighbours were not happy about his success e.g. the Sukuma and this encouraged various states under him to rebel.
- ❖ Mirambo's army of the Ruga-Ruga was not dependable and became a menace after his death e.g. looting and burning people's property.
- ❖ The confusion created by the Ruga Ruga forced the Germans to occupy Tanganyika in 1885.
- ❖ The decline of the Long distance trade and abolition of slave trade also led to the collapse of his empire.
- ❖ Mirambo lost contact with the Arabs who used to supply him guns and gunpowder.
- ❖ Mirambo's chiefs were weak since many were appointed just because they belonged to the ruling class. They did not merit their positions which further weakened Mirambo's empire.
- ❖ Increasing Europeans interests in E.A finally brought Mirambo's empire to an end in 1885.
- ❖ The Germans came under the excuse of abolishing slave trade and stop the Ruga- Ruga and they stamped their authority in Tanganyika.

NYUNGU YA MAWE'S empire

- Nyungu ya mawe was born in Unyanyembe near Tabora among the Nyamwezi.
- He was a prince from the royal family of Unyanyembe.
- Nyungu ya mawe was a praise name meaning 'Pot of stone' (the pot that never breaks).
- Nyungu ya mawe was also able to build a big empire using the services of Ruga Ruga mercenaries.
- He also employed the Ngoni fighting methods.
- ❖ In 1874, he abandoned his people and formed his capital at kiwele.
- ❖ He attacked the Kimbu in the East and also captured the trade route between Tabora and Ufipa.
- ❖ Nyungu ya mawe was a brave and ruthless military strategist.

- ❖ He could not hesitate to risk the lives of his soldiers and he referred to them as **Mapimpiti** meaning Logs, to achieve his targets.
- ❖ Nyungu ya mawe also created a centralized system of administration.
- ❖ All conquered areas were given new chiefs called Vitwale (plural) or Mtwale (singular).
- ❖ He divided his empire into six provinces each under a Mtwale directly appointed by him.
- ❖ The Vitwale were directly appointed by Nyungu ya mawe and were his eyes and ears. In most cases they were his relatives.
- ❖ Nyungu ya mawe created a highly disciplined army.
- ❖ His army underwent physical and psychological training and didn't lose morale after his death.
- ❖ Nyungu ya mawe did not bother establishing good relations with Europeans.
- ❖ He heavily taxed them which displeased them.
- ❖ In December 1884, Nyungu ya mawe died as a one eyed man.
- ❖ He was succeeded by his daughter Mgalula who ruled successfully until 1893.
- ❖ When she died, her daughter took over and ruled until the Germans captured her capital at Kiwele and conquered it.
- ❖ This marked the end of Nyungu ya Mawe's empire.
- ❖ The Germans replaced the Vitwale with new chiefs called Akidas.
- ❖ The Germans later introduced direct rule.

THE KIKUYU SOCIETY

Origins

- These were Bantu speaking people under the Eastern Bantu group.
- They are also known as the highland Bantu.
- They first settled in areas around Kenyan highlands near Nyeri, Kiambu and Fort Hall.
- Their origin is based on myths and legends.
- Kikuyu traditions claim that their god (Mumbere) had three sons i.e. Gikuyu, Kamba and Maasai.
- He asked them to choose between a bow, a digging stick, and a spear.
- Gikuyu fell for a digging stick, Kamba for a bow and Maasai for a spear.
- Gikuyu and his wife Mumbi had nine daughters.
- It's these nine daughters who gave rise to the present 9 Kikuyu clans.

STRUCTURE OF THE KIKUYU

Political Organization

- ❖ The Kikuyu had a decentralized system of administration.
- ❖ Their political system was based on clans with each handling its own affairs.
- ❖ Each clan was made up of age groups called **Riika**.
- ❖ These were further sub-divided into age sets each having its own name marking a particular event.
- ❖ The Kikuyu had an army and the commander represented them on council of elders called Kiama.
- ❖ This army composed of Junior and senior warriors.
- ❖ Junior warriors were supposed to clear gardens for planting, defend the village against attack and construct houses and fences.
- ❖ Families sharing the same terrace made up a territorial unit called **Mbari**.
- ❖ Each Mbari was under a council of elders headed by **Muramiti**.
- ❖ The position of the Muramiti was not hereditary but was entrusted to any experienced elder.
- ❖ The Muramiti performed judicial functions.

- ❖ Members of the council of elders must have paid some goats and beer and must have circumcised the elder son of their houses to qualify.

Social Organization

- ❖ Religiously, the Kikuyu believed in a supreme god called Ngai.
- ❖ Ngai who manifested himself through the sun, moon, rainbow, thunder and lightning.
- ❖ Kirinyaga (Mt Kenya) was believed to be Ngai's home.
- ❖ Shrines were built around the slopes of Mt Kenya.
- ❖ Ngai could only be approached by community elders as a group but not as individuals.
- ❖ Ngai was consulted at all stages of life e.g. at birth, marriage and death.
- ❖ The Kikuyu highly respected the spirits of the ancestors whom they believed to possess powers to punish and bless.
- ❖ Therefore sacrifices were offered to appease the spirits of ancestors.
- ❖ The Kikuyu society was also organized on clan basis and each clan was made up of age groups.
- ❖ Riika was further sub-divided into age sets and initiation from one age set to another was after circumcision done on both boys and girls after every five years.
- ❖ Inheritance of property always followed the mother's line (matrilineal).
- ❖ Land and children were all owned by the mother.

Economic Organization

- ❖ Agriculture was their main activity and they mainly grew cereals like Sorghum, Maize and Peas.
- ❖ Land was highly respected by the Kikuyu.
- ❖ A man with no land was not allowed to marry because his wife could not feed the family without it.
- ❖ On top of agriculture, the Kikuyu herded cattle, goats, sheep and kept bees.
- ❖ Fishing and rearing of fowls like chicken was a taboo among the Kikuyu i.e. their social laws did not permit the consumption of fish and fowls.
- ❖ Division of labour existed among the Kikuyu.
- ❖ Men cleared the land, herded and milked animals as women planted and harvested crops and looked after the homes.
- ❖ The Kikuyu traded with their neighbours like the Masai, Embu, Pokomo, and Kamba for products like milk and butter.
- ❖ With the development of LDT the Kikuyu supplied Ivory, Slaves, Bee wax, and Skins e.t.c to the coastal Arab traders.
- ❖ The Kikuyu also hunted wild animals and gathered fruits from the forests around the Kenyan highland.
- ❖ The Kikuyu also carried out Iron working and made Iron implements like hoes for agriculture and spears for hunting.

THE ITESO SOCIETY

Origins

- They are a branch of the plain Nilotics called the Jie.
- They migrated from southern Ethiopia.
- They fall under a smaller group of the Ateker.
- They are related to the Turkana, Kumam, Maasai and Karamojong.
- They first settled in Karamoja for some time and lived there for some time.
- In the early 18th century, the Iteso left Karamoja.

- This was due to cattle rustling, over stocking, over population and lack of water and pasture.
- They then moved southwards and settled along the shores of Lake Bisina.
- It is from here that they acquired the name Itesots.
- Due to more pressure, others moved to Eastern Uganda and Western Kenya.
- They are settled in districts such as Kumi, Soroti, Tororo, Mbale, Kaberamaido and Amuria.

Structure of the Teso Society

Political Organization

- ❖ The Itesots had no centralized system of government.
- ❖ They were organized in clans called Ateker.
- ❖ The clans were the centres of power and it was made up of several extended families.
- ❖ Each clan had a common taboo.
- ❖ The Emuron was the most important chief among the Itesots.
- ❖ He had religious and Political powers, a rain maker and also helped barren women to conceive.
- ❖ Other important chiefs included Aruwon (military leader) who was chosen because of his bravery and Ekaraban (Village ambassador) who settled disputes.
- ❖ Clan meetings (Etems) were important among the Iteso because they handled cases like divorce, adultery and murder.
- ❖ Age- Set system (Aturi) existed among the Itesots on which wars and raids were conducted.
- ❖ Boys of the same age worked and fought together.

Social Organization

- ❖ Social ceremonies were very important e.g. Marriage and birth of twins were marked with jubilations, dances, food and beer.
- ❖ Religiously, the Itesots believed in a supreme being who had lesser gods for example Apa – the god of peace and Edeke – the god of calamity.
- ❖ The Emuron was the religious leader and always offered sacrifices to Edeke on behalf of his people.
- ❖ The Iteso were bound together by strong ties of Kinship and members of the same ancestry regarded themselves as brothers.
- ❖ Itesots had an age-set system (Aturi) which was always formed at a time of Initiations and it marked a change from child hood to adult hood.
- ❖ A man was the head of the family and therefore his sons were supposed to inherit the father's property upon his death.
- ❖ Status among the Iteso depended on how many cows one had i.e. those who less herds were always despised and minimized.

Economic Organization

- ❖ Initially, the Iteso were pastoralists and they kept cows, sheep and goats.
- ❖ They also reared birds e.g. chicken and turkey.
- ❖ The Iteso later adopted farming and they grew crops such as millet, sorghum and Groundnuts.
- ❖ Hunting was another activity among the Iteso and this promoted unity and socialization.
- ❖ The Iteso also carried out some trade and they exchanged hides and skins and Ivory for backcloth, beads and iron implements from Bunyoro and Busoga.

THE CHAGGA

Origins

- They are Bantu speaking people who belonged to the Highland and coastal Bantu.
- They comprise of that group of Central and Northern Tanzania Bantu that continued with their migration from the Congo basin.
- They are closely related to other Bantu tribes like Gweno, Sukuma and Shamba.
- They entered Tanzania through the West using the route between Lake Tanganyika and Lake Edward.
- Their migration took place between 1000 – 1300 AD
- They settled around Mt. Kilimanjaro in Northern Tanganyika.
- The Chagga decided to settle around Mt. Kilimanjaro permanently and came to be known as the highland Bantu.

Political organisation

- The Chagga had a decentralized system of administration with chiefs at the centers of authority.
- The chiefs were distinguished elders in society with political and religious powers.
- Chiefs were always encouraged to extend the political frontiers of their chiefdoms.
- Chiefs were also in charge of administering justice in their chiefdoms.
- The Chagga had political rivalries with their neighbours especially the Masai over grazing lands.
- Below the chiefs were other influential leaders called judicial counselors.
- Judicial counselors were directly appointed by the chiefs.
- Judicial counselors were also charged with tax collection.
- Below the judicial counselors were the clan heads who were prominent and influential.
- Clan heads were also used in maintenance of law and order in their clans.

Social organisation

- The Chagga were organized on clan basis.
- They had several clans with each clan having a clan head.
- Chiefs also served as chief priests and presided over religious ceremonies.
- They believed in a god called Ruwa.
- Ruwa was considered not to have been the creator of the world.
- Ruwa was believed to have freed mankind and provided him with fruits and plants to feed on.
- They believed in the powers of ancestors i.e. life after death.
- Sacrifices were therefore offered to appease the spirits of the ancestors.

Economic organisation

- ✓ Agriculture was the important economic activity among the Chagga.
- ✓ They grew crops such as bananas, millet and coffee.
- ✓ Irrigation was carried out to support agriculture during the dry season.
- ✓ They applied manure in their farms and also carried out crop rotation.
- ✓ They also kept animals like cattle, goats and sheep.
- ✓ They also practiced iron working and made implements like spears, pangas and arrows.
- ✓ They carried out trade with their neighbours and exchanged their surplus goods for salt.
- ✓ They later participated in the long distance trade with the coastal Arabs.

N.B By the 18th century, they had developed a system of kingship.

THE GALLA

Origins

- The Galla are of Cushitic origin.

- They are a branch of the plain Nilotics who migrated from southern Ethiopia.
- They are thought to have originated from Ethiopia then moved to Somalia and finally entered East Africa.
- They are a nomadic pastoral tribe that occupies the Eastern parts of Kenya.

Political organisation

- The Galla traditional structure was connected to the age set system based on ten groups.
- Every male belonged to a single group throughout his life.
- Each age set was headed by a leader called Abba-Boku for 8 years.
- Abba-Boku presided over meetings and formulated laws governing his age set.
- Abba-Boku was seen as a ritual and natural affairs expert.
- Abba-Boku was assisted by 3 other elders all from distinguished families.
- From the age of ten, boys were supposed to train as warriors.
- The Galla thus became a fierce warrior society respected over a wide area.
- They carried spears and shields into the battle fields.
- Each age group came up for promotion every eight years and when this happened, its leader had to take his people to a new territory.
- This would eventually lead to the expansion of the Galla territory.

Social organisation

- The Galla believed in a supreme being called Waqa.
- Waqa was believed to be the controller of everyone's destiny.
- He always granted favours and protection especially in times of battle.
- There existed both good and bad spirits living in lakes, rivers, mountains and trees.
- Later on, some became Muslims due to interaction with the Muslims from Ethiopia.
- They had the age set system where every male belonged to a particular group throughout his life.
- Hunting of animals was carried out as a test of manhood.

Economic organisation

- ✓ They were a pastoral society who moved from place to place in search of water and pasture.
- ✓ They kept animals such as cattle, goats, sheep, camels and donkeys.
- ✓ Their constant movements in search of water and pastures brought them into conflicts with other tribes like the Masai and Somali.
- ✓ They carried out small scale agriculture and grew grains, peas, beans, vegetables and pepper.
- ✓ Limited fishing and hunting were also carried out.
- ✓ Traded with their neighbours like the Somali, Ethiopians and Swahili Arabs.

THE MASAI

Origins

- They fall under the pastoral group of the plain Nilotics.
- They moved from the area West of Lake Turkana around the 17th century.
- They existed in two groups i.e. the Kwavi and Purko Masai.
- They occupy the area called Machakos in southern Kenya and some are found in Northern Tanzania.

Political organisation

- They were a decentralized society with no central authority.

- They were divided into sixteen independent clans.
- The clans were the basis of their political organisation.
- Each clan had its own territory, cattle brand, pasture and water supply.
- Leadership was exercised through the age set system.
- Age sets were linear and their names were unique and never repeated.
- The most active age set was Moran comprised of junior warriors.
- It was led by a military captain called Olaiguanani.
- Once elected, the Olaiguanani was presented with a ceremonial club Oriakha to symbolize his new status.
- He organized cattle raids and arranged the distribution of the war booty.
- A successful raid was a sign of social success and prestige.
- The elders in society administered the clans and maintained law and order.
- From the mid 19th century, Laibon became the center of political power.
- A young man became a member after circumcision performed at 18 years.
- After initiation, the boys became junior warriors called illmuran.
- The illmuran lived separately in manyattas where they were drilled in military techniques.
- From junior warriors, they progressed to senior warriors and finally senior elders.

Social organisation

- The Masai believed in a supreme creator called Enkai.
- Enkai was the source of life and punished bad people.
- The Laibon prayed to the Enkai on behalf of his people.
- Senior elders helped organize society especially during difficult periods.
- Women and children were the lowest members of the society.
- The junior warriors (Moran) were charged with defending the homesteads.
- They conducted raids and surveyed areas for grazing.
- Women were also initiated every year.
- They built temporary structures called Manyattas because they are always on the move.

Economic organisation

- ✓ The Purko Masai were pastoralists who kept cattle, goats and sheep.
- ✓ The Kwavi Masai were cultivators who grew crops like finger millet and sorghum.
- ✓ They traded with other communities like the Kikuyu and exchanged their hides and skins for beans, tobacco, sugarcane and millet.
- ✓ Women did the marketing of goods.
- ✓ There were established markets where goods would be exchanged.
- ✓ Iron working was carried out and they made spears, arrows and ornaments.
- ✓ They carried out raids and hunting.
- ✓ Practiced small scale fishing to supplement their diet.
- ✓ Art and craft was also practiced and they made jars and bowls.

THE 19TH CENTURY MASAI CIVIL WARS

- These were a series of wars that were fought between the Kwavi and Purko Masai.
- The Kwavi were agriculturalists while the Purko were predominantly pastoralists.
- The wars were fought in two separate intervals i.e. in 1815 and in 1840.
- The first major war took place in 1815 in the Uasin-Gishu plateau which ended in the defeat of the Kwavi Masai.

- In 1840, the Kwavi reorganized themselves with the help of the Laikipia and they drove the Purko Masai out of the rift valley.
- Between 1870 and 1875, the Purko decisively attacked and defeated the Kwavi killing many of them.

Causes of the Masai civil wars

- The Purko who were the pastoral Masai always despised the Kwavi who were farmers leading to the wars.
- The Purko claimed that the Kwavi were finishing their land and that very soon they would not have enough grazing lands for their animals.
- The Kwavi farmers also claimed that animals of the Purko were destroying their farms during grazing leading to the wars.
- The Kwavi always expected help from their neighbours the Laikipia and this gave them morale to fight against the Purko.
- The succession disputes between the leaders of the Masai after the death of Laibon Mbatien also led to the outbreak of the wars.
- The Kwavi Masai had always defeated the Purko who had for long wanted revenge for their losses.
- The Purko were always a proud society who took a lot of pride in fighting and when they got the opportunity, they had to engage the Kwavi in warfare.
- The two groups had participated in long distance trade and had acquired guns which encouraged them to fight against each other.
- The Purko always believed that the Kwavi had deliberately spread animal diseases which claiming many their animals' lives.
- The youths among the Kwavi were always blamed for stealing the animals that belonged to the Purko which led to the wars.
- The Purko believed that they were the rightful owners of all the Masai land and didn't want it to be taken over by the Kwavi.
- The desire to control the trading activities in the area also led to conflicts between the two groups.

Effects of the Masai civil wars

- Many people died during the course of the wars.
- A lot of property was destroyed during the wars e.g. farms and homesteads.
- The wars created a period of insecurity in Masailand.
- There was depopulation in the area as many people migrated to safer areas.
- The Purko emerged victorious and the Kwavi were greatly weakened.
- The wars greatly weakened Masai supremacy in Kenya and the Nandi emerged as the most powerful tribe in Western Kenya.
- The wars resulted into famine and suffering in Masailand due to neglect of agriculture.
- The succession struggles ended with the separation of the Masai e.g. Laibon Sendeyo and his group occupied Tanzania and Laibon Lenana's group remained in Kenya.
- Natural disasters like small pox and locust invasion further weakened the Masai influence.
- The Masai were easily colonized by the British due to the decline in their power.
- The Masai were tricked into signing treaties with the British which forced them into reserves.
- Masailand was later on taken over by the British colonialists.

THE ACHOLI

Origins

- They fall under the bigger group of the Luo speaking communities.
- They currently occupy Northern Uganda in districts such as Gulu, Pader and Kitgum.
- They emerged out of intermarriages between the Luo, Ateker and Sudanic Madi.
- They originally lived in Bahr-el-Ghazel in Southern Sudan.
- Their migration took place between 1200 – 1350 AD.
- They entered Uganda through Northern Uganda following the Albert Nile.

Political organisation

- The Acholi had a decentralized system of administration with no central authority.
- Political power was centered around the Rwoth chief.
- Rwoth was the political head and religious leader of his people.
- He ruled on the advice of a council of elders from all major clans.
- Rwoth gave favours according to work done.
- Political affairs were handled by the clans with each having its own rituals and regalia.
- Each family belonged to a particular clan that shared a common ancestry.
- Clan councils upheld traditional, religious and legal customs.
- The family was the basic social unit.
- The man had a lot of power over his wife and children.
- The Rwoth appointed village heads called Jogos.
- The duty of the Jogos was to maintain law and order in their respective villages.
- The Jogos were also charged with tribute and tax collection.
- The Acholi had no standing army but the youth were supposed to defend the chiefdoms in case of war.
- The youths were also supposed to carry out raids for cattle.

Social organisation

- They believed in a supreme god called Jok-Lubanga as the creator and sustainer of the world.
- The Acholi always prayed to him through the spirits.
- The Rwoth was the religious head of his people.
- He was believed to have direct links with the ancestors.
- Inheritance followed the father's line.
- Land was communally owned.
- It was the duty of the clan heads to protect it on behalf of his people.

Economic organisation

- ✓ Their main economic activity was pastoralism and they kept short horned cattle.
- ✓ They also carried out agriculture and grew crops such as millet, peas, beans and sorghum.
- ✓ They highly valued cows for prestige, bride wealth and rewards.
- ✓ Fishing was also carried out by those who stayed near the rivers.
- ✓ They traded with their neighbours like the Langi, Banyoro and Sudanese.

CRE

MAJOR THEME -2: ORDER AND FREEDOM IN SOCIETY

SUB THEME- 1: JUSTICE IN SOCIETY

The term justice means treating people equally and fairly. It's about establishing a harmonious relationship between people and institutions like church and its followers, parents and their children state and citizens etc.

TYPES OF JUSTICE

Social justice: It's the respect of one's rights in a given society regardless of his/ her sex, race, tribe or social class. It provides equal opportunities for everybody without fear or favor.

Natural justice: This type of justice is one enjoyed by everyone by virtue of being human being. It that justice which protects one's right to live, eat food, associate with others, express him/ herself, etc.

Legal or General Justice: This is about the rule of law in a given country. It ensures that the constitution is highly respected as a supreme law. It also ensures that the judiciary is independent without any state interference.

Cultural justice: This is justice attained through customs and rituals of a certain community. It is normally administered by clan leaders, chiefs etc.

Religious justice: This empowers people to decide where to belong in terms of religion. It protects one's freedom of worship without being persecuted.

Economic justice: This provides equal opportunities to everybody to participate in any economic activity in a country without being hindered. It ensures the employment opportunities are free to all. It also empowers workers to be protected from any exploitation from employers.

Political justice: This involves freedom of individuals to determine their political destiny through voting, freedom of press, association, contesting for elections etc.

Mob justice: This is where an emotional crowd takes the law in their hands to administer justice without use of courts of the law.

Consensus Justice: this is justice done by two or more disagreeing parties. They sit at a round table to reach an agreement over their differences. It uses dialogue to reach a peaceful settlement.

IMPORTANCE OF JUSTICE IN SOCIETY

- It promotes peace and harmony in society especially if different people agree to work together for the good of their society.
- Where there is full justice, there is less civil war because people will have no reason for going to war or having riots and demonstrations.
- Where justice prevails, there is respect for human rights like freedom of speech, freedom of worship, freedom of association etc.
- Justice leads to speedy progress and development of both individuals and the society. Individuals will invest their money where there is peace thus making the country to develop.
- Where there is justice, people carry out their duties perfectly well. For example the courts of law will not work under influence of politicians.

- The existence of justice leads to the respect of government leaders and other leaders at all levels.
- It all promotes social harmony and unity which are important in bringing about stability in any country.

JUSTICE IN THE PRESENT SITUATION

(The administration of justice in Uganda today)

The following measures have been put in place to see that justice is respected in Uganda and these include the following;

- Uganda has a constitution which acts as a supreme law of the country. This has ensured the rule of law in the country.
- There is also a parliament or the legislature which makes laws and observes justice in the country.
- The courts of in Uganda have made efforts to ensure that justice is respected. They pass on judgment to the breakers of the law like thieves, rapists, rebels etc.
- There are prisons where wrong doers or offenders of justice are imprisoned. They provide safe custody to the suspect and criminals and produce them to the courts of law when needed.
- There is also the army which makes sure that people's life is protected. The army also protects people's property and sovereignty of the country.
- There also local councils to preserve laws and order right from the grassroots or local levels.
- Human right commission is in place to promote and respect the human rights of citizens in the country.
- There are also anti-corruption bodies in place to fight corruption as an injustice. These include the anti- corruption court, Inspector General of Government, Public accounts committee, Auditor General etc.
- There is an association of women lawyers called **FIDA**. Its major concern is to fight and advocate for women's rights. It's the voice of women to fight for their justice.
- The church also stands in as a religious institution to promote justice in the country, e.g. condemning rebel activities.

SHORTCOMINGS/ PROBLEMS FACED IN THE ADMINISTRATION OF JUSTICE IN UGANDA

- There is capital punishment or death sentence to crimes like treason or murder. This has a weakness because the victim is not given chance to reform.
- Many Ugandans end up committing crimes because they do not know the law; so people fail to see the application of justice when they are sentenced on grounds they do not know.
- There is weakness of the law where wrong doers continue to walk freely because the law does not arrest them; for example people who misuse public funds.

- The permissive nature of our society is another problem. Because of this most people do not respect the law and authorities of justice.
- Mass media has influenced many youth to act contrary to the demand of the law. This has promoted violence, pornography, gambling etc.
- There is too much political interference which blocks true justice in society. Sometimes politicians in government interfere with the administration of justice in the country.
- There is poor investigation process by police which leads to failure to get satisfactory evidence.
- Taking bribes by the police and some officials can also affect true justice. The rich criminals use bribes and they are set free.
- There is a problem of delayed justice where by judgment takes a lot of time even when justice is urgently needed. It should be noted that delayed justice is justice denied.
- Because of unemployment the jobless youth resort to criminal practices in order to survive; for example gambling, pick pocketing etc.
- Some cultures are rigid and impose injustices to people; for example female circumcision among the Sabins.

INJUSTICES IN THE PRESENT SITUATION

The term **injustice** means the unfair treatment of an individual by another. It is a failure to relate to other people in a way that respects their dignity. It is the violation of human rights and freedom. Injustice exists in all spheres of life e.g. among individuals, groups, schools, villages and nations and the commonest injustices include the following;

1. **Mob justice.** This is where an individual is judged by a group of disorganized people after doing a mistake. The individual is normally beaten, burnt or even stoned to death before proved guilty thus being an injustice.
2. **Child abuse.** Children are often neglected, starved and burnt especially by people who don't have a motherly heart e.g. step-mothers, fathers; for example one father from Kiboga was shown on Bukedde TV under arrest after selling his four year child to a witch doctor for 12 million.
3. Some parents mostly in rural areas deny their children the required benefits e.g. girls are denied education.
4. Fighting, discrimination and uttering bad words is very common in Uganda. This is a common practice among the football fans who speak obscene words to and from their matches.
5. Terrorism in the country has also proved to be a threat in Uganda since it leads to loss of human life.
6. Oppression of women by men. This is because women naturally being a weak sex, men take this advantage to oppress, harass and exploit them which is unfair.
7. Bribery is common today. For one to receive any service, he or she has to pay something. This is common especially in government offices like Police, judiciary and among traffic officers on roads.

8. Sectarianism is very common as an injustice; it's the discrimination of people in respect to their background. For example one is favored for belonging to a particular tribe or religion to get a job. This denies justice to others who may be more qualified.
9. Underpayment and overworking of the employees is also rampant.
10. Abortion and rape are common today among many youth especially in schools,
11. Overcharging by businessmen to their customers, doctors to their patients is also common today.
12. Sex harassment e.g. in homes where a man harasses his wife for sex, bosses to their female workers.
13. Bullying/teasing in schools by the old students to new students. It's injustice which makes new students uncomfortable. For example their books are taken away, beaten etc.

COMMON CAUSES OF INJUSTICES\ WHY INJUSTICES HAVE PERSISTED IN SOCIETY

1. Poverty; In most cases, this has been the main cause of injustice whereby people are forced to do anything possible so as to make ends meet e.g. some rich people offer money or material things to the poor so as to win their votes and yet they can't deliver.
2. Greed. This is manifested in the desire to become rich in the shortest period of time possible and therefore forces one to demand for bribes from his clients like traffic officer from a driver.
3. Ignorance of the law by most people due to limited civic education for example those who commit mob justice are always ignorant about the law.
4. Tribalism is also another cause of injustice; fighting and undermining one another on tribal basis; for example the war in Southern Sudan between the **NUER** and **DINKA**
5. Corruption in courts of law leading to poor people not granted fair trial.
6. Selfishness of individuals through the "I don't care attitude" towards others. It makes them misbehave towards others in society.
7. Revenge and unjust experiences which may force other people to commit injustices.
8. Envy and hatred especially the poor people hate the rich leading to witch craft which brings harm in society.
9. Injustices are also brought about by delayed justice in the courts of law yet delayed justice is denied justice; and this makes people to take law in their hands.
10. There is too much idleness in society and yet an idle mind is the devil's workshop thus increasing injustices in society.
11. Little or lack of religious conviction among people also brings about injustices like theft, murder, prostitution etc.
12. Pornographic literature such as blue movies which influence people into unjust actions like defilement.
13. Unemployment which forces people into unjust activities such as stealing, corning of people.
14. Pride also has made injustices persist. This contributes to undermining of one another, discrimination, fights.
15. Lack of constitutionalism where the constitution is constantly manipulated according to the interests of those in government.
16. Permissiveness where by some people consider themselves free to do what they want according to their wish thus leading to mob justice, domestic violence etc.

17. Disrespect of human rights by some people who claim to be great. These people normally oppress the rest in terms of free movement, freedom of speech, press

FORMS OF CHILD ABUSE AS AN INJUSTICE TO CHILDREN TODAY

The term child abuse generally refers to the mistreatment of a child by a parent or another adult. The injustices inflicted on children today include the following;

1. Defilement; many young girls in primary schools experience the danger of being sexually abused by some male teachers and fellow young boys and they lose their virginity forever.
2. Rape; young girls are forced into sex by lustful boys, drunken men, neighbors, classmates and strangers. They also end up losing their virginity.
3. Some parents force their adolescent daughters into marriage with favored elderly men. This is against the girl's wish and denies her education.
4. Children face a problem of incest for example their cousins, step brothers, uncles and adopting fathers seduce them into sex. This affects their emotions and mental growth.
5. In some parts of Uganda the girl children are still forced to go under genital mutilation (female circumcision). This is common among the Sebei of Eastern Uganda. It's aimed at reducing the girl's sensitivity in sex .
6. Some children receive severe punishments for minor cases for example burning them for stealing sugar, or fifty shillings.
7. Busy parents don't attend to their children and they deny them parental love and care. They go to work early in the morning and come back late in the night leaving the children with house girls.
8. There is child labor where children are made to work to support their unemployed parents, for example selling pan cakes, polythene papers etc.
9. There is child rejection where a child is denied parental acceptance from the presumed father as his legitimate son. Some mothers also tend to change the fatherhood of a given child to a favored man.
10. Some people abuse children by giving them less food for their normal growth. They don't bring meat, eggs and milk at home.
11. Children are abducted by witch doctors and they are sacrificed. This is called child sacrifice.
12. Children are exposed to uncontrolled media where there is a lot of immorality on TV and radios.

MEASURES PUT IN PLACE TO PROTECT THE RIGHTS OF CHILDREN

1. The government has set up strong laws against rape or defilement for example if one is guilty of such, the punishment is imprisonment for seven years.
2. It has also provided Universal Primary Education and Universal Secondary Education so that all children can be educated to fight ignorance in society.
3. Children are recognized at local council level where they have a person in charge.
4. There is a children desk at every police station responsible for children's matters.
5. The government has set up immunization policies to ensure good health of children.
6. It has also set up children's courts to try special cases affecting children.
7. It has set up 18 years as the minimum age for one to get married.
8. It has also heavily punished parents who mistreat children.

9. The government has set up and supported child based organizations for example Sanyu babies' home.
10. Children are organized by prominent figures eg parties like on Christmas day parties are made for the little ones.

BULLYING AS AN INJUSTICE IN SCHOOLS

1. It makes the bullies students lose interest in their studies and start dodging lessons.
2. It makes one lose concentration in academics for fear to be mistreated.
3. A bullied student is humiliated before other students. This makes him uncomfortable.
4. Bullying gives room to those who are envious of particular new students to punish them for being what they are; for example those who look wealthier, more beautiful, and more fluent in English etc.
5. It's inhuman and unkind treatment to fellowman. It makes some students be treated like animals that have no feelings.
6. The bullied student spends sleepless nights for fear to be attacked at night. This denies them the right to enjoy relaxation.
7. Bullying was against the values of caring for strangers and the less fortunate ones.
8. Bullying violates the right of equality among all people. No one should be treated unkindly for unjustified reasons.
9. It makes a student live under fear and is not free to expose his/her talent.
10. Bullied students lose their property and may never recover their items like text books, money clothes etc.

INJUSTICES FACED BY WOMEN IN UGANDA TODAY

1. There is too much suppression of women in most homes and therefore women are undermined by men. They don't enjoy equal treatment at home and thus they are not involved in decision making at home.
2. Women are looked at as sexual objects; that they are there to satisfy men's sexual desires. Moreover, some husbands could even rape their wives instead of preparing them for sex.
3. Some churches like the Roman Catholic Church don't give to women top posts in church leadership. Women can best serve as nuns.
4. Two or more women are forced to marry one man under polygamy. This is seen as an abuse of the woman's rights to be love alone by the husband.
5. There is female genital mutilation which is seen as an injustice in society. It deprives the woman of her sexual pleasure because her sensitive body parts are removed. This is common among the Sabins of Eastern Uganda.
6. Women are physically assaulted daily. They are beaten or man handled by their husbands and male relatives.
7. Some societies have food taboos against women where they are denied good food stuffs like chicken, eggs, fish etc
8. In certain family, women are denied education. Priority is first given to boys and then girls come in as last resort.

9. In some societies girls are forced into marriage at a tender age. This is very common among the Karamojongs and traditional Acholis.
10. There is women discrimination at work. They are denied chance to work, get promotions and highly placed appointments because of being physically weak.

MOB JUSTICE AS AN INJUSTICE

The term mob justice refers to a situation where an emotional crowd of people takes the law in their hands to administer justice without following the legal process. It is caused by the factors;

- Ignorance of the law by the promoters of this practice. Such people believe that they have powers over suspects to the extent of killing them.
- Idleness of the crowd / majority of the people.
- Influence of drugs like marijuana
- Peer group influence.
- Delayed justice from the courts of law
- Permissiveness; this means too much freedom given to people to do what they want.
- Bribery and corruption in public offices like Police.
- Revenge on some people.
- Personal grudges/misunderstandings.
- Envy and jealousy from some people.
- Unavailability of security people in some places.
- Lack of respect of those in authority.

Mob justice is an injustice because of the following;

1. In the bible mob justice was rejected by Jesus when he forgave the adulterous woman who was about to be stoned by a mob.
2. It can lead to the death of a criminal and this is against the Ten Commandments.
3. It is bad because it violets human rights for example right to life, privacy and right to defense.
4. If a criminal is not killed, he may be deformed and may become disabled forever.
5. Sometimes an innocent person may lose his life as well as his property.
6. It's against the laws of the country and the people who are involved can be punished in case they are caught.
7. It creates social conflict in the village and at places of work.
8. It's irreversible since even when one is proved innocent, nothing can be done since already a punishment has been given.
9. It's a form of revenge in the shortest time.
10. Mob justice does not give a victim chance to defend himself. One may therefore be punished innocently when he/she is simply a suspect.
11. Mob justice humiliates the suspect publically. It makes the suspect lose respect from the public thus making him a misfit.

COMMON INJUSTICES IN THE CHURCH TODAY

1. Church leaders don't practice what they preach. They have therefore contradicted the gospel and are not exemplary.
2. Some church leaders discriminate their followers; that is favoring the rich and influential Christians.
3. There is misuse of church funds by some religious leaders for personal interests. This affects the progress of the church.
4. Some church leaders have turned the pulpit into platforms from where they voice their personal grudges with their opponents. This is an injustice and not a sign of love.
5. Some church leaders are not faithful to their vows they made to their God; for example the vow of celibacy, poverty and obedience.
6. There is power struggle among church leaders. They desire leadership for influence, money and personal interests but not serving God.
7. The church has destroyed African traditional culture in favor of foreign culture. It has labeled African culture as Satanic.
8. Some church leaders don't pray for the sick or requiem mass for the deceased especially those who are not regular for church prayers.
9. Some church leaders abuse Christians. They are too harsh to the extent of beating them.
10. Some church leaders involve themselves in politics to the extent of promoting bad policies like the 1994 Rwandese genocide in which catholic priests were involved.

WAYS IN WHICH THE CHURCH HAS FOUGHT INJUSTICES IN UGANDA TODAY

1. By preaching the gospel to shape people's morals especially to the youth. For example, in Bishop Cipriano Kihangire S.S.S termly retreats are organized to shape morals of students.
2. By preaching for equality among all people. This has reduced all forms of discrimination based on religion, sex and tribe.
3. By supporting orphans through Christian organizations like **KULIKA** charitable trust in Nsambya or **EMMAUS FOUNDATION** of Fr. JOHN SCARABLINI the Director of Bishop Cipriano Kihangire S.S.S Luzira.
4. By helping to maintain harmony in many families through settling disputes between parents and counseling children, fathers and wives.
5. By sensitizing Christians and other people about justice and human rights.
6. Some churches got involved in fighting battles on front line against injustices for example Rev. Pius **Tibanyendera**, Rev. Fr. **Sseguya** who joined NRA in the bush war to over throw bad regimes.
7. The church has supported different projects in the field of health and education in neglected areas like Karamoja.
8. By praying for justice and peace in the country at the end of the year to welcome new years with a blessing from God.
9. By advising politicians and asking them to change from injustices; for example, Bishop John Baptist Odama of Gulu Diocese was active in the peace talks of Joseph Kony's LRA and the government of Uganda. By supporting women, protecting their rights and raising their status for example through mothers' union and other women organizations.
10. By putting up alternative media to promote justice and moral righteousness for example church founded stations like Top Radio, Radio Maria, Top TV etc which have shaped the behavior of their followers.

11. The church has preached for equality of all human beings. This is based on the grounds that we are all created in God's image and therefore we are equal before God.
12. The church is fighting injustices by preaching to Christians the ideal of Love, forgiveness and patience to exist among Christians. This can help bring about harmony in society.
13. The church has set up organizations like Uganda; Joint Christian council (UJCC) which fights injustices in societies like corruption and rigging of elections.
14. The church has also built homes for the disadvantaged people such as the poor, orphans and disabled. For example, **Sanyu Babies'** home in Mengo, the **Bakateyamba** in Nalukolongo under Kampala Archdiocese.

QUESTION:

(a) What are the common causes of mob justice today?

(b) Why is mob justice an injustice itself?

(a) With specific examples, examine the different cases of injustice suffered by children and women in your society.

(b) What the government of Uganda has done to protect the rights of children

FUNCTIONS OF RULES AND REGULATIONS

- They guide and control the behavior of people for example school rules.
- Rules and regulations ensure discipline in the society in which people live.
- When people have rules and regulations to follow, they are in position to carry out their duties perfectly well
- They help to promote peace and unity among people such as the national constitution of Uganda.
- They protect people from going astray e.g. school rules.
- Some rules protect people against accidents in along high ways e.g. zebra crossing along high ways.
- They help to reduce high crime rate and violence in a community.
- They promote justice in a society.
- Rules and regulations help in maintaining political stability.
- They help to protect weaker members of the society against injustices found in society.

JUSTICE IN AFRICAN TRADITIONAL SOCIETY

The African tradition society is known for its promotion of justice. Justice in African traditional society was practiced in the following ways;

1. There was no individual ownership of resources like land, water, forests etc. these were communally owned and protected for the benefit of the community. Thus individualism was discouraged as a way of promoting justice.
2. On the hierarchy of leadership; chiefs, tribal elders and parents were agents of justice in the society. Tribal elders were also important in reconciling aggressive parties.
3. There were no written rules and regulations but one had to observe the traditions and customs of the society and failure to uphold them would mean excommunication or other punishments deemed appropriate.
4. Leaders were expected to serve the community according to the general consensus of the community.
5. Decision and resolution implementation were taken up by the whole community. This was very common in stateless societies like Soroti.
6. Compensation was important e.g. incase one's animals destroyed another's crops, it was a condition that the owner of the animals pays compensation in order to promote harmony in society.
7. Tribalism was discouraged. This was evidenced by the fact that strangers would be allowed to participate in community celebration. Among the Baganda they could be allowed to join the known clans.
8. Revenge was discouraged as it promoted the persistent occurrence of injustices instead there was reconciliation and forgiveness.
9. Respect for one another as well as customs and beliefs was a way of expressing justice in African tradition.
10. Cultural values, religious customs and taboos were very important in promoting justice in African tradition.
11. Offenders were required to confess their mistakes in public. They had to promise that they would never repeat the same mistake.
12. Purification rituals were carried out. This involved cleansing of an offender from his or her sins aimed at avoiding punishment from the ancestral spirits.

Question:

- ***(1) How was justice promoted and maintained in African traditional society?***
- ***(2) Explain justice as understood and worked out in traditional Africa.***
- ***(3) Explain the understanding of justice in the African past.***

HOW JUSTICE WAS ADMINISTERED IN TRADITIONAL AFRICAN SOCIETIES

1. In the ATS there were no written laws but decisions on social order were based on customs and situations surrounding the case.
2. Societies that were centralized like Buganda and Bunyoro had their judicial authority in the hands of the king.
3. Africans had local courts which were used to reconcile people, settle disputes and penalizing wrong doers.

4. In traditional African society justice was maintained by laws, customs and taboos which formed the moral code of the society.
5. Any one practicing any social evil like witch craft, bad magic and sorcery etc. was excommunicated from the society because such a person was antisocial.
6. Misunderstandings in the family were settled by the family elders such as grandparents, clan heads etc.
7. Justice was divine guided. Morals were believed to be God given and anyone who committed any crime like murder would be punished by God.
8. Wrong doers were always put to task to give public confession before a punishment was served.
9. Compensations were made by criminals to those offended. This was aimed at making justice prevail in society.
10. Punishments in the ATS were **deterrent** in nature i.e. aimed at stopping others from doing similar crimes.
11. There was justice between the living and the dead; for that matter spirits had to be offered sacrifices.
12. In ATS an injustice committed on an individual was an offence against the whole community because a society was a corporate body.

INJUSTICES IN AFRICAN TRADITIONAL SOCIETY

1. There was human sacrifice. In most African societies the children were sacrificed for fear of wars, drought etc. This was common among the **Kamba** people in Kenya.
2. Young girls were forced into marriage against their consent. Even the choice of the marriage partner was made by elders. Therefore such girls only had to accept the choice of the parents. This was common in Buganda, Busoga etc.
3. There was female genital mutilation a common injustice which denied women chance of enjoying sex. Here the clitoris was cut off and this killed sexual pleasure of such women. It was common among the Sabins, Kikuyu and Bakonjo.
4. There were food taboos against women in most African societies. Here women were denied some food stuffs. For example among the Baganda it was considered a taboo for women to eat eggs, chicken, pork etc and such food was reserved to only men.
5. There was oppression of women by men in ATS. They were despised and oppressed because they were seen as weak sex. For example in Tooro a woman could not denied a husband sex, hence a common saying "**Omusaiija tayangwa**"
6. There was discrimination and isolation of strangers. The Luo could not intermarry with them.
7. There was exploitation of the minority groups like the insane (mad), strangers and sometimes children.
8. Suspects were sometimes harshly treated by the society. For example suspects of witchcraft were beaten, had their property burnt down and sometimes excommunicated from the society.

9. There was suppression of individual's rights. For example views from women could not be accepted by men in most societies and sometimes they could be told to shut up especially while talking in presence of men.
10. The privileged despised the unprivileged members of the society, i.e. the superior and inferior. For example in Buganda the **Balangira (royals)** exploited the **Bakopi (serfs)**.
11. There was mob justice where suspects of murder, theft or witchcraft were badly treated. Suspects of witchcraft would have their houses burnt down by the people.
12. African women were subjected to a lot of unfairness, for example the **Itesots** in Eastern Uganda could not allow women to take part in leadership.
13. Some kings were very harsh to their subjects, for example they could sell them in slavery, take away their wives, offer them as sacrifices to spirits, spit in their mouth etc.

Question:

(a) With examples, explain how justice was manifested in African traditional society.

(b) What were the common injustices in the Africa traditional societies?

(c) What common injustices were subjected to women in traditional African societies?

JUSTICE IN CHURCH HISTORY

In church history there were two major areas of injustice namely slavery practices and oppression of the minority groups.

SLAVERY

1. Slavery practices were officially accepted in the church. Emperor Constantine of Roman Empire found out that most Bishops and priests had slaves. This was an injustice.
2. The bishops and priests benefited greatly from the slaves who made their lives comfortable. No one wanted to abolish it.
3. The married slaves were not given chance to live as a family with their wives. The husband would live in isolation of his wife and children for years. This too was an injustice.
4. African slaves were sold to America and Brazil. They were made to work day and night without any single pay.
5. Slaves were inhumanly treated by their masters. They were beaten during work, denied enough food, medical care and slept in the open.
6. Slavery had become a business to the European missionaries. They claimed that with slave business, they were able to build schools, churches and hospitals in Africa.
7. Some missionaries said that slaves were happier in America than if they had remained back in Africa. These slaves wanted to be freed but the missionaries in America were reluctant.
8. Unlike missionaries, the Quakers were the first group who refused their members to use slaves; this showed that Quakers had seen the horrible nature of slavery.

9. St Peter Clever a Spanish priest showed great concern to slaves by feeding them, but he still faced opposition from the slave owners.
10. William Wilberforce the leader of the Chaplin sect also strongly opposed slavery and advocated for its abolition and it was finally abolished in 1807.

OPPRESSION OF THE MINORITY GROUPS

1. The Jews were among the minority groups oppressed by Christians that time. They were mistreated by Christians because they were believed to have been responsible for the death of Jesus Christ.
2. The church also opposed the Heretic Minority (Idol worshipers) because they considered them evil.
3. Christians were another minority group that was oppressed and mistreated in the Roman Empire under Emperor Nero. Christians were blamed for worshiping Jesus Christ as King instead of Emperor Nero.
4. There was oppression of the pagan minority. This was during the days of Emperor Constantine's regime when Christianity was a state religion in AD 311.
5. There was oppression of the protestant minority. In 1571 **Pope Pius V** expelled Queen Elizabeth I from the Catholic Church because she had declared Protestantism state religion of Britain. Protestants were nicknamed as rebels.
6. Christians who lived in communist countries faced severe persecutions and mistreatment for their faith. Communism does not provide explanation of God's existence in China, Korea and Russia.
7. St Augustine from North Africa helped the government to oppress the minority who had broken away from the church. He wanted to use force to unite the church.
8. Twelve men and women from Seychelles were executed for refusing to sacrifice to the Roman gods.

WHY WAS SLAVERY CONSIDERED AN INJUSTICE

1. Slavery denied married slaves chance to stay with their family members. It made it hard for a man to interact with his wife and children. They always lived in isolation.
2. Africans were sold off as trade commodities thereby disrespecting their human dignity.
3. African slaves were subjected to severe punishments by their masters. Many were beaten for disrespecting their masters.
4. Most slaves worked for long hours with little or no pay. They were also not allowed rest yet their work was very heavy.
5. Slavery was condemned because it made African slaves forget their identity and sense of belonging, as a result of over staying other communities.
6. The children of the slaves would automatically belong to the masters not to their biological parents.

7. In general slaves lived in very poor conditions yet their masters lived in luxury.
8. Their life was exposed to great risks in mines because many would die without any rescue done.

HOW THE CHURCH HELPED TO ELIMINATE INJUSTICES OF SLAVERY

1. Slaves were freed, trained skills and got important positions in the church.
2. The church actively participated in the abolition of slavery e.g. St. Peter Clever in America as well as Wilberforce in Africa.
3. The church refused its members from owning slaves especially members of the Quakers. This was done to promote the rights of the slaves.
4. The church helped in baptizing slaves and converting them into Christianity, thus making other fight for rights of slaves.
5. Missionaries constructed schools for the freed slaves from where they to read and write and skills like carpentry.
6. The church encouraged legitimate trade which was a replacement of slave trade.
7. The church missionary society settled freed slaves in West Africa in Sierra Leone and in East Africa while the Holy Ghost fathers provided them with charity works.
8. The church helped freed slaves to train as church leaders for example Bishop Samuel ***Crowther Ajayi in Nigeria*** who was once a freed slave.

HOW THE CHURCH HELPED TO ELIMINATE THE INJUSTICE OF SLAVERY

1. Slaves were freed, trained new skills and got important positions in the church such Samuel Crowther Ajayi in Nigeria.
2. The church actively participated in the abolition of slavery. Many of the church members like William Wilberforce, St. Peter Clavery refused their members to own slaves especially the Quakers. This was promoting the rights of slaves.
3. The church also helped in baptizing slaves and converting them to Christianity thus creating a large Christian community among the slaves which discouraged slave owners from acquiring more slaves.
4. The church missionary society sent all their freed slaves in East Africa to Sierra Leone where they were assured of their freedom.
5. The church converted freed slaves into anti-slavery force which was used to fight slavery in different parts of Africa.
6. It helped in training freed slaves as church leaders in different parts of Africa, such as Adrian Atman and Bishop Crowther Ajayi.
7. Missionaries discouraged African chiefs and kings from participating in slave trade and slavery.
8. They convinced their home governments to make it illegal to participate in slave trade and slavery.

PERSONALITIES IN CHURCH HISTORY WHO OPPOSED INJUSTICES USING NON VIOLENT MEANS

Different people in different parts of Africa fought tirelessly to put to an end the forms of injustice that were prevailing in their communities.

1. DOM-HELDER CAMARA

- Dom Helder Camara was the archbishop of Olinda and Recife in Brazil who died on August 27th 1999 at the age of 90 years.
- He was the 12th of the 13 children and a son of the book keeper and a grade three school teacher.
- He became one of the most loved but most opposed person in Brazil.
- Dom Helder was internationally acknowledged as a man of God and defender of the poor.
- As bishop he dressed simply in traditional attire which signified his concern for the poor.
- According to him no one is to be a slave. No one seeks to suffer injustices, humiliations and restrictions.
- He says a human being subjected to inhuman situations is like an animal wallowing (rolling) in mud.
- According to Helder Camara, violence is not a real answer to violence. There should be peaceful means of overcoming violence.
- He says that violence makes the world fall into a spiral of violence (continuous violence)
- The only true answer to violence according to Camara is to have the courage to face injustice.
- He says that the privileged and those in authority should choose between bloody and armed violence on one hand and on the other hand violence of peacefulness.
- He says that opting for non-violence means is to believe strongly in the power of truth, justice and love instead of thinking in terms of wars, weapons and hatred.
- Camara says that he would prefer a thousand times to be killed than to kill others.
- He argued that it's much better to be persecuted by those in authority instead of fighting the government which can cause others to suffer.

MARTIN LUTHER KING JUNIOR.

1. He was a black American pastor.
2. He was born on January 15th 1929 in Atlanta.
3. He was a leader of the civil rights movement in USA in 1950s and 1960s.
4. He had good speaking ability on social justice.
5. He mobilized people to boycott and demonstrate against racism.
6. He delivered a popular speech called "*I have a dream speech*" after which the civil rights act was passed.
7. The civil rights act stopped the injustice of racism in all public places like schools, markets and hospitals.
8. He was awarded a noble prize in 1964.
9. On April 4th 1968 he was shot and killed while campaigning for the equality of the poor people at Memphis.

NELSON MANDELA

1. Nelson Madiba Mandela was born on July 18th 1918 at Qunu, Transkei region in South Africa.
2. He fought for justice by organizing South Africans to oppose the injustice of racism or apartheid policy that had made life very hard for the South African natives.
3. He was determined and gave his life as a living sacrifice.
4. He offered to stay in prison for more than 25 years to show his protest against the apartheid regime.
5. He was asked on January 31st 1985 to denounce *violence* and honor apartheid but he instead gave the following remark "*Only free men can negotiate. Prisoners cannot enter into contracts. I cannot and I will not give any under taking at a time when my people and I are prisoners. Your freedom and mine cannot be separated*".
6. On January 11th 1990, Nelson Mandela walked out of the prisons gate as the most outstanding moral and political leader who loves justice at all cost.
7. Nelson Mandela died on 5th December 2013.

MOTHER THERESA.

1. Mother Theresa was a Roman Catholic nun.
2. She was a world's humanitarian missionary.
3. She received a noble prize in 1979 for her hard work for the poor whom she referred to as the "*poorest of the poor*".
4. She founded the missionary of charity in 1950.
5. She provided food in schools, hospitals and orphanages.
6. Many people referred to her as the only saint alive.
7. While in Uganda in 1988, she visited the needy in Kisenyi slums.
8. Her mission educated over 400 children.
9. She died on September 5th 1997.

CARDINAL EMMANUEL NSUBUGA.

1. Cardinal Emmanuel is regarded as the father of all Catholics in Uganda.
2. He loved and respected all human beings irrespective of their color, religion and tribe.
3. He spoke openly on the abuse of power and violation of human rights in Uganda most especially by political leaders.
4. He never feared to visit those who suffered from civil wars.
5. He fed and provided shelter for more than 1000 refugees at Rubaga.
6. He spent his life in the service of the ordinary people.
7. He started projects which helped the poor people e.g. He opened a primary and secondary schools at Kyankwanzi Ranch.

8. He built a home for the elderly and the homeless at Nalukolongo.
9. He died on April 20th 1991 and was buried at Nalukolongo among the homeless.

ARCH BISHOP JANAN LUWUM.

1. -Janan Luwum was a Ugandan Anglican archbishop who bravely defended human rights during Idi Amin's regime.
2. During Amin's regime, life in Uganda was characterized by rape by soldiers, kidnap, and arbitrary arrest, detention without trial, unexplained killings and denial of freedom of worship.
3. He accepted to act as the voice of the voiceless in 1970s.
4. He openly criticized then President Idi Amin for all injustices he had imposed on Ugandans.
5. He was arrested in 1977 and shot twice on the chest by Idi Amin.
6. Janan Luwum was later put on the list of those who lost their lives through firing squad during Amin's regime.
7. He identified with the suffering people and that threw him into conflict with the government.
8. A week before his death, bishop Luwum wrote a letter to the president signed by 8 other bishops criticizing the president of his bad practices.

BIBLICAL UNDERSTANDING OF JUSTICE

1. God wanted justice to prevail among his people and that is why he liberated the children of Israel from the Egyptian slavery, to give them their liberties and have joy in life.
2. In order to promote justice there were punishments given to the injustices committed for example **Cain** was punished and cursed for killing his brother **Abel**.
3. The book of **Exodus 20:1-17** indicates the Ten Commandments which were given by God to promote justice among the Israelites.
4. God also gave out laws to protect the right of workers in Israel. It was condemned as an injustice for a worker not to be paid (**Leviticus 19:13**).
5. God also called upon the Israelites to be honest and just when they are making decisions in courts of law. He called upon them not to favor the rich against the poor. **Leviticus 19:15**
6. God often sent his prophets to promote justice by condemning the social injustices like using wrong weighing scales in businesses and mistreatment of the poor. This was done by prophet Amos.
7. Sabbath was given as a day of resting from work by every by everyone including foreigners in Israel. Therefore whoever abused this right committed any injustice against God. **Exodus 23:12**
8. Injustices like adultery and divorce were condemned in the book of (Deuteronomy 22:13-30). This protects marriage from injustices.
9. In the Old Testament God calls man to live in good relationship with him and with each other.
10. **The** Israelites were given laws to help them get united as people of the same God to ensure that justice prevails in society.

11. The rich people in Israel were called upon to show love and justice to the poor. They were supposed to provide for them in times of need.
12. God used to perform miracles as one way of showing justice to his people. For example he saved Daniel from being eaten up while in a den of lions.
13. The Israelites were called upon to repent for their injustices committed. Those who refused to repent were punished by God such as Adam and Eve, the two immoral cities of Sodom and Gomorrah.
14. As a way of promoting justice the Israelites were called upon by prophet Isaiah to obey God's laws and show brotherly concern for one another.

THE OLD TESTAMENT TEACHING ON JUSTICE

1. For justice to prevail there should be a good relationship between God and man and between man and his fellowman as it was originally in Eden.
2. Justice involves equal treatment to all human beings whether male or female, rich or poor because all were created in the image of God.
3. The Old Testament teaches that Justice means obedience to the covenant law and failure to obey it brings about injustices in society.
4. It teaches that love and respect for human beings is the key to justice. For example God showed justice to his people by treating all of them equally.
5. It teaches that God is the source of justice. Therefore all people are invited to be just and fair to each other.
6. The Old Testament encourages fair treatment of foreigners as it promotes justice in society, (Exodus 23:9)
7. In bringing about justice, the Old Testament advises that people should not accept bribes in order to provide fair and just judgment as Prophet Amos teaches.
8. While promoting justice, the Old Testament teaches that people should use the Ten Commandments because they are the foundation of justice in society.
9. It teaches that the rule of law in Israel was not compromised (the law would not be bent to cater for particular people). Therefore there was no one above the law.
10. It also teaches that worshipping God alone was a manifestation of justice in society and worshipping him alongside other gods was an indication of injustice.
11. Justice also involved complete rejection of alliances with pagan communities in terms of business and friendship, therefore Israel was to be independent on its own.
12. The Old Testament teaches that even slaves are entitled to their freedom. They should be set free in the seventh year.
13. It teaches that offenders should be given a just and fair punishment, equivalent to the crime committed ***Leviticus 24:17-22***.

COMMON INJUSTICES IN THE OLD TESTAMENT

The following are cases of injustices in the Old Testament;

1. Man's disobedience in Genesis 3 was an example of injustice because Adam and Eve were supposed to obey God instead they obeyed Satan.

2. In Genesis 4 there is an injustice of Cain killing his brother Abel because of jealousy.
3. In the book of Exodus there is enslavement of the Israelites in Egypt for a period of 430 years. However later God intervened to restore justice for the Israelites.
4. In Israel there was an injustice of discrimination people suffering from Leprosy who were treated as out casts in society.
5. In 2 Samuel 11 kings David committed an injustice of adultery with Bathsheba the wife of Uriah yet he had many other wives.
6. King David was also blood thirsty. He killed Uriah the husband of Bathsheba in order to cover up his sin of adultery.
7. King Solomon subjected the Israelites to forced labor, over taxation and exploitation of the poor. This was another case of injustice in Israel.
8. There was an injustice of persecuting God's prophets in Israel. For example Amos was abused and sent away in Israel, while Jeremiah was thrown into the well.
9. Some kings in Israel used force to take over people's property. For example king Ahab took over Naboth's vineyard.
10. Some people committed an injustice of incest, for example David's son Amnon raped his sister Tamar (2Samuel13)
11. Traders during Amos' time used wrong weighing scales while others added sand in salt in order to get abnormal profits.
12. There was an injustice of denying the just hearing in the courts of law. Judges favored the rich against the poor.
13. Some kings promoted the worship of other gods in Israel, for example Solomon and Ahab promoted foreign gods of their wives.

HOW WAS JUSTICE MAINTAINED IN THE OLD TESTAMENT

1. God gave out the **Ten Commandments** to the Israelites which helped to safeguard rights of all people.
2. God sent his prophets who condemned all forms of injustices in society; for example Amos condemned exploitation of the poor.
3. Punishments were put in place as a collective measure of fighting against injustices for example the just and fair punishment (an eye for an eye) Leviticus 24.
4. Adultery was condemned in the Jewish society, for example David's son of adultery was killed by God, 2Samuel 12.
5. The Old Testament encouraged respect of foreigners and giving them all their rights.
6. Justice was encouraged by calling upon the Israelites to live righteous lives that recognizes God's presence.
7. Justice was encouraged through peaceful settlement of cases like the case of prostitutes fighting for a child which Solomon settled.
8. Justice was encouraged through mutual understanding between one group and other people. For example David made an agreement with elders of Israel at Hebron which brought about peace in the country.

WHAT CAN BE DONE TO PROMOTE JUSTICE IN UGANDA TODAY

1. By punishing law offenders through courts of law
2. By putting in place the national constitution at the same time respecting it.
3. Through peaceful settlement of conflicts among the conflicting people.
4. By putting in place organs that defend and uphold the rights of the people such as The Uganda Human Rights Commission, Justice Centre Uganda etc.
5. By condemning all forms of injustice in the country such as mob justice, child sacrifices etc.
6. By recognizing the rights and freedom of children in the country.
7. By promoting the independence of the judiciary (courts of law)
8. By promoting equitable distribution of national resources and jobs to all people in the country.
9. By granting Ugandans freedom of worship, such that people can belong to any faith of their choice.
10. By ensuring peace to all Ugandans through security organs like Police, UPDF etc.

HOW DAVID TRIED TO ADMINISTER JUSTICE

1. He tried to unite his people by encouraging the Israelites from the North and South to live as Brothers.
2. He brought peace to Israel by fighting Israel's enemies like Philistia, Moab.
3. He settled disputes among his people especially in his own family.
4. He maintained the worship of one God (Monotheism) that he even transferred God's covenant box to Israel.
5. David was a forgiving man that he forgave Saul who one time tried to kill him.
6. He was repentant in character. This saved him from the anger of God on several occasions.
7. He established a dynasty through which a savior was born.

INJUSTICES COMMITTED BY DAVID IN THE STORY OF DAVID AND BATHSHEBA

1. He committed adultery with Bathsheba a wife of Uriah. This was an injustice because adultery was condemned by God in the Ten Commandments (2Samuel11)
2. He committed murder when he killed Uriah thus breaking the 5th commandment (Don't kill)
3. He coveted / admired Uriah's wife yet this was sin against the Ten Commandments.
4. David had sexual intercourse at the time God's covenant box was at war front. This was forbidden in Israel.
5. David forced Uriah to get drunk so that he could go home and have intercourse with his wife but Uriah refused.
6. He influenced Bathsheba into sin when she had sex with David.
7. David was a traitor in that he betrayed Uriah and finally had him killed.
8. He had no love and sympathy for his people like Uriah whose death was caused by David.

INJUSTICES COMMITTED BY AHAB IN THE STORY OF AHAB AND NABOTH (1KING21)

Exercise: 1

State the injustices committed by Ahab in the story between Ahab and Naboth (1king21)

THE NEW TESTAMENT UNDERSTANDING /TEACHING OF JUSTICE

1. According to the New Testament justice means love for others as maintained in the story of the Good Samaritan. Thus Christians should extend love to one another.
2. It teaches that justice calls for reconciliation of the conflicting members before coming to the temple to offer God a sacrifice, (Mt. 5:21-25)
3. Jesus condemns the law of the Pharisees which hinders the promotion of justice in society. He teaches that mere observation of the law does not promote justice but love for God and fellow man.
4. According to the New Testament God is the source of justice and Christians are called upon to imitate him.
5. Jesus condemns adultery as an injustice in marriage and family life by emphasizing that whoever divorces commits adultery.
6. Justice can be achieved through the Holy Spirit who gives joy, peace, kindness as St. Paul teaches (Galatians 5:22-23)
7. The New Testament teaches that women and the children should be respected just as Jesus welcomed the children and noted that the kingdom of heaven belongs to them.
8. St. James condemned exploitation and oppression and thus calls for justice to prevail in society.
9. In his miracles, Jesus demonstrates God's justice to those considered outcasts in society. For example he healed the ten lepers to give justice to them.
10. Jesus advocated for justice to take be implemented by those in authority

HOW JESUS PRACTICED JUSTICE

1. Jesus practiced justice by welcoming everyone equally without discrimination. He associated with the poor, the sick, thieves and everyone to bring them to the kingdom of God.
2. Jesus practiced justice by condemning hypocrisy.(religious pretense) here the Pharisees and Scribes kept the law but their behavior towards each other was bad.
3. Jesus corrected the law and put it in its proper place so that people could find freedom. For example of Sabbath, washing of hands etc. (Mk 7:1-13)
4. Jesus met the needs of the people for example he fed the hungry, healed the sick like lepers and the blind.
5. He broke some bad cultural barriers for example he associated with the Samaritan woman in John 4 and yet Jews and gentiles never interacted.
6. He refused the law of revenge and instead encouraged forgiveness.
7. He encouraged the commandment of love for God and one another as a way of ensuring justice.
8. He refused to condemn the woman caught in adultery, instead he told her not to sin again.
9. As a way of maintaining justice, he strongly condemned divorce. To him divorce is a form of adultery.
10. On the cross at Calvary, Jesus forgave his persecutors because they did not know what they were doing.
11. He taught his disciples how to pray and urged them to forgive others. This helped to create harmony among the people.

12. He forgave peter after he had denied him three times

How Jesus taught his disciples to work for justice.

1. He encouraged them to practice forgiveness. He forgave the adulterous woman.
2. He called for reconciliation. He never revenged on those who killed him.
3. He advised them to judge with fairness as guided by the Holy Spirit.
4. He stressed love for one another so as to bring about peace and harmony.
5. He asked them to be good examples to others.
6. He encouraged them to preach against injustices without fear.
7. He encouraged them to sacrifice themselves for the kingdom of God.
8. He asked them to have respect for one another.

Violent methods of fighting injustice

This refers to the use of force to remove or do away with problems or injustices. Among the violent methods, the following ought to be mentioned;

1. Some people carry out mob or group justice to fight the injustice.
2. There are others who resort to guerilla wars in order to remove a dictatorial government.
3. Some people plant bombs as a way of fighting injustice such as **Boko Haram** fighters in Nigeria.
4. Students who are unsatisfied with the system in their schools; involve in violent strikes.
5. In some societies where one group has oppressed the other e.g. in Rwanda, they carried out genocides which was the killing of a particular ethnic group.
6. Some others in order to fight injustices resort to throwing of stones, burning building, cars etc.
7. Others commit suicide as one way of showing their dissatisfaction with government.

The various ways in which human rights have been abused

Human rights refer to those natural claims of rights entitled to everyone by virtue of birth and law.

Rights have been abused in the following ways;

1. Military coups and abuse of human rights
Like what happened during Amin's regime.
2. Terrorist attacks for example the **El-Shabab** attacks in Uganda at the Kyadondo grounds and the Ethiopian village where over 70 people were killed.
3. Banning of the press\media services such as newspapers, radio stations which are shut down because of airing bad information against the government.
4. There has been interference with court ruling by the army hence denying people access to a fair trial.
5. Many people have been wrongly arrested and detained.
6. Some people have been murdered and the culprits\suspects are left free.
7. Stealing is ever increasing hence no security and respect for other people's property.
8. There is rampant corruption, oppression and exploitation.
9. People have been denied the freedom of movement due to insecurity.

SUBTHEME 2

SERVICE/AUTHORITY IN SOCIETY

Authority refers to the power entrusted in someone to serve others.

On the other hand, service means work done or assistance performed for the good of the society. This can take the form of activities like teaching, healing, ministering etc.

FORMS /TYPES OF AUTHORITY

1. PARENTAL AUTHORITY: This is natural authority parents have over their children. For example a father as head of the family exercises authority over those in his control (**paternal authority**). However where a mother is the head of the family is called **maternal authority**.
2. HEREDITARY AUTHORITY: This type of authority is handed over by parents to their children in their order of lineage. For example in **patrilineal** societies authority is handed over to the eldest son likewise **matrilineal** societies it's handed over to the girl.
3. DIVINE AUTHORITY: This is spiritual power that is above any other authorities on the earth. It's power beyond man's understanding for example the authority of God, diviners and spirits.
4. PERSONAL AUTHORITY: This is concerned with experts like teachers, lawyers, doctors, writers etc. they exercise special knowledge in their areas of expertise.
5. SYMBOLIC AUTHORITY: This is derived from particular symbols or objects that are respected for representing some power e.g. the Bible, Quran, National flag, Court of arm, Royal drum etc.
6. GOVERNMENT AUTHORITY: This is the ruling body that governs the country. The government is composed of three organs with which it provides services to the people; e.g.
 - (i) The executive
 - (ii) The legislature
 - (iii) The Judiciary

WHY IT IS NECESSARY TO HAVE AUTHORITY IN SOCIETY.(FUNCTIONS OF LEADERS/AUTHORITY)

1. Authorities are necessary for representing views in society for example **members of parliament** have powers to present people's views and make important decisions for the country.
2. It helps to ensure that rules and regulations are respected for example **the traffic police** in Uganda ensures proper use of roads and avoiding of road accidents.
3. Authority helps to create harmony in society. For example the authority of the president of **Uganda His excellence Yoweri Kaguta Museveni** is partly to maintain peace and harmony in the country.

4. Authority leads to development in society for example the government helps in this endeavor by setting up schools, hospitals essential for the growth of society.
5. Authority helps to promote morality in society. A council of church leaders (UJCC) strongly condemned the evil of homosexuality in the country and among its members.
6. Leaders help to uphold cultural values of certain societies. For example among the Bagishu cultural leaders have to ensure that the annual circumcision ceremony is held.
7. People in authority help in bringing about unity of all people in society. For example president Museveni is using his authority to unite the Bakiga and Banyoro in **Kibaale** who were recently arch rivals.
8. Religious leaders help in leading people towards God as they preach to the people what they ought to do in order to reach kingdom of God.
9. It contributes to the keeping of law and order in society such as the police, prefects in schools.
10. Authority is also important in terms of promoting justice in society. Justice is maintained in the society e.g. controlling corruption, defilement and other crimes in the community.
11. It helps to protect the weak members in the society for example children, disabled, aged etc.
12. Authority helps in promoting diplomatic relations between one country and others. That is why almost all countries send and receive diplomats from other countries.

HOW AUTHORITY HAS BEEN MISUSED TODAY

1. Some leaders have practiced a high level of corruption thus causing endless suffering to the poor e.g. Police officers often ask for tips before suspects are released from their cells.
2. Some leaders especially employers exploit the poor by not paying in time and sometimes overwork them.
3. Many use their positions to promote sexual immorality in form of sexual harassment for example former Head teacher of St. Mary's **Lugazi** one **Geoffrey Muliika** defiled a 15 years old student and was sentenced for 15 years in jail.
4. Some leaders have great greed for power. This still keep in office even when their time of office expires.
5. They practice a high level of discrimination based on race, sex and other sectarian tendencies.
6. Many misuse public resources such as vehicles, funds. For example in Uganda corporate vehicles are often seen carrying sand and items of senior staffs in their offices.
7. Some leaders tend to assume that they are above the law. Even when they are convicted they are not arrested.
8. Many have practiced dictatorship e.g. like the late Idi Amin Dada.
9. In homes, some husbands practice domestic violence, which takes the form of beating women, children as well as abusing them.
10. There is lack of patriotism. That is some leaders don't show love for their country.

QUESTION: Explain the

(i) Advantages

(ii) Disadvantages of authority

HOW PEOPLE ACQUIRE AUTHORITY

1. Through national elections where the people are elected/ voted in positions of responsibility as leaders for example the president, Members of parliament etc.
2. Through military coups where some people overthrow an elected government for example **President Paul Kagame of Rwanda** became president after overthrowing **Habyarima's** government.
3. Through political appointment for example the ministers, Resident District Commissioners etc.
4. Some acquire authority through inheritance for example **Kabaka Ronald Mutebi** of Buganda who took over power from his father.
5. Through self-appointed; for example some people have imposed themselves onto people as their chiefs like **Ssabaluli** in Nakasongola.
6. Through education where people become leaders after receiving academic documents either as teachers, doctors, and Reverends.
7. Some people have become leaders by going to the bush and fought the existing government to become leaders for example president Museveni who fought Milton Obote.
8. Through anointments for example the catholic priests.
9. Through traditional appointments, for example, medicine men, rain makers etc.
10. Through performing heroic actions like Nelson Mandela who spent 27 years in prison and after which he became president of South Africa.
11. Through economic power some people can gain authority, for example the **Gordon Wavamunno** who became an ambassador of Hungary.
12. Through marriage some people automatically get authority that enables them to run their families.

THE PRESENT IDEAS PEOPLE HAVE ABOUT AUTHORITY

Today people have both negative and positive attitude towards authority as seen below;

1. To some people authority means being oppressive and exploitative of the subjects by those in power (authority) i.e. there is a big gap between those who are ruled and those in power.
2. Authority is also seen as a way of survival where those have it use it to satisfy their endless needs instead of serving other people.
3. Some people think that authority is also linked to the economic status of a person and so those with money easily win big positions of leadership compared to the poor.
4. Today leadership is for both for men and women unlike in the past where it was dominated by only men. For example RDCs can either be men or women depending on the president's choice.
5. Some people think that today's leaders are expected to rule, judge instead of serving since a leader is supposed to serve.
6. Authority is also linked to one's academic status. It's possessed by those with degrees, masters.
7. To some people authority means having unquestionable powers. For example the power of the king is unquestionable and have to abide by it.
8. Authority is understood as a source of blessings to the community. That is why everywhere president Museveni goes he gives out money to the youth in form of initial capital "**Entandikwa**".

CAUSES OF BAD LEADERSHIP

1. Pride. Some leaders think that they are the best something that at times leads to dictatorship.
2. Excessive love for power also makes some leaders not to leave their offices.
3. Fear to be imprisoned by the international law keeping bodies also makes some leaders to cling onto power.
4. Love for wealth has led some leaders to become corrupt.
5. Lack of education has made some leaders to commit untold injustices towards the people for example **Idi Amin Dada** former president of Uganda.
6. Lack of religious principles and moral principles in a leader can make him or her immoral.
7. Failure to have leadership skills denies some people chance to make proper judgment of issues.
8. Influence of others e.g. friends, relatives, family members who may encourage them to stay in power so that they gain favors.

Qualities of a good leader

A leader is anyone entrusted with authority to mobilize, guide, monitor and organize a given group of people. A good leader must have the following qualities;

1. A good leader must be God fearing. He should be God fearing who acknowledges God as the source of authority.
2. He must be a good listener ready to listen to people's problem. For example Samuel listened to people demand for a king in Israel (1Samuel 8
3. A good leader should be well behaved (exemplary) in order to spearhead the struggle for good morals in society.
4. He or she should respect the values and principles of democracy in other wards should avoid dictatorial tendencies
5. He\she should be a man of justice, honesty and integrity.
6. A good leader should be kind, loving; merciful to the people he serves especially the needy, poor and disabled.
7. A good leader should be sensitive to the needs of his people especially the basic needs.
8. He should be passionate i.e. should have genuine love for his people. This will put him in position to serve effectively with a sense of feeling for them whenever they are hurt or in need.
9. He\she should be trained well in order to manage the demands of the modern society.
10. He should be courageous such that he can handle problems confidently.
11. He\she should be creative and innovative for the purpose of social progress.
12. A good leader should be progressive and flexible.
13. He\she should be receptive to new ideas and avoid conservatism.

Peoples' attitudes towards leadership today

(Why people join leadership)

Positive attitudes

1. Many have an attitude of wanting to serve the less privileged people such as the lame, orphans etc.
2. Some feel that it is their role to promote the rights of other people.
3. Some people think that they are answerable to people's needs and so they put in all their effort to provide people's needs.
4. Some have the attitude of fostering development and so they work towards development.
5. Others have an idea of promoting peace and harmony among people and so they tirelessly work towards that.
6. Some take authority as the only avenue to show a good example to others, and so they take up leadership so as to be role models.

Negative attitudes

1. Many join leadership so as to revenge on others.
2. Some think that leadership is an immediate way of acquiring wealth and when they get into it, they play unhealthy games such as corruption.
3. Many have an attitude of being above the law and so this makes them harsh and dictatorial leaders.
4. Others have a view of being adored and so they tend to join leadership such that they are respected.

Roles of leaders today

- i. Leaders promote the fundamental rights of human beings.
- ii. Leaders are supposed to provide social services e.g. safe water.
- iii. To solve problems of people and promote justice e.g. L.C leaders.
- iv. Some leaders are supposed to nourish people spiritually.
- v. Some leaders are supposed to provide the basic needs to others e.g. parents provide for their children.
- vi. To advise on important matters such as state matters e.g. religious leaders.
- vii. Some play a role of promoting cultural norms and values e.g. clan leaders, elders.
- viii. Some leaders provide security and protection to their people e.g. political leaders.

Why some leaders fail to provide good service to their people.

1. Too much greed for wealth where leaders try to swindle people's money and even participate in corruption for their selfish ends.
2. The poor working conditions which make leaders fail to serve e.g. delay in payments, little payments. These force them to do otherwise so as to make ends meet for example traffic police take bribes because they are poorly paid.
3. Poverty which makes leaders accept bribes; carry out corruption, embezzling of money.
4. The level of permissiveness where leaders are allowed to do what they want at their own will.
5. Diseases/persistent illness which make them to offer inadequate services to their subjects.
6. Lack of commitment to serving the people has also failed leaders today as they prefer to serve themselves other than the people they head.
7. Too much conflict among the leaders themselves may make leaders fail to deliver good services.

8. Inadequate resources to support the leaders in providing services e.g. funds to run police which makes police men accept bribes.
9. Religious differences which may cause leaders to fail to serve whole heartedly to a particular religious group.

AUTHORITY AND SERVICE IN AFRICAN TRADITIONAL SOCIETY

Traditional African communities were well organized with leaders like kings, chiefs, parents, clan leaders, diviners, elders etc. Below is how the African tradition understood authority.

1. Authority was for the benefit of the whole community. The elders, youngster and strangers all benefited from services of leaders.
2. Leaders had a religious duty hence they could bless, heal and even punish.
3. Leaders worked to protect society and defend their subjects against external attacks and other threats.
4. Authority was linked to age, grey hair and tooth less ness was a symbol of wisdom hence the young were not given positions of authority.
5. People in authority were mainly men; women had little to offer in leadership.
6. In most cases, authority was acquired at the time of birth especially by people coming from royal families like kings.
7. Some specialists like medicine men, magicians, commanded a lot of respect because they had authority to heal certain diseases.
8. Important functions like marriages, initiations, child naming were presided over by those in authority for example in Buganda naming ritual was done by the family or clan head.
9. Those in authority acted as counselors e.g. parents; chiefs and kings counseled their people.

Qn. Give the similarities and differences found in African and present situation understanding of authority and service.

HOW AUTHORITY WAS ACQUIRED IN AFRICAN TRADITIONAL SOCIETY

1. Authority was acquired through heroism. People who performed extra-ordinary things for example killing a lion, killing an enemy etc. found it easily to become leaders.
2. They acquired authority by rite of birth. If a man belonged to the royal family, he could easily become a leader e.g. among the Baganda, one would become a king if he was a son of the existing king.
3. One would be appointed. (Through appointment). The kings had powers to appoint any person to positions of authority e.g. chiefs.
4. Wealth accumulation. Rich men with a lot of wealth were usually given leadership roles as compared to the poor.
5. One would become a leader through divine appointment. It was believed that some people were chosen by the gods/ancestors through dreams e.g. religious leaders.

6. Others would be given authority depending on age. Elderly people were believed to be near to the gods or spiritual world than the young ones. Accordingly, every elderly was a leader.
7. Some societies elected the best candidates for leadership by lining up behind the candidate of their choice.
8. People with special talents were considered for leadership in African past.
9. They also considered a man who was intelligent.
10. Health was considered for leadership as well.
11. Gender was equally important as people were looking for leaders in African past. In most cases their leaders were males as females were discouraged from becoming leaders.

QUALITIES OF A GOOD LEADER IN AFRICAN TRADITIONAL SOCIETY

1. He had to be a man of power/authority.
2. He had to be determined and courageous.
3. He had to be slow in decision making.
4. One had to be ready and willing to promote people's customs.
5. He had to be wise and cunning.
6. He had to be merciful and kind.
7. He had to be hardworking and fairly rich.
8. He had to ensure that social justice prevails.
9. A good leader had to possess both political and religious authority.
10. He had to defend the society against external threats

Question:

(a) From the Christian point of view, describe the qualities of a good leader.

(b) Indicate the similarities and differences between qualities of Christian and African leaders.

SIMILARITIES BETWEEN THE QUALITIES OF A GOOD LEADER IN AFRICAN TRADITION AND THOSE OF TODAY

Similarities

- Like the present leaders, a good leader in African tradition had power and strong personality.
- In both, a leader has wisdom.
- In both, a leader must be courageous.
- God-fearing is manifested in both African tradition and present situation.
- In both, a leader must show that he is capable of defending his subjects.
- In both, a good leader is one who unites his/her subjects.
- In both, a good leader upholds the society norms and rules.
- In both, a good leader should respect the religious values of the people.
- In both, a leader should be ready to serve.

Differences

- In many African traditional societies, a good leader was not necessarily appointed by God yet today leadership comes from God.
- In African tradition, a good leader had to be a good fighter/worker and yet today a good leader is one who is a good listener from the Christian perspective.
- In African tradition, a leader had many wives and yet today Christian leaders are monogamous.
- In African tradition, elders were the only ones entitled to be leaders; today the even young ones are appointed to positions of leadership like Hon. Anite minister for the youth.
- Today we have democratically elected leaders, where as in African tradition leadership was based on lineage.
- In African tradition, a leader was a rich man but today even poor people become leaders.
- In African leaders were always men but in Christianity even women can be made leaders.

How leaders in African tradition exercised their authority. (Roles)

- They settled conflicts among their family members. In Buganda this was done by clan heads.
- They used their authority to defend their subjects against external threats.
- They used their authority to unite the living with the dead. This was done through organizing ceremonies sacrifices, Naming etc.
- They had a right to punish wrong doers. For example the Kabaka of Buganda punished criminals from **Katereke prison** in present day Nsangi- Wakiso district.
- They collected taxes which were aimed at developing the community.
- They used their authority to assign tasks to their subjects.
-
- Some traditional leaders used their authority to administer healing. This was done by diviners.
- They used their authority to appoint chiefs to rule on their behalf for example the Kabaka of Buganda appointed the sub county chiefs to rule on his behalf.
- They used their authority to bless others. This was done by diviners.

The role of Chiefs in African Traditional Society

- They implemented the consensus or resolutions of the community.
- They were expected to bring honor and blessings to the community.
- They were to act as mediators between the living and the dead. They served as a link between the living and the dead.
- They had political and religious authority and so they demanded obedience from their subjects.
- They acted as judges and resolved conflicts between the concerned parties.
- They were expected to preserve the traditional community values.
- They were supposed to promote unity in the society.

- They also acted as religious leaders who would perform religious rituals like sacrificing to the gods.
- They owned and distributed resources like land and forests to other people.
- They settled disputed in society such as inheritance wrangles, land disputes etc.

MISUSE OF AUTHORITY IN AFRICAN TRADITIONAL SOCIETY

Question:

(a) Explain the ways in which authority was misused in traditional African society.

1. Some African kings murdered innocent people. With a mere nod of the head, a man's life could be removed.
2. They exploited their subjects through over taxation.
3. In Ankore found in Western Uganda, the king could spit in the mouth of **Bairu** and his spear would rest in human flesh.
4. The women who visited the Kabaka's palace were regarded as his wives. The Kabaka was called **Bbaffe** meaning our husband.
5. They enslaved some of their subjects through forced labor.
6. African chiefs exercised land grabbing from the poor people.
7. Some African chiefs were extremely war mongers. They led their people into unnecessary wars.
8. African leaders were despotic; they denied others leadership.
9. They organized cattle raiding. Some tribes such as the Karamojongs had a mentality that all cows were theirs.
10. They practiced tribalism i.e. they were not accommodative to other people especially the strangers.
11. Some carried out human sacrifice to solve social problems like drought.
12. Some kings were dictatorial and their word was final on most sensitive cases.

AUTHORITY\SERVICE IN CHURCH HISTORY

In the early church, there were disciples who later became apostles. They delivered the following services.

1. They preached the gospel with boldness especially after receiving the Holy Spirit Acts 2.
2. They taught and promoted baptism of the new converts. Here many people were baptized and became Christians.
3. The apostles shared their possessions and accepted to live ordinary just like Jesus. Acts 4:32-35.
4. The apostles performed miracles which proved to the listeners that they had the power of the Holy Spirit. Acts 3:6-7.
5. They carried out fellowships or religious gatherings for prayers and strengthening people's faith in God.
6. They encouraged believers to pray for God's protection, providence and guidance.
7. They sacrificed their life for the sake of the gospel e.g. Luke, St. Stephen Acts 7:54-56.

8. Apostles established churches wherever they preached the gospel to different communities; for example St. Paul Opened churches in Corinth, Galatia, Rome etc.
9. Apostles worshiped God through songs, hymns and prayers and thus encouraged their followers to adopt them.
10. They provided catechism services. This was the teaching of the Christian basics to the new converts.
11. Apostles chaired church meetings in the early church.
12. They chose seven men (deacons) to assist them which showed that the apostles were willing to delegate responsibility to others.

PROBLEMS FACED BY EARLY CHURCH LEADERS IN DELIVERING SERVICE

1. The places where the church had to deliver services were distant and remote. This made it difficult to regularly visit the converts.
2. There was opposition faced by apostles especially from the Roman Empire during days of Emperor Nero.
3. There was language barrier because most apostles knew Jewish and Greek language.
4. There was a problem of disunity in the early church. These divisions were based on personalities like St. Paul, Peter, Apollos and this affected the progress of the Christianity.
5. There was a problem of inadequate funds and so the church lacked money to carry out its duties.
6. Apostles in the early church were fewer compared to the vast places where they had to preach the Good News to. This slowed down the services.
7. Most apostles were not educated and so they met a challenge when they met the well-educated Greek Philosophers who boasted of their knowledge.
8. There was immorality in the newly started churches like in Corinth where some church leaders practiced incest. This denied them converts.
9. There was a problem of cultural differences. For example the Jewish, Gentiles and some Africans failed to understand one another.
10. Some religious leaders became too busy to attend to their followers, for example nuns and Monks.

SERVICES PROVIDED BY CHRISTIAN MISSIONARIES IN THE AFRICA

Question: *In what ways did the early missionaries offer service to the people in East Africa?*

1. Socially missionaries provided formal education to the people of East Africa through their schools like Kings' college Buddo, Gayaza high school etc. these taught people how to read and write.
2. They provided practical and technical training such as carpentry, building etc. through their schools like **St. Joseph technical school Kisubi** where people were trained to be self-reliant.
3. They also provided health services to the people of East Africa. This was done through their health centers like Mengo hospital which was built by **Sir Albert cook**.
4. They established seminaries where Africans were taught Christianity and leadership such as **ALOKOLUM** seminary in Gulu, **BUKALASA** in Masaka etc.
5. They introduced modern scientific methods of farming like contour farming, rotational farming etc.

6. They brought new crops especially cash crops like **coffee, cotton** and commercial farming
7. They converted a number of people in East Africa into Christianity in a way of saving their souls from perishing in hell.
8. They also constructed worshipping centers like Lubaga Cathedral of the Catholics built in **1914**
9. Missionaries provided employment to some Africans for example some Africans served as catechists, priests, teachers etc. this helped the people of East Africa to earn some money for survival.
10. They developed cash crop agriculture among some African communities like Baganda in central Uganda from where cotton and coffee were introduced.
11. Missionaries established ex-slave rehabilitation camps like Bagamoyo camps from where African ex-slaves were resettled and rehabilitated.
12. Missionaries foreign languages to the Africans like French, English, German and Latin.
13. They translated the Bible into some local languages; for example Ludwig Krapf translated the bible into Kiswahili.
14. Missionaries provided charity services to the needy Africans in form of clothing, shoes, spoons etc. This improved on their standard of living among the local people.
15. They helped in the civilization of Africa by condemning African backward practices like witchcraft and cannibalism.
16. Missionaries condemned and engaged in the abolition of slave trade which helped in restoring peace, stability and human dignity.

LESSONS TODAY'S LEADERS LEARN FROM THE WAY MISSIONARIES PROVIDED SERVICES

1. Leaders should spread the word of God as missionaries did.
2. They should provide medical services to the people as missionaries did.
3. Should sensitize the people about illnesses and teach them how to treat themselves as missionaries did.
4. They should encourage vocational education
5. They should fight against human trafficking just missionaries fought against slavery in Africa.
6. They should promote harmony in society by preaching the gospel of love.
7. They learn to be exemplary in order to win many followers.
8. They learn to instill good morals in their children just as missionaries helped African become good people in society.
9. They should show love to their followers by donating to them as missionaries did.
10. They create employment for their people to improve on their welfare just as missionaries did.
11. Religious leaders should translate the gospel into local languages to make it stick in peoples' minds.

PROBLEMS FACED BY MISSIONARIES IN EAST AFRICA

1. Missionaries faced a problem of language barrier.
2. Tropical diseases like malaria; small pox etc. also weakened and killed some missionaries.
3. The unfavorable climatic conditions of East Africa affected missionary work some times.
4. Geographical barriers such as rivers, mountains and forests were very many and worked against missionaries.
5. Missionaries faced a problem of inadequate funds to facilitate the various activities.
6. They faced a problem of theft from the porters and robbers especially in Tanzania among Yao.

7. They also had a challenge of inadequate supplies in form of medicine, food, clothing etc.
8. Others faced a problem of hostile tribes for example the Nandi and Masai of Kenya who used to kill missionaries.
9. Some missionaries were home sick because they had left their wives, husbands and children back in Europe which distance was very far from east Africa.
10. Missionaries faced opposition from some traditional rulers; for example Kabaka Mwanga of Buganda who ordered for the killing of Bishop James Hannington.
11. It was difficult for the missionaries to implant Christianity in the Africans because of their attachment to their cultures.

How authority in the church History was misused or abused.

1. The bishops who headed towns became rulers other than servants.
2. Those in authority made the people to give them honor instead of serving people.
3. They started discriminating among people they led, church leaders for instance were always on the side of the rich other than the side of the poor and oppressed.
4. The bishops, clergy and priests led as princess instead of serving their people.
5. The bishops became very rich and forgot their calling to serve others.
6. The leaders used their authority to serve their endless needs rather than the society.
7. Leaders spent most of their time in politics e.g. in Rome the government was using bishops in government offices.
8. The bishops were given excessive legal power which was anti-Christian because Christians are not earthly judges.
9. Church leaders became materialistic by owning very big land and other many material things.
10. Some church leaders started dividing Christians and many sects came up.
11. Many of them lived extravagant lives when their followers were suffering.

PEOPLE WHO OFFERED THEMSELVES TO SERVE THE CHURCH.

Question:

How did the following offer service to their society?

(a) St. Francis of Assisi

(b) Arthur Shearly Cripps of Rhodesia

ST. FRANCIS OF ASSISI

He was a great servant who formed a group of followers called the Friars meaning the brothers.

These vowed to live ordinary poor lives and so they imitated Jesus.

This group rendered the following services;

1. They spread the good news of Christ in the remote areas of Africa especially to the ordinary people.
2. They lived exemplary lives of being humble and committed to prayer that led to the fast expansion of the church in Africa.
3. They endeavored to provide the needs of the poor such as food, shelter, clothing etc.
4. They sold off most of their belongings for the sake of their poor brothers and sisters.
5. The friars provided medical services to the Africans and so they helped to treat tropical diseases in Africa.
6. They also promoted unity by associating with all kinds of people which led to the expansion of the church.
7. St. Francis established schools so as to fight ignorance and illiteracy in Africa.
8. They encouraged the spirit of forgiveness and reconciliation as well as sharing among people.
9. They also encouraged repentance of sins which brought about spiritual renewal.
10. He trained medical officers in schools to help people get treated.
11. He also trained many friars to work as teachers in some parts of Africa.
12. He promoted the love for nature among Africans thus conserving their environment.
13. He was from a rich family and thus distributed his father's wealth to the poor people.

BISHOP SHANAHAN JOSEPH OF SOUTHERN NIGERIA

This was an Irish man who was born in 1870 and arrived in Southern Nigeria in 1902.

Three years later, he was made a bishop in Southern part of Nigeria and so did his work among **the Ibo people**.

His work was mainly amongst the children of the Ibo people. He rendered the following services;

1. He encouraged parents to educate their children as this would prepare them for the future.
2. He developed schools for the poverty stricken families thus fighting against ignorance and illiteracy in Nigeria.
3. In his service to the people, he encouraged love of one another, sharing, forgiveness and reconciliation.
4. He encouraged moral upbringing of children and responsible parenthood. He asserted that a well brought up generation of children is the foundation of the church.
5. He preached the gospel of Christ to the Ibo people and converted many from Islam to Christianity.
6. He uplifted the status of African woman through establishing schools for girls and encouraging them to compete with boys.
7. He conducted catechetical lessons for Christian instructions to the new converts, besides conducting baptism.
8. He also encouraged the growing of cash crops among the Ibo people thus increasing people's income.
9. He was also helped in organizing communal work that would help people to be empowered economically e.g. he would walk for miles visiting people so as to know their problems.
10. He appointed chief so as to promote law and order.

REV. EZEKIEL APINDI OF KENYA

He was born in 1885 in western Kenya from a wealthy family.

He preached in many parts of Kenya and converted many into Christianity.

He used his authority to establish schools and Christian churches which helped in the following ways.

1. It helped the community members to attain skills of writing and reading.
2. It created employment opportunities and so earning income to the local people.
3. He lived a prayerful life and was energetic enough to work with his people.
4. There was promotion of morality in society through respect for one another, forgiveness and reconciliation and above all promoting unity.
5. Promoted high standards of living and hygiene as a result of education.
6. He was compassionate to the sick and the old.
7. He was ordained as a rural dean in Kisumu.
8. He died in 1959.

BROTHER TOBY KIZZA OF UGANDA

He was born in 1872 and baptized by the White fathers in 1890.

Two years later he was trained as a brother in Algeria and returned to Uganda in 1896. He never had special qualifications but trained in carpentry and joinery.

As a good servant, he offered the following services;

1. He lived an exemplary life of self-sacrifice e.g. at the age of 80, he was sent to Lwera on a mission and traveled at the back of a lorry.
2. He prayed for the sick and out of faith, they healed.
3. He established various evangelistic missions in Uganda that helped in the spreading of the gospel.
4. He served the poor and the sick with love, tenderness and kindness.
5. He provided vocational training to many Ugandans and this helped them to be self-reliant.
6. He also encouraged forgiveness, sharing, reconciliation and above all love for one another. This was done through his preaching.
7. He fought against illiteracy and ignorance by establishing schools in many parts of Uganda.
8. He is said to have been always cheerful. This enabled him to associate with all kinds of people.

ARTHUR SHEARLY CRIPPS OF RHODESIA

Cripps was an Anglican missionary in Rhodesia present day -Zimbabwe from 1901 until his death in 1952. He offered the following services;

1. He preached the Gospel to the people of Rhodesia, and converted many to Christianity.
2. He lived a life of sharing among his people and so acted as a great example to the Christians.
3. He helped in writing Christian literature and also explaining the bible to the local people.
4. He had great concern to the Africans and so fought to protect their rights e.g. he refused the idea of the British to grab their land for the white settlers.

5. He built churches through his funds that he accumulated from the selling of his Christian literature.
6. He humbled himself to live a life of poverty which embarrassed his fellow Europeans. For instance he often travelled on foot.
7. He promoted justice and thus associated with all kinds of people. Because of this even the poorest man in a village would find him a true friend.
8. He contributed a lot of funds from his literature project to run the activities of his mission.
9. He respected African rights and strongly opposed the move by the British to grab land in Rhodesia.
10. He served as a parish priest of the church of **Five Wounds near Eikeldoom** where he offered his priestly services.

SERVICE IN THE BIBLE

OLD TESTAMENT

Authority in the Old Testament was understood in the following ways;

1. In Genesis 1 and 2; God is seen as one with complete authority over the entire universe. He is the creator and all the power and life comes from him.
2. In Exodus 3 God uses his authority to liberate his people of Israel from the Egyptian slavery where they spent 430 years.
3. After liberating the Israelites from slavery, God gave to Joshua authority to destroy all the people the Israelites found in Canaan. This was to stop them from spoiling God's people.
4. Samuel was given authority by God to appoint Saul as the first king of Israel. Thus God lends his authority to other people.
5. When King Saul misbehaved Samuel was still given authority by God to curse him and was allowed to anoint David as his successor.
6. King David used his authority to bring peace and prosperity in Israel when he killed Goliath and other enemies of Israel.
7. In Old Testament authority with wisdom were good in delivering services to the people. For example King Solomon used it to judge the case to the two prostitutes fighting for a child.
8. In the Old Testament God appointed prophets to guide kings while doing their work. For example prophet Nathan to condemn David's sin of adultery with Bathsheba.
9. In the Old testament God gave out the Ten Commandments to the Israelites to help them receive better services in their society.
10. However Isaiah prophesied that perfect leadership would come from the Messiah- son of God.
11. Good leadership was based on true justice and love for one another as members of the church.

HOW DID GOD USE HIS AUTHORITY IN THE OLD TESTAMENT

1. Through Moses, God made a way through the Red sea as the Israelites were heading to the Promised Land.
2. He provided food and water to the Israelites in the wilderness on their way to the Promised Land. Ex:16:18.

3. He liberated the Israelites from slavery in Egypt after showing his authority to Pharaoh through the ten plagues.
4. He used his authority to bring floods so as to punish people who had disobeyed him Gen: 6:1ff.
5. God used his authority to challenge the human pride manifested through the construction of the tower of Babel Gen: 11:1-9.
6. He also amended laws that were to be followed by the Israelite community i.e. the Ten Commandments. He appointed Kings and guided them to do his will e.g. he gave wisdom to King Solomon so as to judge people wisely.
7. Through Elijah, God demonstrated his mighty power at Mount Carmel where fire consumed the offerings presented after a short prayer against the false prophets.
8. He saved Daniel from being devoured by the hungry lions Dan: 6:1-28.
9. He also proved his mighty power through the recovery of an axe head by Prophet Elisha from the waters of Jordan. 2Kgs:6:1-6.
10. God showed his authority through Ezekiel commanding the valley of the dry bones to come back to life. Ezekiel 37:1-14.
11. He also rescued the Israelites from the threat of the Philistines by enabling David to kill Goliath. 1 Sam 17:41-54.

Qn. Show how Moses demonstrated good leadership in the O.T.

He was a Levite by birth and a key figure in the exodus event and born at a time when the Hebrew baby boys were being killed by pharaoh.

Services rendered by Moses

- He was courageous and brave enough to accept the responsibility of liberating the Israelites.
- Moses acted as a mediator between God and the Israelites at Mt. Sinai.
- He has trust in God in whatever he did as leader.
- Moses accepted to suffer with his people. e.g. they suffered together from hunger.
- He was a good listener, listened to both God and his followers.
- He was a law giver; he gave out the Ten Commandments to the Israelites.
- He shared power with his Aaron his brother.
- He was humble and approachable in character.
- He was a man of justice; he settled people's problems with impartiality.
- He defended the rights of his people i.e. slavery as thus serves as their liberator.

Examples of misuse of authority in the Old Testament

SOLOMON:

1. He overtaxed the Israelites during the building of the temple.
2. He used forced labor especially people from the North.
3. Revenged on his enemies e.g. exiled Jeroboam.
4. He killed his brother Adonijah.
5. He made alliances with pagan countries e.g. Tyre.

6. Married foreign women close to 300 of them.
7. Sold God's land to a pagan country of Tyre.
8. Showed a bad example to his people by worshipping foreign gods.
9. He sold God's land to pay the debts.
10. He was discriminative in his administration favoring people from South at expense of the Northern.

OTHER CASES OF PEOPLE WHO ABUSED AUTHORITY IN ISRAEL

1. King David was lustful and so committed adultery with Bathsheba.
2. David killed Uriah Bathsheba's husband. 2Sam 11:1-27
3. David influenced his messengers to sin against God by using them to fetch Bathsheba.
4. King Ahab and his wife Jezebel grabbed Naboth's vineyard and above all killed him.
5. King Ahab allowed the worship of Baal and other gods in Israel.
6. Moses failed to follow God's instructions e.g. he struck the rock twice and yet God he told him once.
7. The house of Eli also misused the priestly office by having sex with women at the entrance of God's tent.
8. Cain also misused his authority of being the eldest by killing his young brother Abel.

AUTHORITY IN THE NEW TESTAMENT

1. Jesus in the New Testament is seen as a good shepherd as foretold by Ezekiel. He taught his disciples the true purpose of authority i.e. he did not come to be served but to serve.
2. Mark 10:32-45, Jesus did not come to dominate but to serve. He taught his disciples the true meaning of authority i.e. dedicating himself to the needs of others.
3. Jesus also gave another sign of what authority should be by washing the feet of his disciples John 13:1-15.**NB.** This was done by slaves and so Jesus was acting as a servant.
4. Jesus rejected his own interests so as to serve people. He rejected Satan's temptations in the wilderness.
5. Through his death and resurrection, Jesus gave us the Holy Spirit who instills us with the power and guidance to serve Ephesians 4:11-13.
6. Jesus also teaches that whoever wants to be great should be a servant of others. Luk, 22:24-27.
7. The New Testament also shows that power and authority to serve comes from God. 1Peter 2:13-17
8. Jesus demonstrated his mighty authority over Satan's reign when he rose from death. In this respect, he broke the chains of death and made man free.

Jesus as an example of a good leader

1. He accepted to die for the sake of his people. John 10:10.
2. He provided the necessary needs of people e.g. fed the hungry Luke 9:10-17, healed the sick.
3. He associated with all sorts of people i.e. the poor, rich, tax collectors, Samaritans, Pharisees.
4. He always consulted God during his work. he did this through prayer e.g. towards his arrest, he prayed in the garden of Gethsemane.
5. Jesus was merciful to people e.g. he provided wine at a wedding in Cana.
6. He also had compassion for his people e.g. he cried when he was told that Lazarus had died. John 11:35.

7. As a good leader, he delegated work thus encouraging team work. Luke 10:1-12.
8. As a good leader, he had respect for those in authority e.g. he encouraged the paying of taxes Mk 12:13-17, Luke 20:19-26.
9. As a good leader, he also punished those in wrong e.g. chased away those who were misusing the temple.
10. He also offered protection to his people to e.g. he counseled his sleep for the sake of saving the life of his disciples.
11. He challenged those in authority that they should serve and not wait to be served by washing the feet of his disciples.

HOW HEAD PREFECT SHOULD USE HIS

AUTHORITY TO SERVE OTHERS

- Communicates important message from administration.
 - Provides basic needs to fellow students e.g. ensuring that enough food is served to students.
 - By protecting the weak and new students.
 - By behaving well so as to change the behavior of other students.
 - Attends annual general meetings on behalf of students.
 - Encourages love and unity in the school.
 - Organizes and addresses assemblies.
 - He chairs prefects' meetings.
 - He represents students on occasions like National students workshops.
 - He ensures general cleanliness of the school
 - He ensures that students are justly treated.
- He receives and guides visitors in the school

SUBTHEME 111

LOYALTY IN SOCIETY

- I. The term loyalty means making promises and fulfilling them.
- II. It may also means being honest and faithful to friends, society and church.
- III. On the other hand, loyalty refers to the making of commitments and acting upon them.
- IV. You may be committed to something or somebody.
- V. In order to be loyal, one must be trustworthy, committed, faithful and obedient.

TYPES OF LOYALTY

Group loyalty: This means being faithful and co-operative with a group one belongs to e.g. scout group, school etc.

Individual loyalty: This means being loyal to oneself that is being committed to one's or your own principles (a moral rule or a strong belief that influences your actions). This type of loyalty may also be termed as personal loyalty which refers to being faithful or being committed to a certain individual e.g. to your teachers, presidents, husband to wife, mother to her baby etc.

Cultural loyalty: This refers to being faithful to the customs, values of one's tribe and clan. It also involves respecting one's clan and tribal leaders as well as clan symbols.

Divine loyalty: This is one's commitment to one's God. It involves believing in one God, praying on every recommended day of prayer, obeying the doctrines of your religion.

Social loyalty: This involves being faithful to one's activities and responsibilities in his normal/daily life e.g. being loyal to one's academic work as a student, one's leisure activities etc.

Loyalty calls upon obedience either to yourself or others. This means you always think of what ought to do or what others expect you to do. However we should always try to avoid blind obedience i.e. doing things just for the sake of doing it.

Loyalty also demands or requires determination to do something. This may lead to self-esteem among individuals which may also lead to development both mentally, economically, socially and politically.

THE UNDERSTANDING OF LOYALTY TODAY

Today loyalty can be expressed in

the following ways;

1. Personal loyalty whereby we become faithful or committed to special people e.g. lovers, married people, Christians, kings etc.
2. Today people can also express their loyalty to the national flag, national anthem, and school anthem. In some tribes, people are loyal to their cultures for example tribes like the **Bagishu** normally circumcise their male.
3. Christians express their loyalty to God through prayers, helping the sick, poor and disabled.
4. People today express loyalty to parents and elders whereby they show them respect and listen to their advice, guidance etc.
5. Most people today are loyal to their work. This is mostly between employees and employers for example teachers are supposed to pay loyalty to the head teacher and other administrators.
6. Students express loyalty to their studies by attending to all their lessons, tests and doing all the exercises in class.
7. Soldiers express their loyalty to their senior commanders of the army.

IMPORTANCE OF LOYALTY

Loyalty is very important in our daily lives as seen below.

1. It leads to the development of the society, community and the country at large since people can understand each other and so come up with developmental ideas meant for the good of the country.

2. Loyalty creates and brings about good relationships among people e.g. employers and employees can work together, understand each other in many issues.
3. In addition, where loyalty prevails, rules and regulations are fully observed by the people e.g. students at school observe the school rules and regulations because they are loyal to them.
4. Loyalty creates peace and unity amongst people. This brings about togetherness in work for the good of the society and country at large.
5. In a political manner, civil or tribal wars are dealt with since people are loyal to the government thus elimination of rebels, terrorism, fighting etc.
6. Loyalty helps to keep cultural norms and values and so cultures develop among people. This is so if people are loyal to their own tribes and cultures.
7. Being loyal to one's principles lead to a high self-esteem and above all it leads to respect of one's personality by other people.
8. Loyalty leads to elimination of crime rates in a society e.g. if one is loyal to his job, profession, his or her ethics will hinder him or her to commit crimes like taking bribes, being corrupt. In the case of a doctor, he or she will avoid making people abort since his/her duty is to save life and not to terminate it.
9. Socially, loyalty leads to co-operation among people especially the young and elders e.g. in the family setting; if the wife and husband are loyal to each other, they co-operate easily and understand each other.
10. Loyalty leads to minimization of conflicts among people e.g. among employees and employers. This will minimize strikes, demonstrations in the country.
11. Loyalty shows a spirit of nationalism among people of a certain country e.g. if people are faithful, obedient, honor the national flag, national anthem, they show love for their country.
12. It also leads to success in one's individual efforts i.e. socially, economically, politically and religiously.
13. It also leads to development of good morals among people especially the young ones in the family.
14. In the Christian point of view, Christians are assured of eternal life since their religion demands one to be loyal to the laws of God.

LOYALTY IN THE PRESENT SITUATION

In the present situation, loyalty means fulfilling a wide range of decisions, meeting challenges and demands. Therefore loyalty is expressed in the different ways;

1. People today show loyalty to their families by loving one another and living in harmony for example; husband and wife, parents and children.
2. The choices and decisions we always make to certain things express our loyalties to those things. So we need to put our choices to things which are more important.
3. Christians today manifest their loyalty to their God through attending church services and other activities like crusades. This indicates that they are citizens of both heaven and earth.
4. Today most people express their loyalty to their jobs through fulfilling professional demands for example; doctors ensure that they save lives by giving the right drugs to patients.
5. Some people today are loyal to their business through making numerous commitments such as improving on the quality of goods.

6. Today many people have expressed exaggerated loyalty. This means being too submissive and committed to values and individuals. This has led to blind obedience today which is so dangerous e.g. a lover may seem so committed to someone but instead, it may be blind loyalty to the other partner.
7. Today, there is loyalty to institutions e.g. students pay loyalty to institutional rules and regulations.
8. The army men today respect the army code of conduct and this has led to peace and harmony.
9. People today show loyalty to symbols and objects such as the national flag, anthem and this shows respect to the country.
10. Culturally, people today show loyalty to their cultures through fulfilling their cultural values, norms and practices for example the Bagishu, Bakonjo take circumcision very important.

How (Christians) can be loyal to;

a) Family

1. By participating in the daily domestic work at home like washing utensils, respecting each other at home etc.
2. Through portraying good morals both at home and outside home so as to give a good picture to other people.
3. Through studying as required in order to uplift the status of the family.
4. By co-operating with the family members in all kinds of activities.
5. Through proper handling of family property e.g. furniture, fragile things like glasses.
6. Through working for the development of the family.
7. By promoting Christian values in a family like understanding God through bible studies etc.
8. By promoting good relationship with their neighbors.
9. By attending social functions together as a family. This can take the form attending concerts together.
10. By respecting the cultural norms to which that family belongs.

b) How a Christian can be loyal to the society or State (Country)

1. Through paying taxes as demanded by the state/society.
2. Through participating in work that may lead to the development of a country e.g. community work like cleaning of roads.
3. Christians can show loyalty by respecting and recognizing the state and its authorities e.g. national anthem, flag, president etc.
4. Through promoting democracy and rule of law i.e. participating in the elections and other political activities.
5. Through participating in community activities and self-help projects such as road, well construction and repair.
6. Through promoting the moral wellbeing of the society by being exemplary and imparting behaviors among children.
7. Through educating children at various levels e.g. primary, secondary, university etc.

8. Through participating in the promotion of peace by either joining the army or supporting it in a different way or another.
9. Through promoting responsible parenthood i.e. caring for the wellbeing of children.
10. Through respecting the fundamental human rights such as a right to life.
11. By avoiding dirty games like corruption, embezzlement of public funds.

How a Christian can be loyal to the School

1. By following the school rules and regulations.
2. By following the school time table.
3. By properly handling of the school property such as furniture etc.
4. Through getting involved in all school activities like mass, sports, manual work, clubs etc.
5. Through observing preps and attending all lessons as required of a student.
6. Through portraying good morals and guiding others who have gone wrong.
7. Through exercising Jesus' values in life like obedience, love of one another and sharing with friends.
8. Through working hard for the development of the school i.e. reading hard so as to make the school perform better.
9. Through putting on the school uniform in proper order.
10. Being obedient to teachers and other administrators.

How a Christian can be loyal to the Church

1. Christians can be loyal by paying church fees such as tithe, offertory which may help in the development of the church.
2. Through attending church services without exception.
3. By practicing Jesus' law of love, trust and respecting one another because we are all one family.
4. Through preaching the gospel of the lord and extending his kingdom as instructed by Jesus.
5. By forgiveness and reconciliation with our enemies in order to live as people of God.
6. Through repenting to God so as to be forgiven of their sins and even towards other people.
7. Through remaining loyal to the power of the Holy Spirit and recognizing his role in the church.
8. By participating in Eucharistic celebrations as Christ instructed us because it brings them together.
9. By participating in prayer, praise and fellowships.
10. They should seek the holy sacraments like marriage.
11. By extending activities of charity to the needy, elderly and poor in church.

Question:

(a) ***Giving examples show how a Christian can be***

loyal to both the church and the State.

(b) ***How did the Christian martyrs in Uganda***

express their loyalty to God?

DISLOYALTY

This refers to living against one's commitments and peoples' promises in societies. Many people misunderstand loyalty and in the end they turn to being disloyal to their families, jobs, one self, and institutions etc.

CAUSES OF DISLOYALTY IN SOCIETY

1. Lack of parental care or guidance: Many parents don't guide their children on how to behave in society and so children grow up not knowing what to do at different stages of life.
2. Drug abuse such as smoking marijuana, opium, fuel which confuses them mentally thus leading to disloyalty, for example they can abuse people, rape and fight in public etc.
3. Poverty which may lead to stealing of other people's property so as to make ends meet.
4. Permissiveness i.e. allowing someone to do what he or she wants. This makes people behave the way they want irrespective of other people's feelings.
5. Greed for money which leads to unhealthy behaviors at the place of work like corruption, embezzlement of public money etc. for example ***Geoffrey Kazinda the former accountant of the prime minister's office*** is said to have swindled 50 billion shillings.
6. Unemployment which leads some people into selling of property they don't own, cheating and practicing sex immorality such as prostitution so as to earn a living.
7. Bad examples from other leaders for example if a wife is disloyal to the husband, the children too are most likely to be disloyal to their father.
8. Increased cases of income inequality between the rich and the poor that makes the poor steal and kill the rich.
9. Peer group influence also leads to disloyalty; for example some students in schools break rules and regulations which may be as a result of friends.
10. Lack of religious commitment by many people today has led to disloyalty to one another for example the thugs who gunned down **Joan Kagezi** the state prosecutor 2015.

Qn. 1. With relevant examples, explain the different ways through which people today have become disloyal.

Qn. Give the different causes of disloyalty in schools today.

DANGERS OF DISLOYALTY

1. It results into expulsion in case of a student and excommunication from the society if one is a grown up citizen.
2. It results into marriage breakdown. This is brought about by problems like adultery, defilement etc.
3. Disloyalty results into acquiring diseases such as AIDS and this can come as a result of prostitution, adultery etc.
4. It leads to imprisonment if one is convicted of an offence by the courts of law.
5. Disloyalty also leads to mob justice if one is involved in theft of property.

6. It can lead to hatred and enmity between individuals who were formerly friendly to one another.
7. It leads to conflicts and disunity among people thus leading to disharmony in society.
8. Being disloyal to the government leads to imprisonment or exile especially if one is involved in rebel activities.
9. Disloyalty of the workers to their bosses can lead to losses in a company.

HOW CHRISTIANS ARE DISLOYAL TO THE CHURCH TODAY

- They are disloyal to the church by neglecting the spread of the Good News to new and non-Christians, thus limiting the growth of the church.
- Some Christians express disloyalty by neglecting prayers. This can be rosary or Sunday services.
- Others are disloyal through dodging sacraments like Baptism, Eucharist and Matrimony.
- They show disloyalty to the church through actions of discrimination of the poor, strangers and children.
- Others show disloyalty by using the church platform to abuse other beliefs instead of preaching the word of God.
- They express disloyalty by misusing church funds for their personal interests.
- Disloyalty is expressed through acts of personalizing the church which is very common in Pentecostal churches.
- Others show disloyalty through hatred of fellow Christians instead of preaching love and reconciliation.
- Disloyalty is shown through lack spirit of forgiveness to our fellow Christians especially those who have wronged us.
- Failure to extend charity to poor and displaced people like the war victims is another case of disloyalty.
- Showing too much greed for material things especially by religious leaders also indicates the aspect of disloyalty.
- The rampant sexual immoralities in the society like prostitution, adultery and incest also indicate disloyalty to God.

CONFLICTING LOYALTY

This refers to a situation when someone is faced with two or more interesting situations. In this way it is always difficult to make a decision. Sometimes when there are two things/situations and we may fail to know which one he /she should be loyal to. This brings about problems of disobedience and blind obedience for example;

EXAMPLES OF CONFLICTING LOYALTY

1. Either obeying school rules or disobeying friends who might want you to smoke.
2. Either disobeying parents who are against watching a certain film or obeying peer groups who want you to join them for a video show.

3. A Christian judge sentencing a murderer to death or obeying the bible which says thou shall not kill.
4. Either carrying out abortion so as to save the life the mother or respecting the law of God which forbids.
5. A Luganda teacher punishing a student for speaking Luganda in the school where English is the only official language or breaking the school rule against speaking vernacular.
6. Being loyal to the African culture like circumcision of the Bagishu from Mbale or taking up a new European culture.
7. Contributing money for a friend's wedding function so as not to annoy him or making fees payments for one's child.
8. Writing one's final examination on Sunday or going for Sunday service to praise God.
9. Marrying before age of 18yrs so as enjoy sex or waiting until the right time in order to enjoy sex.
10. Either going for the burial of one's mother or sitting his S.4 final examinations.

N.B

When one is faced with a conflicting loyalty, he or she should do the following;

1. One should do what he values most. It should be taken as the right choice.
2. One should make choices and develop a priority of loyalties instead of being in mixed feelings.
3. To be loyal to one self-first considering things which concern him most.
4. Be loyal to others too.
5. Think critically and not just a blind obedience.
6. Seek advice from other people.
7. We should take a decision after considering the consequences of each alternative.
8. We should be able to find happiness and satisfaction with the choice.
9. Generally questions and then disagreements can help us to clarify our loyalties.

LOYALTY IN AFRICAN TRADITIONAL SOCIETY

In traditional African societies people observed loyalty in the following ways;

How loyalty was shown in African traditional society

1. Loyalty in the African traditional society was shown by giving sacrifices and offerings. This was one way of expressing loyalty to the living dead and gods.
2. It was done by sharing all obligations and privileges like beer party celebrations were means of expressing loyalty.
3. By paying bride wealth. Payment dowry in the Africa tradition was a way of expressing loyalty to the parents and society at large.
4. Special loyalty was given to special people like diviners, rain makers, night dancers etc.
5. In the African traditional society, loyalty was expressed through the act of blood pact which was an expression of brotherhood and oneness.
6. African traditionalists expressed their loyalty to God through believing in him as well as making prayers to him.
7. Loyalty was expressed to sacred places like mountains, hills, trees like **Nakayima** in Mubende.

8. They expressed loyalty to their tribes, clans and societies. For example in case of any war, one had to fight for his tribe against any enemy tribe.
9. Loyalty to leaders and to the society was shown through individuals joining a tribal war willingly so as to protect their territorial integrity.
10. Disloyalty was seriously punished by excommunication, curses, paying fines and canning. This limited the causes of disloyalty in the society.
11. Conflicting loyalties in the traditional Africa were very rare as children learnt from their elders and there was strict discipline imparted to the young.
12. There was special loyalty given to the kings and other leaders. They would be given gifts.
13. Loyalty to a group was more emphasized than personal loyalty. This was evidenced through communal working and sharing.

Importance of loyalty in African traditional society

1. Loyalty to the living dead helped to strengthen a good relationship between the living and the living dead.
2. Loyalty also preserved the African traditional culture among people.
3. It also showed respect to parents especially during the payment of dowry.
4. Loyalty helped to create security and trust among people (individuals) e.g. blood pacts.
5. It also promoted faithfulness among individuals.
6. It encouraged mutual understanding among people.
7. It helped in the smooth running of the society by leaders, thus creating peace.
8. It also minimized crimes in the society.
9. Loyalty enabled Africans to live in harmony and great unity.
10. It helped Africans to have a sense of belonging and thus loved their society assets like wells, grazing land etc.

HOW PEOPLE IN TRADITIONAL AFRICA SHOWED LOYALTY TO THEIR ANCESTORS

Africans showed loyalty to their ancestors in the following ways;

1. Through dedicating scared places to ancestors like tops of mountains etc.
2. Through showing faith and trust in the ancestor (swearing by their names)
3. Through molding, curving and designing sacred objects to represent their ancestors.
4. Through constantly calling upon ancestors to bless them, for instance to give them children and good harvests.
5. Through cleaning up burial places of their ancestors.
6. By not allowing children to play around burial places for fear of disturbing the resting ancestor.
7. By giving names of the ancestors to newly born babies to signify rebirth of the ancestor.
8. By offering sacrifices and libations to ancestors.
9. Ancestors were called upon to guide the living people in case of any challenge in society.
10. They were not left out in family affairs like introduction ceremonies.
11. They were buried with all their property they would need in the next world.
12. Africans lived morally upright lives in order not to annoy their ancestors.

How Africans showed loyalty to leaders, elders and parents

Africans showed loyalty to the above through the following ways.

1. By paying of the bride price (dowry) to parents during marriage ceremonies.
2. Special gifts and greetings were given to them for example rolling down among the Baganda.
3. It was expressed through joining tribal wars willingly so as to protect the society and this showed respect to leaders.
4. Africans would give their leaders women, their daughters because of their status for example Kabaka in Buganda was believed to be owner all women.
5. Loyalty would be expressed by children to their parents through greeting while kneeling.
6. Loyalty was shown through entertaining leaders. This was done through games like wrestling.
7. It was also showed through giving them energetic young men to do for them some work.
8. It was done by giving to them gifts and tributes as a sign of respecting and honoring them.
9. Some leaders were named after them children as a sign loyal and respect given to that leader.
10. In some societies like Buganda elders were addressed by titles e.g. **Ssebo** for men and **Nyabo** for women.

HOW LOYALTY BROUGHT ABOUT PEACE AND HARMONY IN AFRICAN SOCIETY

Loyalty brought about peace and harmony in the following ways;

1. It promoted unity and a strong sense of belonging to all members of the society.
2. It discouraged individualism because all resources were owned communally to benefit all.
3. Loyalty instilled a sense of being responsible among Africans which guarded them against breaking of laws.
4. Loyalty helped people to respect and preserve their customs and norms of the society. This helped them to behave well.
5. Loyalty ensured that they Africans participated in their society demands like joining the army to defend the society.
6. Loyalty compelled elders to discipline the young ones in order promote social order.
7. Loyalty helped to promote justice in which all people were fairly treated in society.
8. It helped to fight sexual immoralities of all kinds like adultery, prostitution etc.
9. It also reduced unnecessary competition among Africans. His helped them to share all basics of life and lived as a group.
10. Loyalty also helped them to co-exist with strangers without fighting or killing them.

TYPES OF LOYALTY IS TRADITIONAL AFRICA

There were three types of loyalties in the African traditional society

- i. **Personal loyalty.**
 - (a) This involved loyalty of the husband to wife in a family.
 - (b) Loyalty of children to parents,
 - (c) Loyalty between the blind to the guides,
 - (d) Loyalty of mother to her baby,

(e) Loyalty between friends (blood pact) blood pacts.

ii. **Group loyalty.**

(a) This involved being loyal to one's group like family,

(b) Loyalty to clan,

(c) Loyalty to one's sex and age group

N.B This meant acting together as one.

iii. **Cultural loyalty:**

(a) This means being loyal to the African traditional religion,

(b) Loyalty to deities, spirits, and ancestors

(c) Loyalty to one's language and customs and cultural practices like Bagishu are loyal to circumcision.

(d) Loyalty to the society symbols, objects

N.B: Disloyalty was considered the worst crime as it was a threat to the community solidarity and oneness. Thus those disloyal were excommunicated from the society.

DISLOYALTY IN AFRICAN TRADITIONAL SOCIETY

In the African traditional society, disloyalty was rare or unheard of since right from childhood, puberty change, adulthood; people were taught how to be loyal.

Very few cases of disloyalty were heard of and below some ought to be mentioned;

1. Abominable acts such as people killing their children, elders, leaders etc.
2. Traditional doctors turning into witch doctors i.e. Africans bewitching each other.
3. Some Africans running away from some traditional rituals such as circumcision, death rituals.
4. Some men committed adultery with other peoples' wives.
5. Some people broke their agreements such as breaking the vows of blood pact.
6. Leaders could become dictators on their subjects e.g. kings having a right over the lives of their subjects.
7. Some men refused to marry and yet one was supposed to marry.
8. There were cases of incest in the African traditional societies.
9. Some children disrespected their parents.
10. Some people were disloyal to the ancestors when they refused to do what ancestors called for. E.g. not giving to them sacrifices.

SOLUTION TO DISLOYALTY IN SOCIETY

1. Those who became disloyal could be ex-communicated from the society for example witches.
2. Children who failed to respect their parents would be cursed terribly by their parents and such curses could affect their lives in future.
3. Some people who became disloyal could be denied a decent burial by the whole society e.g. if one committed suicide.
4. In some cases, many were being fined through forcing them to pay in form of material things.

5. Some would be punished through castration by their different clans.
6. Those who were disloyal could also be ear-marked so as for the whole society to know that he is a victim of disloyalty.
7. Africans who were disloyal could be denied respect in society. Some were even chased away from their own tribes, clans.
8. Children who failed to be loyal sometimes were disowned by their parents.

LOYALTY IN THE CHURCH HISTORY

The early church

The early church expressed their loyalty to God through accepting baptism and other Christian doctrines e.g. the sign of the cross in the Roman Catholic Church, belief in the trinity.

In the early church, there were cases of conflicting loyalty between the heavenly kingdom and earthly kingdom. Some Christians refused the idea of heaven because no one has ever come back to tell us what it is like. Besides, there were earthly demands

which were contradicting with Christian doctrines.

One was demanded to uphold Christian doctrines (be loyal) so as to enter heaven. So the early Christians considered themselves as being on a pilgrimage here on earth as their rightful place was in heaven.

In their teaching, the early Christians/believers were called upon to love, share and offer service to one another as a way of expressing loyalty to one another as well as God.

Christians in the early church remained loyal to the government of the Roman Empire as well as God.

In spite of being law abiding, they were persecuted (killed) and hated by the Roman Empire especially when they refused to worship the Emperor and offer sacrifices to him.

The Early Christians expressed their loyalty in the following ways.

1. They remained loyal / believed in one God even though the Roman Emperors wanted them to worship their gods.

2. They were loyal to Christ i.e. continued to preach the message of Christ as well as praising him through prayers, songs and hymns.
3. They preached the gospel and even baptized many even if they were being stopped.
4. They loyal to the scriptures and lived by it. (Their faith became strong).
5. They committed themselves to prayer as consolation to their persecutors.
6. They did charitable works like looking after the needy, sick, poor, widows, orphans and slaves.
7. They paid taxes to the Roman government as well as paying tithe in the church.
8. They remained loyal to the state laws, respected and obeyed leaders.
9. They guided many people, counseled them, gave people food etc.
10. They showed loyalty to missionary journeys, and thus travelled to different places transmitting the word of God.
11. They were loyal to building of churches to enable Christians gather together for fellowships.

How Uganda martyrs expressed their loyalty to God

1. They showed their loyalty by remaining faithful to God despite of being tortured by Kabaka's men.
2. By not fearing to express their faith in action. They continued to pray even gave praise to God through hymns even on their way to their execution.
3. By accepting to die than to betraying God through denouncing him as it had been demanded by the Kabaka.
4. By refusing to participate in sexual immorality such as homosexuality as it was demanded by Kabaka Mwanga.
5. By constantly praying to God in times of difficulties as well as in good times.
6. By refusing to use violence to solve their problems thus they followed their master.
7. They also expressed their loyalty to God through being happy even when being tortured.
8. By participating actively in the preaching of the gospel.
9. By doing charitable activities such as visiting the sick and caring for the poor as required by the Christian teachings.
10. By accepting baptism as the initiation into the Christian faith.
11. They respected and attended church services especially Sunday services and as a way of expressing their loyalty to God.
12. They also participated in de campaigning against injustices and other forms of immorality as instructed by Jesus.
13. They expressed their loyalty by offering their physical energy in constructing churches.

How the Uganda Martyrs lived in conflicting loyalty.

The Uganda martyrs lived in great conflicting loyalty because were in great pressure from the king against God. Below are the following situations which show how they lived in conflicting loyalty.

1. They were expected to obey the Kabaka and at the same time obey God.
2. Whether to respect their culture or to respect the new religion.
3. Whether to stay with their wives or to embrace monogamy for example **Matia Mulumba**.
4. Whether to listen to the Kabaka or his hangman Mukajjanga or the missionaries.

5. Whether to accept homosexuality as Kabaka Mwanga often did or to denounce it as Christianity teaches.
6. Whether to denounce Christ or obey the King and lose eternal life.
7. Either to attend catechetical instructions or to remain with their parents or the King in the palace.
8. Whether to believe in the traditional gods or in the new God.
9. Whether to read the bible or practice witchcraft.

Conflicting loyalties in the early church period;

1. There was a challenge either to be loyal to Jesus' teachings or to be loyal to the Jewish authority; e.g. Peter and John.
2. Either to be loyal to the church or to the pagan authorities of the time.
3. Either to be loyal to their faith and face persecution or to deny their faith and live.
4. Either to be loyal to their families or to well come Jesus' call and become preachers.
5. Either to follow the law of Moses or following that Jesus among the Israelites.
6. Either to continue in marriage with unbelieving partner or to divorce him/her.
7. Widows were faced with a challenge of either remarrying or remain single.
8. Either to marry and form a family or to remain unmarried for the good of the gospel.

LOYALTY IN THE BIBLE

OLD TESTAMENT

In general, the Old Testament loyalty meant being faithful and committed to God, his people although basically to the covenant laws.

WAYS IN WHICH LOYALTY WAS EXPRESSED IN THE OLD TESTAMENT

1. In his creation story, God expressed loyalty by showing love and commitment to his creatures.
2. The Old Testament shows Abraham as a man who expressed his loyalty to Gods call when he was instructed to leave his homeland, people to go to the unknown land. Abraham responded positively thus being loyal.
3. God expressed his love and loyalty to Abraham and his people by fulfilling his promises he made to Abraham such as liberating the Israelites from Egypt.
4. The Israelites also showed loyalty to God's covenant which was given to them through Moses on mountain Sinai Ex. 20:24 "All what God has said, we will do".
5. The Israelites were committed to their traditional customs such as circumcision which acted as an identity for God's chosen people.
6. God showed his loyalty to his people by making the covenant and living to it. Thus he will never destroy the earth again using water. Gen: 9:8-16.
7. The call of prophets and their immediate response also shows their loyalty to God; for example Isaiah responded "here I am send..." Isaiah 6:8.
8. As a sign of disloyalty Gen 3, Man became unhappy and suffers in the O.T and that effect is carried on even up to today.
9. God's prophets like Amos were loyal to God when they condemned the Israelites for the sins they had committed against God.

10. King David was loyal to God when he brought God's covenant box into the capital of Jerusalem thus bringing God closer to his people.
11. Solomon showed his loyalty to God by dedicating the temple to God of Israel, thus making it a house for the worship of God.

HOW GOD SHOWED HIS LOYALTY TO HIS PEOPLE OF ISRAEL

God expressed his divine loyalty to Israel in the following ways;

1. God showed his loyalty by fulfilling the promises he made to his servant Abraham during his call.
2. By making an agreement with Abraham which God himself vowed to fulfill. For example he protected Abraham as he had promised.
3. He showed his loyalty by calling Moses through whom the Israelites were liberated from the Egyptian slavery.
4. God showed his mercy to the Israelites during the Passover event. He jumped the houses of the Israelites and allowed the angel of death kill the first born of the Egyptians.
5. His loyalty was seen when he provided manna and quail to the Israelites while in the desert. (Exodus 16)
6. By helping the Israelites defeat their enemies as they moved in the land of Canaan for example they killed the Amorites, Perizzites etc.
7. By making a covenant with his people at Mt. Sinai. This covenant turned Israel into his personal kingdom.
8. His loyalty was seen by giving gardens to his people they never planted and cities they never built as they were entering Canaan.
9. By accepting the sacrifices presented to him by the Israelites such as Solomon's sacrifice during the dedication of the temple.
10. By sending prophets to the land of Israel like AMOS, HOSEA ELIJAH etc who were useful in guiding his people.
11. By giving them a king as soon as his people demanded for one. God gave them Saul as their first king.
12. By giving wisdom to his loyal servants for example he gave wisdom to Solomon.
13. God showed his loyalty to his people by answering their prayers; for example responded to Elijah's prayer by sending fire in the contest at Mt. Carmel.

HOW THE ISRAELITES EXPRESSD THEIR LOYALTY TO GOD

1. The Israelites showed their loyalty to God's command by taking up circumcision which was given to their ancestor Abraham.
2. By accepting the regulation of the Passover celebration which was to be celebrated every year.
3. By following the Decalogue (Ten Commandments) as they were given to them by God at Mt. Sinai.
4. They showed their loyalty to God by upholding monotheism i.e. Worshiping only one God instead of worshiping other gods.
5. By observing the Sabbath as a day of resting and worshiping their God. They were not to do any piece of work on that day.

6. They offered sacrifices to God. For example Solomon made sacrifices as he was dedicating the temple of Jerusalem to God.
7. They Israelites showed their loyalty by making annual pilgrimages to holy places like temple of Jerusalem and Mt. Sinai.
8. They also respected their religious days such as Day of Atonement, Passover day etc.
9. They repented for their sins; for example King David repented for his sin of adultery with Bathsheba and murdering Uriah her husband.
10. They showed their loyalty by building altars from where they met and sacrificed to their God.

DISLOYALTY OF THE ISRAELITES IN THE OLD TESTAMENT

1. Gen 3 portrays man as being disloyal to God when he ate the forbidden fruit. This resulted into suffering, curses not only to man but to also the entire world.
2. Cain was disloyal to God's instructions when he killed his brother Abel Gen 4:1-6, as a result of being jealousy.
3. The entire Israelite community showed disloyalty by making a golden calf and worshiping it as their God; Ex 32:1-33.
4. Kings like David and Solomon were disloyal to God by getting involved in polygamy. This was being against the leadership code of Israel Deut: 17:1-7.
5. King Ahab was disloyal when he worshiped Baal the god of his wife Jezebel. This was against the covenant 1Kings: 16:29-33.
6. Some Kings like David were disloyal by organizing the killing of Uriah in order to take his wife Bathsheba. This was being disloyal to God 2Samuel 11:1-20-27.
7. King Solomon was disloyal by over taxing the poor because he had an intention of constructing the temple.
8. King Ahab and his wife were disloyal by grabbing Naboth's land thus showing their disloyalty 1Kgs:21:1-29.
9. Moses was disloyal by striking twice on the rock to search for water of the Israelites yet God told him to strike once.
10. Kings like Solomon accumulated a lot of wealth yet his people were living in abject poverty.
11. Construction of the tower of Babel i.e. Israelites equating themselves to God thus showing their disloyalty to God.
12. Eli's sons ate God sacrifices before they were given to Him thus being disloyal to God.

Question.

How did the Israelites show their loyalty to God in the Old Testament?

LOYALTY IN THE NEW TESTAMENT

1. Jesus expressed total loyalty to the father in a loving, obedience at different times and indifferent ways even if it meant;
 - a. Opposing the hypocrisy of the Jewish religious leaders.
 - b. Suffering Mt 26:39.

- c. Fore go his family people.
- d. Death.
- e. Thus he remained loyal to his faith.
2. The New Testament shows Jesus as a man who was loyal to the Jewish traditions as well as his father. He prayed, baptized, circumcised and also observed the Sabbath.
3. Jesus was loyal to the state “**give Caesar what belongs to Caesar and God what belongs to God**” Mt 22: 15, Mk 12:13-17. This implies that he encouraged Christians to pay taxes the Roman government and God as well.
4. Jesus also showed love and loyalty to all persons regardless of their social status, race, education and financial status e.g. he associated with non-Jews and healed their sicknesses Mt 8:15-13 e.g. he spoke with women of bad reputation (Martha who was an adulterous).
5. His disciples showed loyalty to him by leaving their occupations when they were called by Christ.
6. The miracles Jesus performed were a clear indication of his loyalty and obedience to God. The miracles created faith in Jesus.
7. The betrayal of Jesus by Judas Iscariot and Peter during Jesus’ execution were one clear indication of disloyalty to their master
8. The New Testament teaches that co-operation with the Holy Spirit encourages Christians to grow in faith and love and thus be loyal to God.
9. Loyalty was expressed by Jesus when he fed the hungry people thus restoring hope in those who were desperate in life.

WAYS THROUGH WHICH JESUS EXPRESSED HIS LOYALTY TO THE JEWISH CULTURE.

Jesus showed loyalty by doing the following;

1. He expressed his loyalty to the Jewish culture by accepting circumcision as a sign of the Abrahamic covenant.
2. By respecting and observing the Sabbath as a holy day of the Lord although he condemned the misuse of it Mk 2:23-28.
3. By accepting baptism by John the Baptist even if he was sinless Mk 1:9.
4. By going to silent places for prayer so as to ask for God’s guidance.
5. By also respecting the Jewish traditions and leaders through payment of taxes Mt 17:24-27.
6. Jesus also fasted as per Jewish customs and traditions Mt 4:1-11, Mk 1:12-13.
7. He helped his earthly parents in domestic work and carpentry besides preaching.
8. He even participated in secular life just like any other Jew e.g. He attended a wedding at Cana.

HOW JESUS WAS LOYAL TO HIS FATHER.

1. By resisting temptations that were put before him by Satan with an aim of diverting him from his mission of saving man Mk 1:12-13.
2. By giving up his life for the sake of fulfilling God’s plan and salvation of man Mt 26:22.
3. As a result of his loyalty and committed to God, the demons also recognized and feared him. Mk 1:24.
4. Jesus also went to the extent of forgoing food because of his commitment to God; Mark 3:2
5. By rejecting the misuse of God’s temple as it was a case of disloyalty to God.

6. By accepting to be baptized although he was not a sinner himself. Thus he was humble and joined other sinners Mark 1:9
7. He showed his loyalty to God through prayer and this was his first priority Mark 1:35
8. He chased away those who were abusing the holiness of God's temple. The love for his father's house made him angry. John 2:25
9. By accepting to be arrested although he could easily escape
10. Jesus had private time at the garden of **Gethsemane** to be close to God mark 4:34
11. He expressed his loyalty to God by crying on cross; He cried "**Eloi, Eloi lema sabachthani meaning my God, my God, why did you abandon me?**"

REASONS WHY THE JEWS WERE DISLOYAL TO JESUS\REJECTED HIM

1. He associated with outcasts and sinners e.g. tax collectors like Zachaus, lepers, Samaritans etc.
2. The Jews needed a political messiah but not a spiritual one i.e. one who would liberate them from the Roman Empire.
3. He never participated fully into fasting together with the disciples and yet it was an important religious responsibility of every Jew.
4. He originated from a poor family (his father was a carpenter).
5. His act of forgiving sins made those who couldn't understand him called it blasphemy because they never understood his divine status.
6. He associated with people of law status (profile) e.g. fishermen.
7. He never abided by the Sabbath rules i.e. he healed on the Sabbath.
8. His way of preaching was authoritative and always contradicted with the Jewish leaders and the teachers of the law.
9. He used to change names and titles during his teaching. This irritated the teachers of the law. E.g. son of God, the good shepherd, Lamb of God, vine dresser etc.
10. His method of preaching i.e. use of parables made them misunderstand him.
11. His constant contradiction with the laws of Moses made them disloyal to him.
12. His popularity threatened the Jewish people.

WAYS IN WHICH CHRISTIANS LIVE AS DUAL CITIZENS

Being dual citizens means belonging to two situations/worlds; i.e. secular world and spiritual world.

- As dual citizens Christians are expected to read the constitution and the bible.
- They pay tax to the government and tithe to church.
- They work on public roads, wells etc. and at the same time work at church.
- They follow state laws and the Ten Commandments.
- They pay dowry and rings for church marriage.
- They undergo customary marriage and church marriage.
- They vote for state leaders and also vote church leaders.
- They can be civil leaders at the same time church leaders.

Chemistry

1. CARBON AND ITS COMPOUNDS

Carbon

This is the element in group IV of the periodic table. It has atomic number 6 and atomic mass 12

Occurrence of carbon

Pure carbon is found in the form of diamond and impure carbon as graphite. Carbon is a constituent of numerous naturally occurring substances such as coal, mineral oils, carbonates, organic matter and in air as carbon dioxide.

Allotropes of carbon

Allotropy: is the existence of an element in more than one form, without change in physical state. These different forms are called **allotropes**.

An allotrope is one of two or more distinct forms of an element. Carbon has three allotropes: diamond, graphite and amorphous carbon. Others elements that show allotropy are:

1. Oxygen with two allotropes, that is, ordinary oxygen (O_2) and ozone (O_3).
2. Tin with two allotropes, that is, grey tin and white tin.
3. Sulphur has five allotropes, that is, amorphous sulphur, monoclinic sulphur, rhombic sulphur, plastic sulphur and colloidal sulphur.
4. Phosphorus with two allotropes, that is white/yellow phosphorus and red phosphorus.

Graphite

Graphite is a black, soft, slippery, hexagonal crystalline substance. Its atoms are joined by strong covalent bonds.

Structure of graphite

Graphite is a two dimensional layered structure. The carbon atoms within the layers are arranged in hexagonal rings and each carbon atom is covalently bonded to three other carbon atoms.

For each carbon atom, three out of the four valence electrons localized during the formation of the covalent bonds. The remaining electron is delocalized (mobile) over the whole layer. The mobile electrons are free to move through the structure and therefore enable graphite to conduct heat and electricity.

The hexagonal layers lie on top of one another and are joined by weak van der waals' forces which enable layers to slide over each other easily. That is why graphite is soft and can be used as a lubricant.

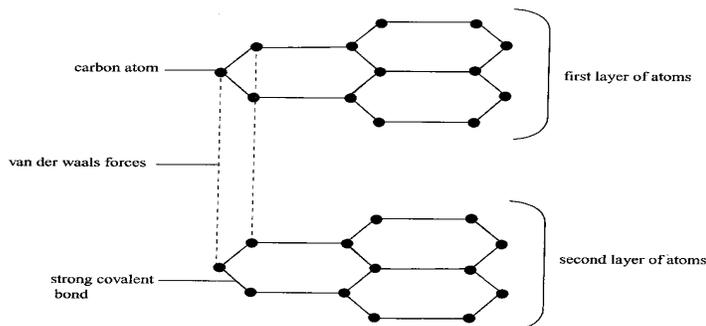


Fig 1.2 Structure of graphite

Properties of graphite

1. It is a black material which feels greasy on touching
2. It is opaque and shiny
3. It has a density of 2.3g/cm^3
4. It has hexagonal structures

5. It conducts electricity. This because it contains delocalised electrons. When an electric field is applied, these electrons move freely conducting electric current.
6. Writes well on papers
7. Graphite is soft and slippery because the layers within the structure are held together by weak van de waals' forces which makes it possible for the layers to slide over each other easily.

Uses of graphite

1. Used as protective coating for iron substances to prevent rusting.
2. Used as an electrode in electrolytic cells. Since graphite conducts electricity
3. As a lubricant for dynamos and electric motors.
4. For making pencil leads

Diamond

It is a colourless, transparent and sparkling crystalline substance. It is the hardest substance known.

Structure of diamond

Diamond has a tetrahedral structure in which each carbon atom is joined by covalent bonds to four other carbon atoms.

The valence electrons are all used in forming covalent bonds and therefore they are localized.

This structure is extended throughout the substance in three dimensions.

Diamond is a poor conductor of heat and electricity because it does not have free and mobile electrons.

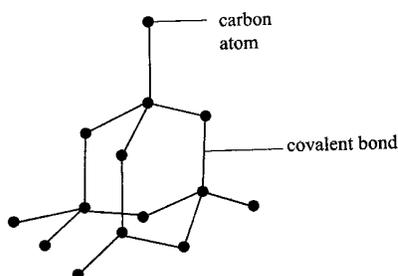


Fig 1.3 Structure of diamond

Uses of diamond

1. Used for manufacturing drilling and cutting hard substances such as glass and rock.
2. It is used to make jewelry e.g. necklaces and ear rings because of its high refractive index giving it a shiny appearance.

Amorphous carbon

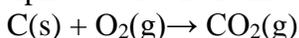
Amorphous carbon is black and has the lowest density among all the allotropes of carbon. It is a fair conductor of electricity. It is a non-crystalline substance. Amorphous carbon exists in several forms including wood charcoal, animal charcoal and lampblack. Coke and soot are other forms of impure amorphous carbon. **Animal charcoal** is made by heating animal bones and remains in a limited supply of air. **Coke** is made by heating coal in absence of air. **Wood charcoal** is formed by burning in a limited supply of air. It can be used to remove poisonous gases such as ammonia, sulphur dioxide and chlorine. It is also useful as fuel. **Lamp black** is made by burning oil in a limited supply of air e.g. kerosene, petroleum and turpentine. It is used in making printers ink, shoe polish, carbon paper and car tyres.

Uses of amorphous carbon

1. It is found in **wood charcoal** formed by burning wood with a limited supply of air. Wood charcoal is used as a source of fuel for cooking. Also coke is used as a source of energy.
2. It is found in animal charcoal, which is used to remove the brown colour from sugar during its manufacture.
3. **Lampblack** obtained by burning oils with a limited supply of air, is used in sugar during its manufacture.
4. Coke is used as a reducing agent in extraction of metals from their ores e.g. iron.

Proof for allotropy of carbon

When equal masses of graphite, diamond and amorphous carbon are separately burnt in excess pure oxygen, each produces the same quantity of carbon dioxide and no other product. The carbon dioxide is tested using limewater which turns milky. This proves that graphite, diamond and amorphous carbon are made up of the same substance, carbon.



Differences between diamond, graphite and amorphous carbon

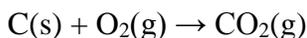
Property	Diamond	Graphite	Amorphous carbon
Appearance	Colourless and transparent	Grey-black, opaque and shiny	Black, opaque and dull
Hardness	Hardest	Soft, greasy and soapy	Soft
Burning in air	Burns at 900°C	Burns at 700°C	Burns at 500°C
Density	3.5g/cm ³	2.3g/cm ³	1.5g/cm ³
Conduction of electricity	Poor	Good	Fair
Structure	Giant molecular	Hexagonal	Indefinite
Bonding electrons	All 4 electrons	Uses only three electrons	

Chemical properties of carbon

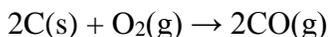
All allotropes of carbon have similar chemical properties but different physical properties.

a) Reaction with oxygen

When carbon is burnt in excess pure oxygen, carbon dioxide is formed.



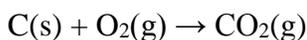
When carbon is burnt in limited supply of oxygen, carbon monoxide is formed.



Exhaust fumes from cars contain carbon monoxide because of incomplete combustion of petrol or diesel.

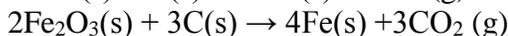
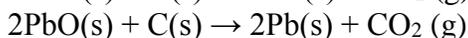
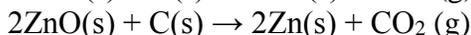
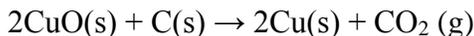
Combustion of charcoal in oxygen

Some powdered wood charcoal is placed in a deflagrating spoon and heated over a Bunsen burner flame until it glows red-hot. The spoon is immediately transferred into a jar of oxygen. Charcoal continues to burn slowly with a yellow flame without any further heating. The amount of charcoal gradually decreases and finally only a small amount of ash is left. The presence of ash implies that wood charcoal is not pure carbon.



b) Reaction of carbon with metallic oxides

Carbon reduces oxides of metals that are lower than it in the activity series. Such oxides include copper (II) oxide, zinc oxide, lead(II) oxide and iron(III) oxide. All these are reduced to free metal while carbon is oxidised to carbon dioxide.



This reaction is used in extraction of the metals. Those metals higher in reactivity series than carbon have a higher affinity for oxygen and will not give it up to carbon.

c) It reduces concentrated nitric acid to nitrogen dioxide



d) It reduces concentrated sulphuric acid to sulphur dioxide



1.1. OXIDES OF CARBON

1.1.1. CARBON DIOXIDE

The amount of carbon dioxide in the atmosphere is about 0.03 percent by volume. It is produced as a waste product during respiration of plants and animals. It is also formed during combustion of fuels such as wood, petrol etc.

Experiment:

Laboratory preparation of carbon dioxide

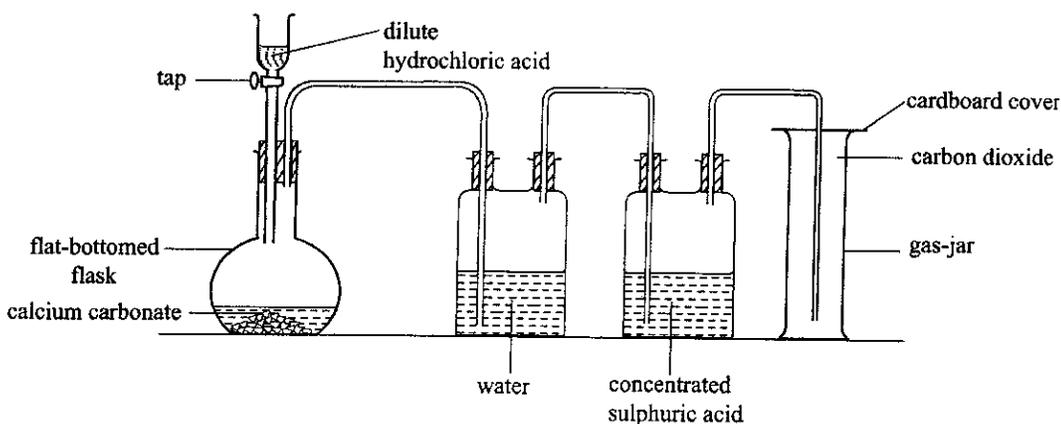


Fig 1.5 Preparation of carbon dioxide

Dilute hydrochloric acid from a tap funnel is added to calcium carbonate in a flat-bottomed flask. Effervescence occurs and a colourless gas, which is carbon dioxide, is formed according to the equation.

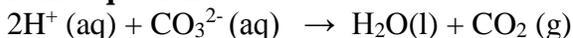


The gas is then passed through a bottle containing water or potassium hydrogen carbonate solution to absorb any hydrochloric acid fumes.

It is then passed through concentrated sulphuric acid to dry it.

The gas is collected by downward delivery in a gas-jar since the gas is denser than air.

Ionic equation



NB: If the gas is not required dry it can be collected over water. This is possible because carbon dioxide is only slightly soluble in water.

Dilute sulphuric acid is not used with calcium carbonate because the reaction produces calcium sulphate which is sparingly soluble and thus forms a coating on the calcium carbonate which stops further reaction.



Lead (II) carbonate is also not used because when it reacts with dilute hydrochloric acid or sulphuric acid, the reaction soon slows down and then stops. This is due to the formation of lead (II) chloride or lead (II) sulphate, both of which are insoluble salts.

The insoluble salt coats the carbonate preventing it from reacting with the acid.



Kipp's apparatus

A continuous supply of carbon dioxide can be obtained from a Kipp's apparatus using calcium carbonate and dilute hydrochloric acid.

Industrial preparation of carbon dioxide

In industries, carbon dioxide is obtained as a by-product of fermentation of sugars to alcohol.



It is also obtained from the manufacture of cement. **Cement** is made by heating limestone (calcium carbonate) with some sand and silicates to form impure calcium oxide.



Properties of carbon dioxide

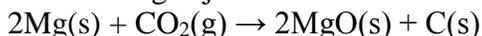
Physical properties

1. It is a colourless gas
2. It has a faint sharp test
3. It has a very faint smell
4. It does not support burning
5. It is slightly soluble in water forming carbonic acid.
$$\text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g}) \rightleftharpoons \text{H}_2\text{CO}_3(\text{aq})$$
6. It turns litmus pink since it is a weak acidic gas.
7. It is denser than air. When carbon dioxide in a jar is poured into another jar containing a lighted candle, the candle is extinguished. This shows that carbon dioxide is denser than air. It displaces air from the jar containing a lighted candle hence "starves" the candle of oxygen.

Chemical properties

(a) Effect of carbon dioxide on burning magnesium

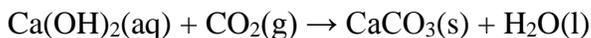
When a piece of burning magnesium ribbon is lowered into a gas-jar containing carbon dioxide, it continues to burn for a short time with a spluttering flame. Black particles of carbon are formed on the sides of the gas-jar and white ash of magnesium oxide is also formed.



Magnesium continues to burn in carbon dioxide because of its higher affinity for oxygen than carbon. The heat from the burning magnesium decomposes carbon dioxide into carbon and oxygen. The decomposition of carbon dioxide provides more oxygen which supports continued burning of magnesium oxide.

(b) Effect of carbon dioxide on calcium hydroxide solution (lime-water)

When carbon dioxide is bubbled through lime-water, the lime-water turns milky. The white precipitate is due to the formation of an insoluble substance, calcium carbonate, in water.



The above test is used to distinguish carbon dioxide from any other gas. However, if excess carbon dioxide is bubbled through the milky solution, the white precipitate dissolves to form a colourless solution due to the formation of calcium hydrogen carbonate, which is soluble in water.

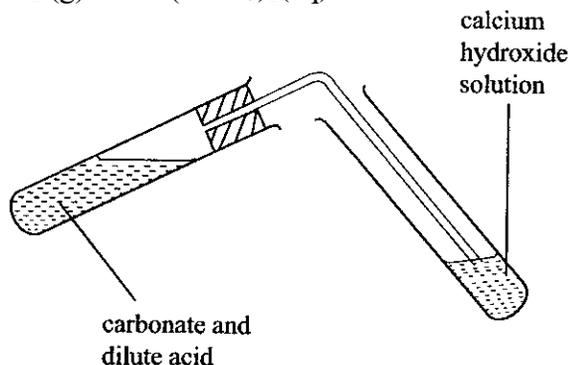
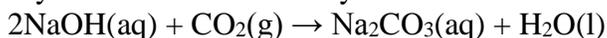


Fig 1.8 Effect of carbon dioxide on lime-water

(c) Reaction with alkalis

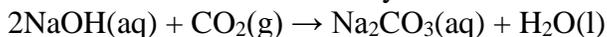
Sodium hydroxide solution readily absorbs carbon dioxide to produce sodium carbonate.



With excess carbon dioxide, a white precipitate of sodium hydrogen carbonate is formed. The precipitate is sparingly soluble in cold water.



When a jar of carbon dioxide is placed in a trough containing sodium hydroxide solution, the solution quickly rises into the jar. This is because the gas is rapidly absorbed into the solution. Carbon dioxide reacts with sodium hydroxide solution.



When solid sodium hydroxide is exposed to air, a colourless solution is formed and later a white crystalline solid is formed. Sodium hydroxide is deliquescent and therefore absorbs water from air to form a solution. The solution absorbs carbon dioxide from air forming a white crystalline solid of sodium carbonate decahydrate.



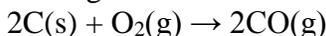
Uses of carbon dioxide

1. Carbon dioxide is used in the manufacture of **carbonated drinks** because of its pleasant taste in water.
2. Carbon dioxide is used as a **refrigerating agent for perishable goods**
3. Pieces of solid carbon dioxide are sometimes dropped into clouds to cool them to form rain.
4. Carbon dioxide is used in **fire extinguishers**. Carbon dioxide being denser than air forms a layer around the burning material. It covers the fire and 'starves' it of oxygen hence the fire is put out.
5. It is used during photosynthesis by green plants

6. It is used in the manufacture of sodium carbonate and sodium hydrogen carbonate

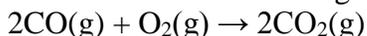
1.1.2. CARBON MONOXIDE

Carbon monoxide is a poisonous, colourless gas with practically no smell. It is present in coal gas and other gaseous fuels. It is formed by the partial combustion of carbon.



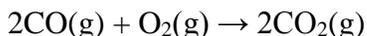
Test for carbon monoxide

It burns with a blue flame forming carbon dioxide



Properties of carbon monoxide

1. It is a colourless gas.
2. It has no effect on litmus paper, that is, it is a neutral gas.
3. It burns in air with a blue flame forming carbon dioxide.



This reaction also takes place in a charcoal burner when there is a sufficient supply of air.

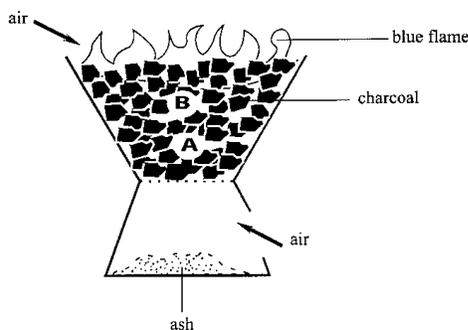
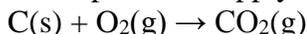


Fig 1.11 A burning charcoal burner

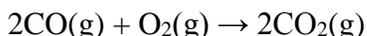
At A, there is plentiful supply of oxygen and charcoal burns to form carbon dioxide.



At B, the rising carbon dioxide is reduced by red-hot charcoal to form carbon monoxide.

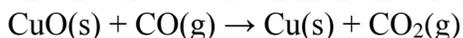


At the surface of the burner, the hot carbon monoxide burns in the air with a blue flame to form carbon dioxide.

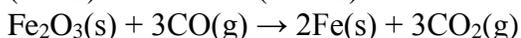


If the charcoal burner is in a poorly ventilated room with insufficient air, the reaction at the surface fails to take place. The poisonous carbon monoxide is released into the room. If someone stays in such a room, he or she may die within a short while due to carbon monoxide poisoning.

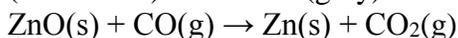
4. It is insoluble in water.
5. It is a reducing agent. It reduces some metallic oxides of copper, lead, zinc and iron, that is, oxides of metals below carbon in activity series. The porcelain boat is heated strongly and the excess carbon monoxide is lighted at the jet.



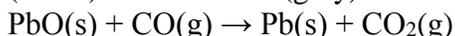
(black) (brown)



(red-brown) (grey)



(white) (grey)



Lead(II) oxide (yellow) is reduced to a grey solid. Carbon monoxide does not, however, reduce the oxides of metals higher than carbon in the reactivity series. Such metals have a higher affinity for oxygen than carbon monoxide.

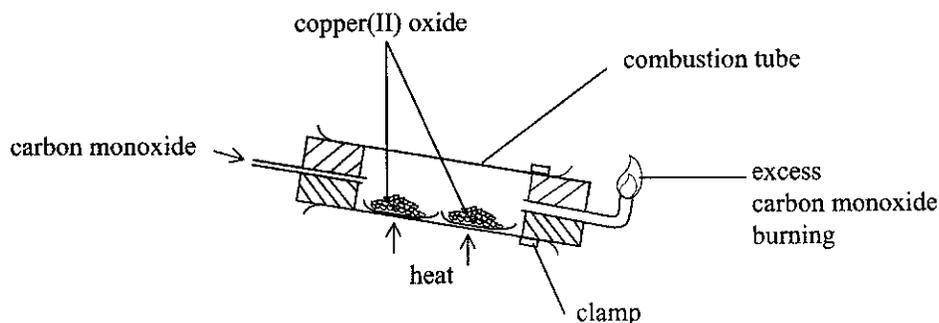


Fig 1.12 Reducing action of carbon monoxide

- It is a poisonous gas because it forms a fairly stable compound with haemoglobin which reduces the oxygen-carrying capacity of blood.

Uses of carbon monoxide

- In the manufacture of synthetic petrol.
- In the reduction of ores and refining of nickel.
- In the manufacture of methanol used in anti-freezer mixtures in cold countries to prevent ice from forming in car radiators.
- Used as fuel in form of producer gas. Producer gas is produced when air is passed over red-hot coke.

Differences between carbon monoxide and carbon dioxide

Carbon dioxide	Carbon monoxide
Has a faint smell	Has no smell
Turns lime water milky	Does not
It is not a reducing agent	It is a strong reducing agent
Slightly soluble in water and alkalis	Insoluble in water and alkalis
Reacts with alkalis forming carbonates	Does not
Turns blue litmus paper red	Neutral to litmus
Not poisonous	Poisonous
Denser than air	Less dense than air
Is an acidic gas	Is not acidic
Does not burn	Burns with a blue flame
No action on oxides	Reduces metallic oxides
Reacts with heated charcoal to form carbon monoxide	No action on charcoal

1.2. CARBONATES AND HYDROGEN CARBONATES

Carbonates

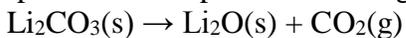
Carbonates are salts derived from carbonic acid (H_2CO_3). Aluminium carbonate does not exist.

Summary of properties of carbonates

Potassium	}	Soluble in water	
Sodium			
Calcium	}	Do not decompose on heating	
Magnesium			
Zinc		Insoluble in water	
Iron			
Lead			Decompose on heating to form metal oxides and carbon dioxide
Copper			
		$\text{PbCO}_3(\text{s}) \rightarrow \text{PbO}(\text{s}) + \text{CO}_2(\text{g})$	

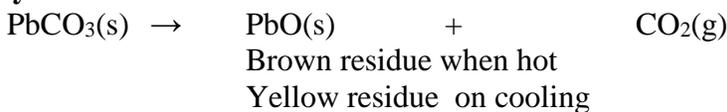
Effects of heat on

Carbonates of potassium and sodium are not decomposed by heat. It is only lithium carbonate in group I that decomposes on heating.



Carbonates of calcium, magnesium, zinc, iron, lead and copper are decomposed by heat to an oxide and carbon dioxide.

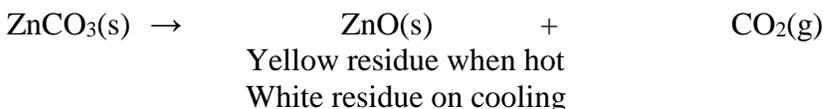
When a **white solid (powder)** of **lead (II) carbonate** is heated strongly in a test-tube, a colourless gas which turns lime-water milky is given off and a **brown residue** of lead (II) oxide when **hot** and **yellow** when **cold** is formed.



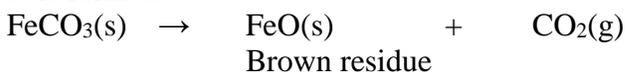
When a **green solid (powder)** of **copper (II) carbonate** is heated, a **black residue** of copper(II) oxide is formed.



When a **white solid (powder)** of **zinc carbonate** is strongly heated, a **yellow residue** when **hot** and **white** when **cold** is formed



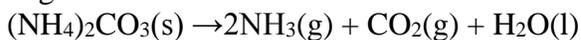
When a **green solid (powder)** of **iron (II) carbonate** is heated, a **brown residue** of copper(II) oxide is formed.



White solids of magnesium carbonate and calcium carbonate decompose to white solids of magnesium oxide and calcium oxide respectively.



Ammonium carbonate sublimes when heated. The cause of this sublimation is that ammonium carbonate dissociates on heating to ammonia, water and carbon dioxide, which recombine on cooling.

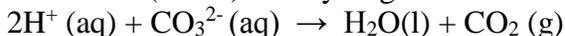


Solubility of carbonates in water

Carbonates of lithium, potassium, sodium and ammonium are soluble in water. The other carbonates are insoluble in water.

Testing for carbonate (CO₃²⁻)

Add a dilute hydrochloric or sulphuric or nitric acid to the solution or solid to be tested. Effervescence with liberation of a colourless gas that turns lime-water milky indicates the presence of a carbonate (CO₃²⁻) or a hydrogen carbonate.

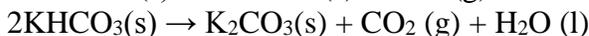
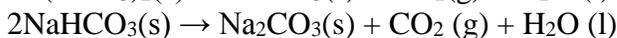
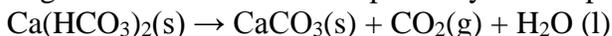


Hydrogen carbonates

These are salts derived from carbonic acid and are formed by partial replacement of hydrogen in the acid by a metal. Therefore hydrogen carbonates are acidic salts. Common hydrogen carbonates include sodium hydrogen carbonate (NaHCO₃) and calcium hydrogen carbonate (Ca(HCO₃)₂)

All hydrogen carbonates are soluble in water

Hydrogen carbonates are decomposed by heat to produce carbonates, carbon dioxide and water



What happens when sodium hydroxide is exposed to air?

When sodium hydroxide is exposed to air, it absorbs water forming a solution. The solution then absorbs carbon dioxide from the air and forms a crystalline solid of washing soda (sodium carbonate decahydrate Na₂CO₃·10 H₂O)



On further exposure, the hydrated sodium carbonate decahydrate loses its water of crystallisation forming a white powder of sodium carbonate monohydrate

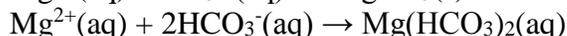
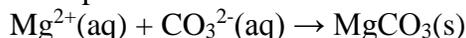


This white powder later absorbs carbon dioxide to form sodium hydrogen carbonate



Distinguishing between a carbonate and a hydrogen carbonate

Add magnesium sulphate or magnesium chloride solution to the test solution. A white precipitate indicates the presence of a carbonate.



Hydrogen carbonates gives no precipitate but on heating, the magnesium hydrogen carbonate decomposes to the insoluble magnesium carbonate (white precipitate).



1.3. CALCIUM OXIDE (QUICKLIME)

Manufacture of calcium oxide

Calcium oxide is manufactured mainly from limestone, which is heated to very high temperatures in a kiln. The limestone is mixed with coke or coal and it is fed into the kiln at the top. Coke or coal burns and the heat decompose the limestone into the oxide and carbon dioxide.



The lime sinks to the bottom of the kiln and is removed; carbon dioxide is allowed to escape.

It can also be obtained by strongly heating sea shells. Sea shells contain calcium carbonate which decomposes into the oxide and carbon dioxide.

Uses of calcium oxide

1. Used in extraction of iron, to remove silica impurities.
2. Used in production of lime-water.

1.4. SODIUM CARBONATE (SODA ASH)

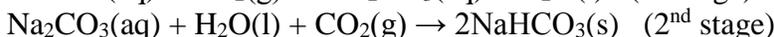
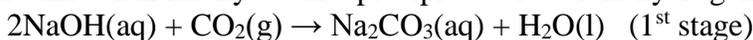
Laboratory preparation of sodium carbonate

Dilute hydrochloric acid is poured on to calcium carbonate.

Effervescence occurs and the gas (carbon dioxide) produced is passed through water to remove traces of acid.



Then carbon dioxide is passed into a moderately concentrated solution of sodium hydroxide for some time until finally a white precipitate of sodium hydrogen carbonate appears.



The white precipitate is filtered off and washed two or three times with cold water. The solid is transferred into a dish and heated to a constant mass. Sodium carbonate is obtained as a fine white powder.

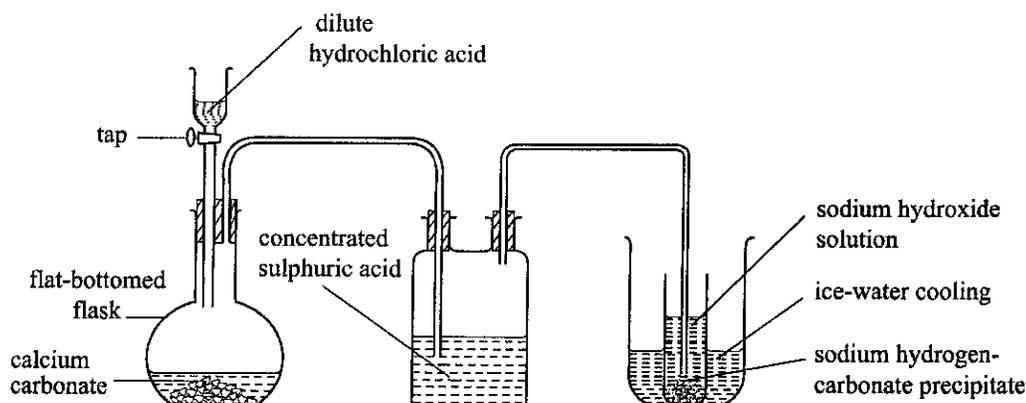


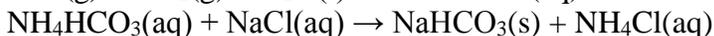
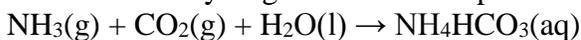
Fig 1.16 Preparation of sodium carbonate

Manufacture of soda ash (sodium carbonate) by solvay process

Soda ash is obtained at Lake Magadi in Kenya by the solvay process.

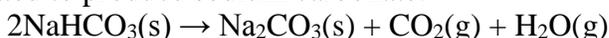
The raw materials in this process are calcium carbonate (limestone) and sodium chloride in form of brine. The ammonia dissolves in sodium chloride.

The mixture is reacted with carbon dioxide down a large tower called the **carbonator** in which there is an upwards flow of carbon dioxide (from decomposition of calcium carbonate) under pressure. Sodium hydrogen carbonate is produced

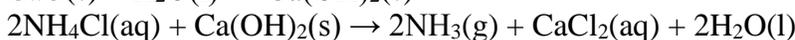
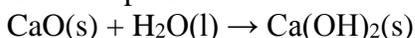


Sodium hydrogen carbonate precipitates in the lower part of the tower in form of a wet sludge, which is tapped off from the bottom of the tower.

After filtration and washing to remove ammonium compounds, sodium hydrogen carbonate is heated to produce sodium carbonate.



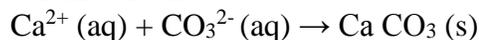
Carbon dioxide is recycled for use. Ammonia is recovered from the ammonium chloride by reacting ammonium chloride with calcium hydroxide, obtained by adding water to calcium oxide (from decomposition of calcium carbonate). Ammonia is recycled for use.



Therefore, the end products of solvay process are calcium chloride and sodium carbonate. Calcium chloride is used in extraction of sodium.

Uses of sodium carbonate

1. It is used for softening of water for domestic purpose. Calcium ions which are the principal cause of hardness in water; are precipitated from water as calcium carbonate by the addition of sodium carbonate.



2. It is used in manufacture of glass. Ordinary glass is made by mixing calcium carbonate, silicon dioxide (sand) and sodium carbonate together and melting them. The resulting mixture of sodium and calcium silicates produces glass on cooling.
3. It is used to make dry soap powders.

Washing soda

Washing soda is sodium carbonate decahydrate ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$). When exposed to air, the crystals lose mass and become coated with a fine white powder. Each molecule of washing soda gives up, to the atmosphere, nine molecules of water of crystallization forming sodium carbonate monohydrate ($\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$).



Such an action, that is, the giving up of water of crystallization to the atmosphere is termed as efflorescence.

Washing soda is used for softening water by precipitating the calcium ions from solution as calcium carbonate.

