

BUDDO SECONDARY SCHOOL

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ANNUAL GEOGRAPHY SEMINAR, SATURDAY 6TH JULY, 2024



P250: GEOGRAPHY

SEMINAR GUIDE 2024

1. Study the 1:50000 Uganda map extract of Kampala, part of sheet 71/1 series Y732, Edition 3-U.S.D and sheet answer the questions that follow.
- a) i) Measure the distance of the loose surface road from the road junction at Nsimbiziwoome (568397) to grid reference 542450.
- The distance of the loose surface road is 6.4km.
- ii) Measure the distance by air of the road identified in a(i) above.
- Distance by air of the road is 6.1km.
- iii) Calculate the detour index of the road identified in a(i) above.
- The De tour index = $\frac{\text{Actual distance of the road} - \text{straight line distance}}{\text{Actual distance of the road}} \times 100$

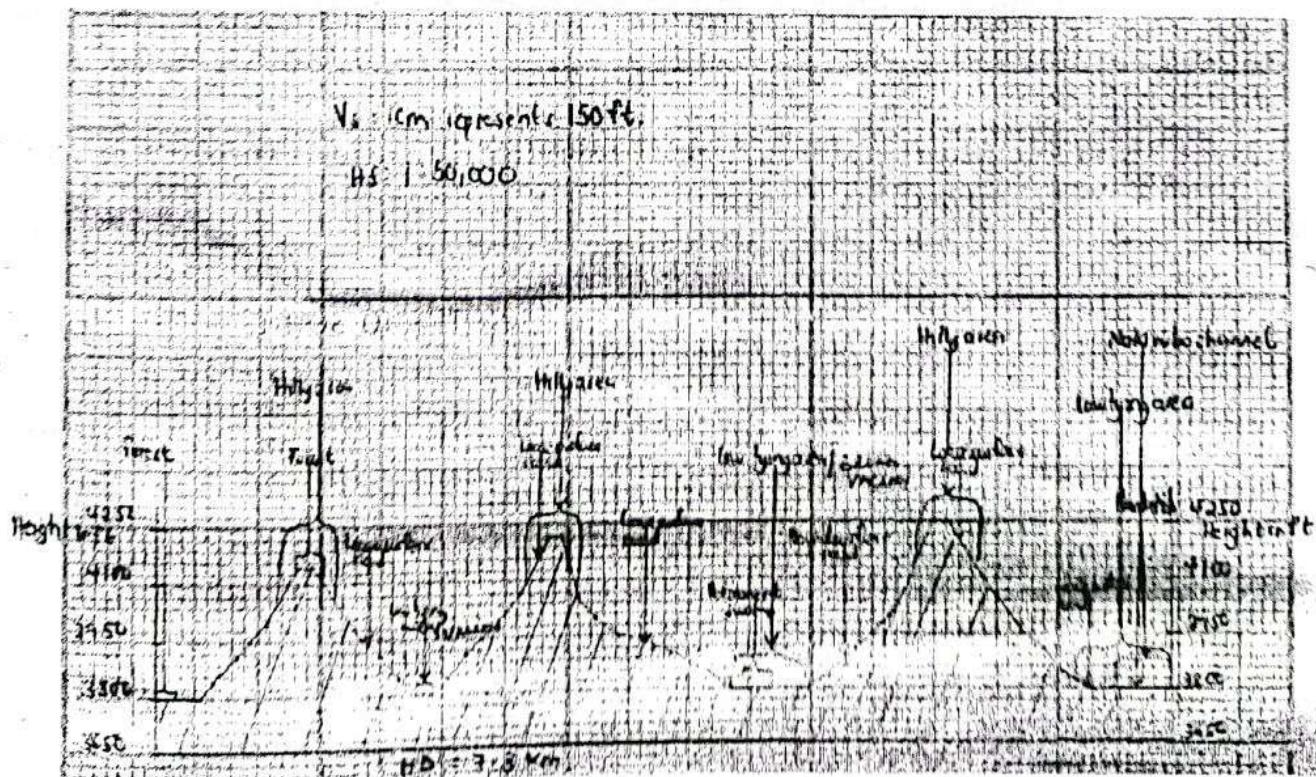
$$DI = \frac{6.4\text{km}-6.1\text{km}}{6.4\text{km}} \times 100$$

$$DI = \underline{\underline{4.7\%}}$$

- b) i) Describe the latitudinal and longitudinal location of Kampala.
- It is located along latitudes $0^{\circ} 15'$ & $0^{\circ} 20'$ North of the equator and longitude $32^{\circ} 35'$ East of Greenwich.
- ii) With evidence, what makes Kampala a habitable city?
- Its proximity to L. Victoria which is a source of water for domestic and industrial use.
 - A network of communication lines such as the railway line to port bell, bound surface roads i.e. Kampala – Entebbe that ease movement of people.
 - The gently sloping areas of Rubaga, Mengo, Nsambya that ease construction of roads and settlements.
 - Recreation centres such as the Museum at Kitante, golf course at Kitante, Lugogo sports field for their

- amusement and relaxation.
- Presence of security e.g. police station at Wandegeya, police college at Nakawa for the safety of the residents.
- Presence of hospital services / health services provided at Mulago, Rubaga, Mengo that has kept the people healthy.
- Presence of educational centres e.g. Makerere University college, schools at Kibuli, Mengo, Rubaga to educate the inhabitants.
- The numerous plantations near Kampala such as Mpanga plantation that feed the people hence its habitable.
- Presence of accommodation e.g. Kiswa, President's lodge at Makindye, etc.
- Presence of employment such as ginneries at Kawempe, trading centres like Nakawa and the central business district.
- Industries such as the ginneries at Kawempe, oil mill at Bunamwaya offer employment that improves peoples' standards of living.

c) **A CROSS SECTION OF KAMPALA BETWEEN 520290 TO 580340 SHOWING FORESTS PLANTATION PERMANENT SWAMP, PHYSIOGRAPHIC FEATURES, NAKIVUBO CHANNEL AND TWO ROAD TYPES.**



d) **Describe the;**

- i) **relief.**
- The area has a lake basin e.g. L. Victoria.
 - The area has bays e.g. Murchison Bay.
 - The area has islands e.g. Namalusu Island, Zinga Island.
 - The area has numerous hills e.g. Buziga, Kireka, Naguru, Mutungo, etc.
 - The area has steep slopes e.g. Mutungo, Nakawa, Naguru, etc.
 - The area is gently sloping e.g. Namasuba, Kisugu, Bunamwaya, etc.
 - The area has ridges e.g. Namasuba, Kawempe, Kongi, Kirudu, etc.
 - The area has saddles / cols e.g. Namasuba, Kireka, Bunga, Gaba, Kongi-Kirudu, Kawala, etc.
 - The area has conical hills e.g. Buziga, Lugoba, Kulambiro, Mutungo, etc.
 - The area has flat topped hills e.g. Rubaga, Mengo, Najera, Bugolobi, etc.
 - The area is low lying e.g. Kolo forest plantation, Kansanga swamp, etc.
 - The area has river valleys e.g. Mayanja River, Kiwunya river, Kayinga river, Nakivubo channel, etc.
 - Generally, Kampala shows a dissected plateau with numerous hills and valleys.

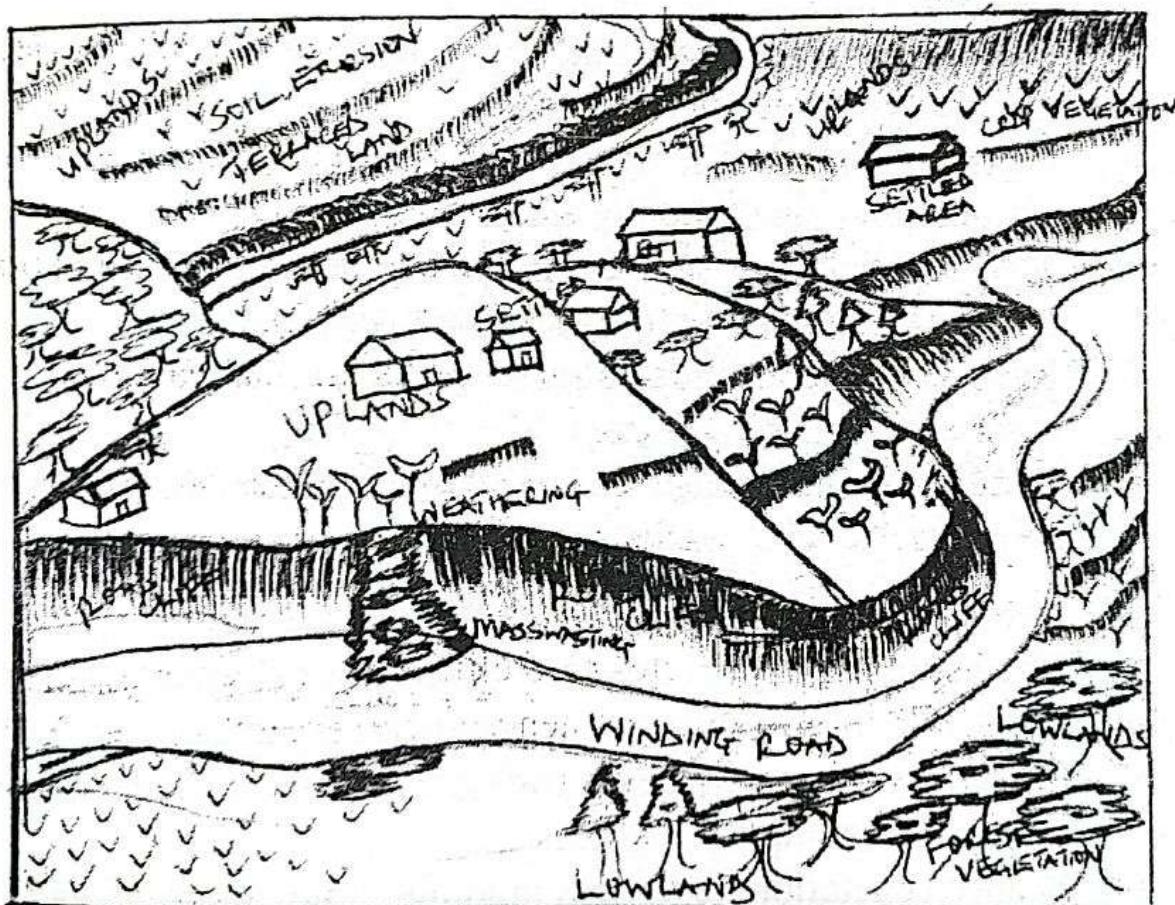
ii) **relationship between drainage and vegetation shown on the map extract.**

- Rivers / well drained areas have encouraged the growth of forest vegetation e.g. in North east, and south west.
- Rivers / well drained areas have encouraged growth of plantation vegetation e.g. Mpanga plantation, Kolo plantation forest.
- The lake has encouraged growth of forest vegetation e.g. Namalusu island.
- The permanent swamps have encouraged growth of forest vegetation e.g. at Zinga islands, Buwaya and Banga.
- The permanent swamps have favoured growth of papyrus

vegetation e.g. Kansanga, south west and along Nakivubo channel.

- The permanent swamps / well drained areas have favoured the growth of thicket vegetation e.g. Butabika, Kirombe areas.
- Well drained areas / rivers have encouraged the growth of woodland vegetation e.g. Munyonyo, Nakawa, Ntinda.

2.a) A LANDSCAPE SKETCH OF THE AREA SHOWN ON THE PHOTOGRAPH SHOWING WINDING ROAD AND ROAD CLIFF, TERRACED LAND, SETTLED AREA, DENUDATIONAL PROCESSES, VEGETATION TYPES, UPLANDS AND LOWLANDS.



b) Account for the occurrence of the denudational processes identified in (a)(i) above.

- * The major denudational processes include;
- Weathering in foreground and middle ground is caused by:-
 - Construction of settlements on the steep slopes that loosen the rock materials.

- Steepness of the slopes that accelerate erosion hence exposing rocks to weathering.
- Cultivation on the steep slopes that loosens the rock materials.
- Road construction through the steep slopes breaks down the rock materials.
- Scanty vegetation especially near the road cliffs leaves the rocks bare exposing them to weathering agents.

- Erosion in the middle and background is caused by:-

- Steepness of the slopes that accelerate the speed of water movement hence soil erosion.
- Construction of roads loosen the rocks hence easily moved by running water.
- Scanty vegetation leaves the rocks bare hence easily carried away by running water.
- Construction of settlement results into devegetation hence bare surfaces and consequently erosion.
- Mass wasting over steepens the slopes, leads to devegetation resulting into bare surfaces leading to erosion.
- Loose and unconsolidated soils / rocks that can easily be removed by running water.
- Road construction also leads to loss of vegetation, loosens the soils / rocks hence easily carried by running water.

- Mass wasting in the foreground is caused by:-

- Road construction creates road cliffs / over steepened slopes that accelerate mass movement hence rock falls and slides.
- Vibrations caused by heavy moving vehicles loosen the rock materials leading to rock falls.
- Scanty vegetation hence less binding / holding effect leading to rock falls.
- Cultivation on the steep slopes loosens the rock materials encouraging rock slides and falls.
- Steep slopes accelerate downslope movement of loose rock materials leading to rock falls.
- Loose and unconsolidated soils are easily pulled by gravity encouraging rock falls.

- Construction of settlements adds weight on the rock materials; loosens the rocks, leads to loss of vegetation hence rockfalls and rock slides.

c) **How has man adapted to the landscape shown on the photograph?**

- Construction of winding roads through the steep slopes and hills to check on the difficulty in transport in the foreground and middle ground.
- Construction of steps on road cuttings and cliffs to reduce steepness hence reducing mass wasting in the foreground.
- Planting of trees on the steep slopes to reduce soil erosion and landslides in the foreground and middle ground.
- Conservation of trees / forests on the steep slopes to bind / hold soil particles reducing the soil erosion in the foreground.
- Establishment of terraces on steep slopes to enable cultivation and reduce soil erosion in the middle and background.
- Planting of cover crops in terraces and steep slopes to reduce erosion and landslides in the middle and background.
- Settlements have been constructed on gentle slopes or foothills to reduce pressure on steep slopes hence reducing landslides in the middle and background.

d) i) **Of what value are the features shown on the photograph to the people living in the area?**

Value of features shown on the photograph.

- The winding roads in the foreground, middle ground and background encourage transport hence easy accessibility.
- The forests / trees modify the climate through evapotranspiration in the foreground.
- The terraces in the middle ground reduce the rate of erosion and landslides hence support crop cultivation.
- The rolling green hills in the middle ground and background are tourist attractions due to beautiful scenery.
- The rolling hills in the middle and background are used for study and research.
- The forests in the foreground reduce soil erosion and landslides

since they hold the rocks / soils.

- ii) Giving reasons for your answer, suggest an area in East Africa where the photograph could have been taken from.

Areas include:-

- Kabale
- Kisoro
- Rukungiri
- Rukiga
- Kenya highlands
- Kapchorwa

Reasons: -

- Presence of rolling hills.
- Presence of terraces
- Presence of winding roads and cliffs.
- Presence of forests and settlements.

- 3.a) **Distinguish between Viscous & fluid lava.**

- Viscous lava also called acidic lava.
- Has a high silica content of above 66%.
- It is too thick.
- It flows for a short distance / cools on exposure.
- Associated with violent eruption.
- Majorly ejected through a vent / central opening.
- Forms steep and dome shaped landforms.
- Major features are composite cone, cumula dome & volcanic plug.

While;

- Fluid lava is lava with a silica content of between 45 – 52%.
- Lava flows for a long distance before cooling and solidification takes place.
- It is associated with effusive / Quiet eruption.
- Materials are ejected through fissures / cracks / joints.
- Forms low-lying / gently sloping / lava platforms e.g. a shield volcano and a lava plateau.

- b) **Examine the role of the materials ejected on the formation of volcanic landforms in East Africa.**

- * Candidates are expected to;
 - State the process responsible for ejection of materials.
 - Define it and give its origins.
 - Classify the materials and explain / describe the associated landforms.
 - Materials are ejected through the process of **volcanicity**.
 - Volcanicity refers to the process through which molten rock materials are ejected, cool, crystallize and solidify on the earth's surface.
 - It originates from the interior mainly in mantle due to heating by radioactivity, geophysical and geochemical reactions.
 - The heating causes melting / nearly melting of the mantle rocks resulting into the convective currents.
 - Pressure from the convective currents / faulting created lines of weakness through which materials are ejected.

Such materials include;

- Acidic lava, has a silica content of above 66%, highly viscous and forms steep landforms. These include;
- * **Composite cone**
 - Is a volcano made up of alternate layers of lava and ash ejected through a central vent over a long period of time.
 - They are usually large cones with fairly steep slopes.
 - Formed by violent / explosive eruption at the beginning where lava and other materials are ejected to a great height.
 - These materials fall back and produce the ash layer.
 - Other explosions will produce ash layers as well as lava layers.
 - Lava and other materials may have insufficient pressure and therefore side openings may develop to form a conelets / parasitic cone.

Eg's include; Mt. Muhavura, Mt. Kenya, Mt. Meru, Mt. Kilimanjaro, etc.

Illustration:

- * **Volcanic plug**
 - These are piles of acidic lava ejected on the earth's surface with clouds of hot ashes that prominently stand above the ground.

- Formed by viscous or acidic lava ejected in a rigid cylindrical shape.
- On exposure lava cooled and solidified to form a very steep volcanic feature called a volcanic plug.

Eg's are; Tororo rock, lake Katwe plug, Mwadui in Tanzania, Central tower in Kenya, etc.

Illustration:

*** Cumulo dome**

- Is a steep sided convex dome of acidic and intermediate lava.
 - Formed when viscous lava is ejected and does not flow far but piles around the vent.
 - It hardens quickly on surface and later extrusions are unable to reach the surface.
 - This forces the initial layers outwards to form a cumulo dome.
- Eg's are; Mt. Ntumbi in Tanzania and in Tsavo National Park in Kenya.

Illustration:

Basic lava has a silica content of between 45 – 52%, forms lava platforms and these include;

*** Shield volcano / basalt dome.**

- Is a generally low-lying / gently sloping and broad based volcano formed when fluid lava flows over a wide area before cooling down.
- The lava that forms such cones flows through several fissures / cracks / openings.
- This is followed by rapid loss of gases.
- Because lava is less viscous, it flows for a while before it solidifies.
- This results into a stretched lava cone eg's are: - Mt. Marsabit and Tukuyu in Kenya.

Illustration:

*** Lava plateau**

- These are uplands of different layers of lava.
- Formed when lava flows out through different / several fissures

and spreads out over the surrounding countryside before cooling and solidifying as a sheet of basalt.

- Repeated fissures eruption leads to the building of a high and huge plateau called a lava plateau.
- E.g.s include; Yatta plateau, Nyika plateau, Kericho Laikipia in Kenya and Kisoro plains in Uganda.

* **Intermediate lava**

- Has a silica content of between 52 – 65%.
- Associated with violent eruption and therefore forms;

* **Ash and Cinder cones**

- These are cones that have alternate layers of ash and cinders.
- These cones are formed by violent volcanic eruption and blown to great heights.
- The materials later breakdown into many fragments of various sizes of which ash is smaller in size than the cinders.
- These fragments are laid in layers of ash and cinder hence ash and cinder cones.
- They are steep sided; they appear in groups and form parasitic cones on or near large cones. E.g.s include; Muganza, Sagitwe, Shozibisalo in Kisoro, Teleki in Kenya.

Illustration:

Gaseous materials are associated with violent / explosive eruptions and therefore this forms;

* **Explosion / ring craters.**

- Is a wide, circular, shallow flat floored depression on the earth's surface.
- Gaseous materials are ejected in a violent eruption blowing through the country rock where fragments are deposited around the rim / ring of the depression.
- This results into a flat floored depression which is as wide as 500 metres in diameter hence an explosion crater. E.g.s are lake Katwe, Lake Kikorongo, L. Nyamunuka, L. Munyanyange in Kasese.

4. Explain the role of rock structure on land form development in East Africa.

- * Candidates are expected to;
- Define rock structure as the ways in which rocks differ from each other in their physical and chemical characteristics.
- These characteristics include; rock hardness / softness, rock jointings, rock solubility, mineral compositions and rock colour.

They influence landform formation in the following ways: -

- Rock hardness / softness is the relative ease or difficult with which the rock is scratched.

This is responsible for the formation of the following: -

- * An inselberg, this is an isolated hill/ residual hill / outcrop rock / rocky highland standing above the surrounding areas.
- Formed where hard rocks resist and soft rocks are easily removed by differential erosion and weathering.
- The hard rocks resist and standout to form uplands called Inselbergs.
- Egs are found in Mubende, Nakasongola, Kachumbala, Pakete hills in Adjumani, etc.

Illustration:

- Water falls is a sharp break in the course of the river where the river water flows from a high level to a low level.
- A river flows over hard rocks there after are soft and less resistant rocks.
- There is undercutting / down cutting of the soft rocks creating a steep gradient / sharp break.
- The river water therefore changes its local base level from a high level to a low level hence a water fall.

Egs are Owen falls, Sezibwa fall, Pangani falls, etc

Illustration:

- * Volcanic neck; is a narrow steep sided volcanic feature that stands prominently above the volcano / ground.
- Formed when acidic lava cools and solidifies in the vent.

- Due to denudation i.e. weathering and erosion, the soft overlying rocks are removed hence exposing a neck in the volcano called a volcanic neck.
Eg's are found in Karamoja, Virunga ranges, etc.
- Differences in rock hardness is responsible for the formation of bays and headlands along the coastline.
- * **A headland**, is a piece of land projecting into the sea.
- Formed when hard rocks resist erosion hence protrudes into the sea.
- * **A bay**; is a wide extension of the sea into land; formed when soft rocks are easily worn away and hence the sea extends into adjacent land to form a bay.
Eg's are found at Kasenyi on L. Victoria.

Illustration:

- **Rock jointedness**; is the degree of crack development in a rock. This is responsible for the formation of;
 - **Exfoliation dome**; is a rounded and smooth topped hill.
 - Formed in semi-arid areas where there is alternate expansion and contraction.
 - The outermost layers of the rock develop cracks and later peel off to form an exfoliation dome.
- Eg's are found in Mubende, Nakasongola and Serengeti.

Illustration:

- **Sea caves**, also result from rock jointedness, this is an opening at the base of the cliff with the width reducing inwards.
- Formed when hydraulic action pushes water into a joint, exerting pressure and breaking the rocks. This results into a cave.

Eg's are found at Kasenyi on L. Victoria.

- **Rock solubility**; refers to the ability of the rock to be dissolved. This is responsible for the formation of;
 - * **Underground caves**, is a natural underground space.
 - It is formed as a result of chemical dissolution of limestone and

- Due to denudation i.e. weathering and erosion, the soft overlying rocks are removed hence exposing a neck in the volcano called a volcanic neck.
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Eggs are found at Kasenyi on L. Victoria.

- **Rock solubility**; refers to the ability of the rock to be dissolved.

This is responsible for the formation of;

- * **Underground caves**, is a natural underground space.
- It is formed as a result of chemical dissolution of limestone and

dolomite.

- Limestone is dissolved by a natural acid in the underground water hence a cave. Examples are found in Nyakasura.

Illustration:

- * **Stalactites;** These are protrusions of rocks at the roof of the cave.
- Formed when water containing calcium carbonate drips into the joints and is deposited at the roof of the cave.
- This forms a protrusion after drying at the roof of the cave called a stalactite.
- Eggs are found in Nyakasura.

Illustration:

- * **Stalagmite.** These are protrusions of rocks at the floor of the cave.

- Drops of water containing calcium carbonate are deposited at the floor of the cave.

Calcium builds a protrusion called a stalagmite.

- Eggs are found in Nyakasura.

Illustration:

- * **Pillar;** It is formed when a stalactite from the roof of the cave and stalagmite from the floor of the cave grow towards each other and eventually join.

Eggs are found in Nyakasura.

Illustration:

5.a) Distinguish between exfoliation dome and granitictors.

- Exfoliation domes are rounded and smooth topped hills.
- Found in areas of alternate heating and cooling (semi-arid areas).
- Are formed by exfoliation in semi-arid areas.
- During day because of the extremely hot temperatures, exposed rocks are heated and expand.
- At night the heat is lost and rocks cool hence contract.
- The alternate expansion and contraction results into peeling off

- hence an exfoliation dome.
- Eggs are found in Mubende, Nakasongola, Karamoja.

Illustration:

While;

- Granitic tors are pillars of rounded weathered rock boulders that stand prominently above the ground.
- Formed by block disintegration of the exposed rocks in semi-arid areas.
- Subsurface chemical weathering takes place along the joints.
- Physical weathering due to thermal expansion and contraction weakens the rock muscles hence breakdown to form granitic tor.
- Eggs are found at Mwanza, Karegyeya, Nakasongola, Kyegegwa, etc.

Illustration:

- b) **Describe the formation of the landforms in the limestone areas in East Africa.**

* *Candidates are expected to;*

- Identify areas of limestone rocks i.e. Nyakasura, Tororo, Mt. Elgon slopes and East African coast.
- Identify and describe the processes experienced in limestone areas i.e. carbonation.
- Carbonation, involves rainwater in the atmosphere mixing with carbondioxide to form a weak carbonic acids.
- These react with calcium carbonate to form calcium hydrogen carbonate.
- Solution i.e. rocks like limestone are dissolved and are taken away in solution leaving cracks joints and hollows.

Candidates are expected to identify and describe the landforms as;

The landforms include: -

- Underground cave
- It is a natural underground space.
- It is formed when there is chemical dissolution of limestone and dolomite.

- The limestone is dissolved by natural acid in the ground water or weak carbonic acids.
 - The limestone is carried away by solution leaving a depression called a cave examples are found in Nyakasura in western Uganda.
- **Stalactites**
 - These are protrusions of rocks at the roof of the cave.
 - These are formed by carbonation. Rain water combines with carbonic acids.
 - This dissolves calcium carbonate to form calcium hydrogen carbonate.
 - When the solution reaches the roof of a cave, calcium carbonate is deposited and dries up to form a stalactite.
Examples are found in Nyakasura.
- **Stalagmites**
 - These are protrusions of rocks at the floor of the underground cave.
 - Some drops of water containing calcium carbonate are deposited and grow upwards to form stalagmites.
Examples are found in Nyakasura.
- **Pillars**
 - These are formed in underground caves.
 - When stalactites from the roof and stalagmites from the floor of a cave continue to grow towards each other. They eventually join to form pillar.
- **Swallow holes / Sink holes**
 - These are natural depressions in the earth's crust / surface.
 - They are formed when limestone is dissolved in one or more joints.
 - It is formed through the process of removal of the soluble limestone by the sinking water.
- **Dolines**
 - These are depressions, larger than sink holes.

- These are shallow circular depressions formed either by solution of the surface limestone or by collapse of the materials of the underlying caves.
- **Uvalas**
- Are large depressions larger than dolines.
- Uvalas are formed by solution of limestone.
- They are formed when several dolines join together to form a very large depression called Uvalas.
- **Poljes**
- Is an elongated basin having a flat floor and steep walls.
- Poljes are formed through carbonation and solution of the limestone rocks.
- In some poljes, small residual hills called hums are formed.
- **Grikes and clints**
- Grikes are hollows/depressions while Clints are ridges formed as a result of carbonation.
- They are formed in limestone areas with rocks of different chemical compositions.
- Limestone is dissolved by acidic rains to form hollows while the dissolved rocks form ridges.
- **Limestone gorge:**
- It is a deep steep sided valley formed where there are limestone rocks.
- It is formed when a large river erodes or weathers the soft limestone rocks by solution.
- This forms a gorge with almost vertical sides.

6. Explain the role of denudation in the formation of lakes in East Africa.

Candidates should;

- Define a lake,
- Provide characteristics of lakes,
- Provide lakes resulting from denudation,
- **A Lake;** is a mass of water contained in a basin or depression of the earth's surface.

Lakes in East Africa are characterized by the following:-

- They are shallow for example L. Victoria and L. Kyoga.
 - They are hollow e.g. George and Edward.
 - They are small in size e.g. Kabaka's lake.
 - They are deep e.g. Lake Tanganyika
 - They have fresh water e.g. L. Victoria.
 - Some lakes like Katwe are salty.
 - They are irregular e.g. L. Victoria.
 - Some lakes are large e.g. L. Victoria.
-
- Denudation refers to the wearing away / destruction of the landscape by the processes such as weathering, erosion, transportation and deposition.
 - This occurs due to agents like wind, running water, ice, and ocean waves.

1. Moraine dammed lakes.

These are lakes formed when terminal moraine are deposited across or over the valley to form a ridge.

The terminal moraines dump and force water back into the river filling the basin hence forming moraine dammed lakes. For example, Lac Gris and Noir on mountain Rwenzori.

Illustration:

2. Kettle lakes

These are lakes formed when a mass of ice is enclosed in a terminal moraine. Due to hot temperatures the ice melts later creating a depression on top of a terminal moraine which is Kettle like end is later filled up with water from the melting ice to form a kettle e.g. in Mahoma on mountain Rwenzori.

River depositional lakes include: -

- **Ox-bow lakes.**
- These are horse – shoe shaped lakes formed when the pronounced meander is cut off from the main river.
- They are formed when erosion takes place on the outer parts of the meander which therefore cuts deep causing the adjacent bend to be closer.

- Erosion is supported by deposition on the outer part.
- Further erosion leads to the meanders cutting through each other or during flood times the meander then break the narrow neck.
- The meander is then cut off and scaled off by alluvial deposits to form oxbow lake for example in the lower valleys of Nzoia, R. Rwizi, R. Semiliki and R. Tana.

Illustration:

- **Delta lakes**
- These are lakes formed in flood plains. They are formed when alluvial deposits form embankments that stop water within the flood plain from joining.
- The water is collected in various distributaries and is separated by levees to form delta lakes
e.g. Lake Mogomeni Magomeni and Mwananyama.

Illustration:

Wave depositional lakes include: -

- **Lagoon lakes**
- Is a sheet of water that has been cut off from the main water body. These are formed at the coast where there is accumulation of sand, pebbles, shingle and mud that form spits due to long shore drift.
- Two spits develop from either side of the headland and converge off shore enclosing off part of the water from the main lake. The water enclosed appears calm to form a lagoon lake e.g. L. Nabugabo enclosed from L. Victoria, Tonya on L. Albert and coral reefs along the East African coast.

- **Lava dammed lake**

- Is a lake found in a basin created when basic lava blocks the river channel. The lava causes back ponding of the river water hence water collects upstream behind the lava dam.
- Because basic lava is capable of flowing for a long distance before cooling and solidification takes place, lava is deposited within the river channel and blocks to form a lava dammed lake
e.g.

- L. Mutanda in Kisoro, Mulehe.

Illustration:

- **Cirque Lake**
- Is water contained in a semi-circular steep sided rock depression.
- It was formed due to plucking abrasion and Basal sapping.
- It was formed as a result of the existence of a pre-glaciated hollow, this hollow was widened by plucking and deepened by abrasion to form a semi-circular steep sided depression called a cirque.
- The depression was later filled with water from the melting ice to form lakes e.g. Lac du Speke, Lac Catherine, Lac Noir, Lac Vent on mountain Rwenzori, Teleki on mountain Kenya.

Illustration:

- **Rock basin lakes**
- Are lakes contained in small depressions in the slopes of the glaciated highlands. They are formed when these are jointed rocks, soft rocks, variations in the thickness of the glaciers.
- They are formed in U-shaped valleys where soft rocks or jointed rocks are eroded by the glaciers to create small depressions on the surface of the U-shaped valley. These are referred to as rock basins.
- These depressions are filled with water from the melting ice to form rock basin lakes e.g. com Michelson on Mountain Kenya, Lac Alice on mountain Rwenzori.

Illustration:

- **Glacial trough lakes / U-shaped valley lakes.**
- Are lakes that occupy elongated hollows excavated by ice on the floor of the U-shaped valley.
- U-shaped valley lakes are formed as soft rock materials at the floor of the valley are removed creating depressions within the U-shaped valley. The depressions are filled with water from the melting ice to form U-shaped valley lakes e.g. Michelson in the gorges valley in Kenya and L. Mahoma on mountain Rwenzori.

- 7.a). With the help of diagrams, distinguish between a cross profile and a long profile of a river.
- Candidates should;*
- Define a River profile.
 - A cross profile; is a cross section / width / shape of the river channel from one bank (side) to another bank (side) through the river bed.
 - It is either V-shaped / narrow in the youthful stage or open V-shaped.

Or open V-shaped channel in the middle stage / mature stage / broad / wide channel in old / senile stage.

- It is formed by vertical erosion at the rivers bed causing V-shaped valley or lateral erosion on the river bank causing broad wide valley.

Illustration:

While;

A long profile;

- It's a longitudinal section / course of a river or a line / curve which follows the bed of river from its source to the mouth.

The stages of along profile include;

- **Youthful stage;** mature stage and senile stage.
- **Process of formation** involve erosion i.e. vertical erosion dominates the youthful stage lateral erosion in middle and senile stage.

Deposition in the middle but dominant in senile stage.

- **Landforms** in the different stages include;
- Youthful i.e. waterfall
- Middle stage – cliffs
- Old stage – flood plain,

Illustration

- b) Explain the importance of the landform features found along the different stages of a river.

Positive: -

- Tourism due to the meanders, flood plains, waterfalls, plunge pools, gorges, etc.
- Potential sites for Hydro-electric power generation due to waterfalls across cliffs along the river channel.
- Filming and photography due to interlocking spurs, waterfalls, etc.
- Crop cultivation due to fertile soils in the flood plain deltas, etc.
- Animal rearing in the flood plain with natural pastures.
- Settlement in the delta and flood plains.
- Mining and Quarrying (minerals like sand, clay) in the flood plain and deltas used for construction, medicinal value, pottery, etc.
- Fishing in the flood plain (ox-bow lakes) deltas.
- Some landform features are used for cultural significance like plunge pool.
- Basis for research and study purposes due to flood plain, etc.

Negative:-

- Flooding in the flood plain, delta.
- Difficulty in construction of transport routes like roads in flood plain.
- Difficult in construction of settlements due to unstable / water logged flood plain.
- Difficulty in cultivation of crops due to waterlogged soils in the flood plain /delta.
- Pests and diseases in the flood plain / deltas.

8. Account for the differences in rainfall patterns in East Africa.

There are two different types of rainfall patterns in East Africa.

- **The equatorial type of rainfall pattern** where rainfall is received throughout the year with two rainfall peaks/maxima March – May and September – November.
- **The tropical type of rainfall pattern (monomodal / unimodal)** where there is one rainy season and one dry season.

- The wet season comes when the sun is overhead.
- In the Northern hemisphere there is one wet season and one dry season. The rainfall season coincides with the overhead sun in the months of May-September in places like Gulu.
- In the Southern hemisphere, there is one wet season and one dry season. The rainy season coincides with the overhead sun in the months of November-March in places like Central Tanzania.

The rainfall patterns are influenced by the following factors.

- **Latitudinal location:** places in Southern parts of East Africa receive rainfall in November to march when the sun is in Southern hemisphere and those in Northern East Africa receive rainfall May to September when the sun is Northern hemisphere while the rest of the year is dry. Those around the equator receive two rainfall Maximas around March and September when the sun is overhead.
- **Wind system:** Northern East Africa is affected by dry winds the North East trade winds leading to low rainfall in Northern and North western Kenya and North Eastern Uganda while the South-East trade winds lead to heavy rainfall on East African coast and Lake Victoria basin, the latter after being recharged by the lake.
- **Presence of water bodies** like Lake Victoria and Indian Ocean which lead to heavy rainfall and rainfall occurring throughout the year in surrounding areas as a result of evaporation from these water bodies.
- **Vegetation cover.** Lake Victoria basin has dense vegetation cover leading to high evapotranspiration leading to heavy rainfall while Northern and North western Kenya and North eastern Uganda have limited vegetation cover leading to limited evapotranspiration and low rainfall.
- **Altitude and relief:** There is modifying influence of altitude and relief where there are mountains like Rwenzori, Kilimanjaro, Kenya and Elgon there is heavy rainfall on windward side e.g. South East slopes of Kilimanjaro and Mt. Kenya and North West slopes of Mt Elgon. The lee ward of these mountains

receive low rainfall. Areas with no mountains/highlands to act as cooling agents like Northern Kenya and central Tanzania receive low rainfall.

Human activities like overstocking and overgrazing, burning of vegetation particularly in areas occupied by nomadic pastoralists like Karamajong, Turkana, Bahima have contributed to low humidity and low annual rainfall.

Coriolic force effect where the South East trade winds are deflected back to Indian Ocean has contributed to low rainfall in most parts of Northern East Africa.

Perturbation where there is condition where there is persistent low pressure over the Indian ocean which attracts winds that become off shore leading to low rainfall in Northern parts of east Africa.

Coastal configuration where the East African coast is aligned in North East-South West direction and winds blow parallel to the coast denying Northern parts of East Africa like Northern Kenya moisture leading to low humidity and low rainfall. etc

9.a) Distinguish between local and prevailing winds.

Local winds are winds which develop as a result of local environmental conditions which cover a small geographical area, e.g. around water bodies, mountains / hills and depressions / cyclones.

Examples include; land and sea breeze which develop around water bodies, Anabatic and Katabatic winds which develop on a hill or mountain and depressional winds which develop in a depression / cyclone.

Whereas;

Prevailing winds refers; to a large body of air with uniform horizontal temperatures and high humidity conditions blowing over a large / wide area.

They form when stationary air settles over a large area for long and acquire uniform conditions of humidity and temperatures e.g. NE and SE trades, westerlies and polar winds.

b) Examine the influence of local winds on the climate of the areas where they occur.

* Candidates are expected to bring out the local winds and describe them and their effects on climate.

- **Sea breeze**

- These are local winds which develops in areas lying adjacent to water bodies like lakes, sea, oceans, rivers and swamps.
- During day time, land adjacent to the sea heats up much quicker than the sea / lake / water, air above the land becomes warmer and expand and begins to rise.
- A cooler air from the sea then flows towards the land to occupy space of the rising warm air. This is what is called a sea breeze.
- The rising warm air eventually cools, condenses to form cumulo nimbus clouds and later results into heavy showers usually in the afternoon.

Diagram to illustrate a sea breeze.

Effects of a sea breeze on the climate of East Africa (Over the land).

- Lowering of temperatures over the land / shores / coast in the afternoon.
- Formation of foggy / misty conditions on the land and leads to poor visibility.
- On shore rainfall is formed which is usually received in the afternoons.
- It results into high thunder and lightning.
- Raises humidity over the land,
- Leads to formation of cumulo-nimbus clouds after the warm air has been displaced upwards and has condensed.

Land breeze, on the other hand is a local wind which occurs in an area lying in close proximity to a water body e.g. Lake Victoria during the night.

During the night, land / coastal areas experience rapid radiation and cools much faster than the sea which retains its heat. Water

loses heat much slowly such that air above it, also warms up, low pressure is created over the warm sea and high pressure over the land.

Cold air from the land then blows towards the sea to replace the warm rises air hence a land breeze.

Diagram to illustrate a land breeze.



Effects of land breeze on climate (over the water body)

- It lowers temperatures of the sea.
 - It leads to formation of foggy / misty conditions over the sea.
 - Formation of offshore rainfall.
 - Dry conditions over the land because little or rainfall is formed.
 - It results into violent thunderstorms and lightening.
 - Raises humidity over the sea / lake.
 - Results into the formation of thick cloud cover.
-
- **Anabatic and Katabatic winds.**
 - These are local winds which develops in areas with mountains or hills.
 - Anabatic / Ascending winds are local winds which blow from the valley bottoms up to the hill / mountain slopes during the day.
 - They are a result of differential heating of the slopes both at lower and upper slopes.
 - Thus, during the day, the sun heats up the slopes much faster and more than the valley bottoms because they are exposed.
 - The air in contact with the slopes is heated, expands and becomes light and begin to rise. Thus, convectional rising of air on the upper slopes. This creates a low-pressure area on the

slopes.

- The cool and dense air in the valleys where there is high pressure then rise up the slopes to displace or replace the warm air upslope.
- These cool dense winds from the valley floor rising up slope, are called Anabatic / Ascending winds.
- Ascending winds cool at a rate of 4.5°C for every 1000 metre ascent.

Effects of Anabatic winds on climate (of the slopes of the hill / mountain)

- Formation of mist / fog on the slopes in the afternoon.
 - It triggers off convectional currents which lead to the formation of relief rainfall in mountainous areas.
 - It leads to formation of low clouds in highland areas due to cooling of air to and beyond it / dew point / condensation level.
 - It transports cold temperatures to the upper slopes in the afternoons.
- **Katabatic / Descending winds.**
- These are local winds which flow down slope under the influence of gravity during the night.
 - Because the slopes are more exposed than the valleys, they lose more heat than the valleys at night through rapid radiation hence become areas of high pressure.
 - So the air becomes denser hence descends and this is what is called Katabatic / Descending winds.
 - Katabatic winds warm up at a rate of 6.5°C for every 1000m of ascent.

Effects of Katabatic winds on climate (in the valleys)

- They cause frost due to rapid cooling.
 - Lead to temperature inversions.
 - Lowering of temperatures in the valley bottom, etc.
- **Depressional winds.**
- These are local winds which develop in low pressure cells called cyclones / depressions especially in the I.T.C.Z in East Africa.

These are winds which converge in the cyclone due to the existence of low pressure in the eye of a cyclone that is created by the warm environmental conditions there.

Effects of depressional winds on climate (in the cyclone / depression)

- Raise temperatures of the eye of a cyclone.
- Raise humidity in a cyclone.
- Lead to formation of foggy / misty conditions in the cyclones.
- Lead to formation of frontal / cyclonic rainfall in the eye of a cyclone.
- Lead to formation of thick cloud cover in the cyclone.
- Lead to low pressure in the eye of a cyclone.

NB: Candidates are expected to illustrate all these local winds.

10. To what extent does altitude influence the existence of Miombo vegetation in East Africa?

- * Candidates are expected to;
- Define Miombo vegetation.
- Describe and account for its characteristics.
- State the evaluation / stand point.
- Explain the influence of altitude.
- State the transitional statement.
- Explain the role of other factors.
- Write a conclusion.

Miombo vegetation is a woodland type of savannah vegetation with more or less continuous cover of trees with shrubs intertwined.

It is most dominant in western and south western Tanzania parts of the western Rift valley region south western and eastern Kenya, southern Arua and parts of Northern Uganda and Nakasongola. It is characterised by the following: -

- A continuous cover of medium sized trees with shrubs intertwined due to moderate rainfall.
- Moderate height of trees of 8-16m high due to moderate rainfall.
- Umbrella shaped trees to preserve water around the plant.
- Predominance of acacia and cacti trees due to moderate rainfall

and hot temperatures.

- Deciduous trees to minimize water loss during prolonged droughts.
- Dense undergrowth of shrubs due to light being able to penetrate to the ground.
- Trees are intermingled with xerophytic thorny lianas, cacti and fairly hardy shrubs because they are drought resistant.
- Trees have gnarled / twisted stems.
- Trees have thick barks to store abundant food and water for use during prolonged droughts.
- Trees have small leaves to reduce water loss.
- Drought resistant trees due to swollen trunks and long tap roots.
- Trees have swollen trunks to store abundant food and water.
- Trees are deep rooted to suck deep underground water.
- Fire resistant trees due to the thick barks.
- Most trees develop branches close to the ground.
- Hard wood tree species due to the hot temperatures.

Role of altitude in influencing the existence of miombo vegetation in East Africa.

- Altitude of 500 to 1500 metres above sea level characterised by;
- Hot temperatures of over 28°C
- Moderate rainfall of between 760 to 1000 mm,
- Moderate humidity of about 50%,
- Fairly fertile soils that are well drained etc, encourage the growth of a continuous cover of medium sized small leaved hard wood tree species with shrubs intertwined.

Role of other factors: -

- Favourable climate characterised by;
- Moderate rainfall of 760-1500mm i.e. which favours the growth of continuous cover of medium sized trees.
- Seasonal rainfall concentrated in one peak which favours the growth of shrubs.
- Dry conditions which favour shading off of leaves.
- Hot temperatures of 20° – 30°C which lead to the dominance of drought resistant trees.
- Moderate humidity of 50%, favours the growth of a continuous

cover of medium sized trees.

- Fairly fertile soils with a water holding capacity to encourage the growth of a continuous cover of medium sized trees.
- Relief of low-lying plateaus and gentle slopes favour the growth of a continuous cover of medium sized hard wood tree species.
- Well drained areas encourage the growth of medium sized trees.
- Human factors like deforestation of tropical rainforests results into the growth of the woodlands.
- **Conclusion.**

11. Examine the influence of climate on the formation of soil types in East Africa.

* Candidates are expected to;

- Define soils.
- Identify and describe the three types of soils.
- Explain the role of climate in influencing the formation of these soil types basing on the climatic zones.
- Soil is a natural body made up of rock particles and decayed plants and animal tissues existing as a thin layer covering the earth's surface that supports plant growth
- It is composed of rock particles; mineral particles, air, water and living organisms.
- Examples of soils include; loam soils, clay soils, sand soils, volcanic soil, alluvium, podosols, basisol, etc.
- Soils are categorised into three major groups namely; zonal, Azonal and intrazonal soils.
- Zonal soils are mature soils with a well-developed soil profile due to the prolonged action of climate and vegetation during their formation.
- These soils are largely a result of climatic factors which contribute to their farming processes.
- They develop under conditions of good drainage on gentle slopes and flat landscape.
- Zonal soils are mainly divided into two namely;
 1. **Pedacals** – These have a high calcium carbonate content under conditions of low rainfall.
 2. **Pedalfers** – These are rich in iron and aluminium.

The resultant soil types are closely related to the nature of weathering that takes place under specific types of climate. These include;

- In low latitude areas / equatorial and tropical region, the hot humid conditions give rise to latosols and tropical black soils (basisols)
- In mid-latitude areas / temperate regions, climate of humid conditions is associated with the development of podisols and brown soils.
- In areas receiving seasonal rainfall in the mid-latitudes, chernozems soils develop.
- High latitudes climate lead to the development of Tundra and acidic brown soils.
- Semi-arid and arid climatic zones, develop / yield chestnut-coloured soils / sierozems.
- Another type is intra-zonal soils. These are soils whose development is greatly influenced by relief and nature of parent rock e.g. Meadow and bog soils.
 - Peat / Hydromorphic – these form in low-lying poorly drained areas.
 - Calcareous soils, these are soils derived from limestone rocks and are of two types namely;
- **Terra Rosa** – These are red soils which form in limestone regions under semi-arid areas e.g. Northern France and Yugoslavia.
- **Rendzina**; soils of limestone origin formed in areas of heavy rainfall. They are best developed in parts of England.
 - Saline / halomorphic soils with high concentration of salts e.g. in L. Katwe.
- **Azonal soils**. These are immature, skeletal, thin, infertile soils with immature undeveloped soil profiles.
- They can't be distinguished from one another because of their recent formation. So, their development is incomplete and therefore no marked horizons.
- The soil farming process is incomplete either because the period of formation is either short that the horizons have not been formed or because of the steep slopes where surface run off is

greatest.

- The soils are skeletal with shallow profiles and show characteristics of their original parent rock material which weather into situ and resist change.
- They are derived from unconsolidated rock materials e.g. alluvium, sand and volcanic ash.
- The major Azonal soils include the following;
 - Volcanic soils; they are young deposits of lava and ash which are weathered rapidly to form soils e.g. in Kisoro and Kenya highlands.
 - Alluvial soils; These are soils got from clay, sand and silt deposits along water courses the river valleys and lake shores and coast.
 - Glacial soils. These are soils of glacial origin and consist of moraines, sand, gravel and clay deposits laid down in glacial valleys.
 - Wind deposits e.g. sand sheets, sand dunes and loess in the dry flat areas of Turkana and North East Uganda.
 - Scree formed by weathering on Mt. Elgon.

Influence of climate on the formation of soil types.

- Equatorial climate experienced in the Lake Victoria basin, East African Coast, etc, characterised by; heavy reliable well distributed rainfall of over 1500 – 2000mm p.a, high humidity of even 80%, uniformly hot temperatures of 23 – 28°C, small diurnal range of temperature of 2.3°C thick cloud cover, etc.
- The above conditions encourage deep chemical weathering, facilitating the formation of deep fertile well drained mature zonal soils in well-developed soil profiles.
- Tropical climatic zones of Luweero, Bunyoro Northern Uganda, Nyika, etc, are characterised by;
 - Alternate wet and dry conditions,
 - Hot temperature of 20 – 30°C.
 - High diurnal range of temperature of 11°C on average.
 - Moderate humidity of 30 – 50%.
- The above conditions encourage high rates of leaching that facilitate the formation of lateritic soils leading to.

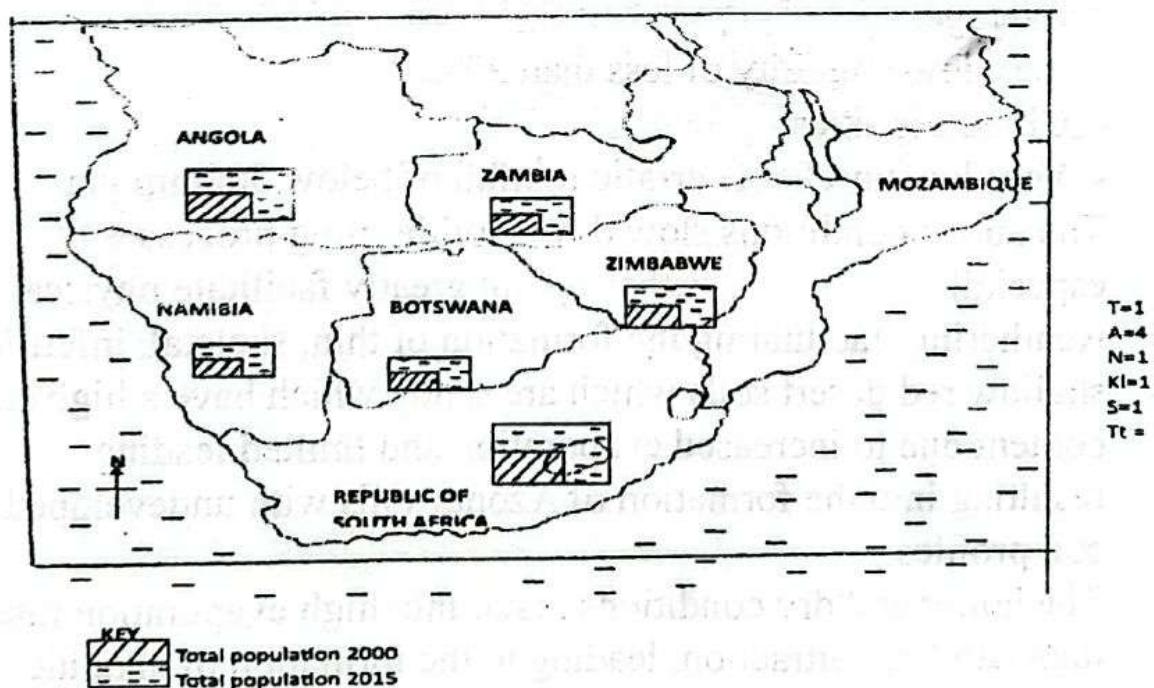
- underdeveloped soil profiles.
- During the dry seasons, physical weathering operates, leading to the formation of regolith with underdeveloped soil profiles, which are azonal in type.
- In wet seasons, chemical weathering, deep, fertile mature zonal soils fairly developed soil profiles.
- Temperate/polar climatic conditions e.g. on the higher glaciated slopes of mountains Rwenzori, Kenya and Kilimanjaro are associated with;
 - Cold temperatures that fall below freezing point.
 - Less rainfall of below 500mm.
 - Very low humidity of less than 20% result into less intensity of weathering and soil farming processes are very low in such areas except frost shattering which facilitates the formation of stony skeletal, shallow, infertile, frozen-Azonal soils with undeveloped immature soil profiles.
- And semi areas / climate in North East Uganda, Turkana land, central Tanzania, Ankole- Masaka dry corridor are characterised by;
 - Very hot temperatures of over 30°C.
 - Very big diurnal range of temperature of 10°C on average.
 - Very low humidity of less than 20%.
 - Cloudless skies.
 - Very low unreliable erratic rainfall of below 500mm p.a.
- The above conditions slow down soil farming processes especially chemical weathering but greatly facilitate physical weathering, facilitating the formation of thin, skeletal, infertile shallow red desert soils which are sandy which have a high salt content due to increased evaporation and limited leading resulting into the formation of Azonal soils with undeveloped soil profiles.
- The hotter and dry conditions result into high evaporation rates, high capillary attraction, leading to the formation of alkaline soils which are shallow, poor with undeveloped soil profiles; thus, intra-zonal soils.

(a)

Country	Total population 2015	Root Length	Total population 2020	Root Length
Angola	$\sqrt{13,900,000}$	$\frac{3728.3}{3,000} = 1.2\text{cm}$	$\sqrt{25,000,000}$	$\frac{5000}{3,000} = 1.7\text{cm}$
Botswana	$\sqrt{1,600,000}$	$\frac{1264.9}{3,000} = 0.4\text{cm}$	$\sqrt{2,300,000}$	$\frac{1516.6}{3,000} = 0.5\text{cm}$
Namibia	$\sqrt{1,800,000}$	$\frac{1341.6}{3,000} = 0.4\text{cm}$	$\sqrt{2,500,000}$	$\frac{1581.1}{3,000} = 0.5\text{cm}$
Zambia	$\sqrt{10,900,000}$	$\frac{3301.5}{3,000} = 1.1\text{cm}$	$\sqrt{16,200,000}$	$\frac{4024.9}{3,000} = 1.3\text{cm}$
Zimbabwe	$\sqrt{13,100,000}$	$\frac{3619.4}{3,000} = 1.2\text{cm}$	$\sqrt{15,600,000}$	$\frac{3949.7}{3,000} = 1.3\text{cm}$
South Africa	$\sqrt{44,200,000}$	$\frac{6648.3}{3,000} = 2.2\text{cm}$	$\sqrt{55,000,000}$	$\frac{7416.2}{3,000} = 2.5\text{cm}$

Scale: 1cm rep. 3,000

SUPER IMPOSED COMPARATIVE SQUARES SHOWING POPULATION FOR SELECTED COUNTRIES OF SOUTHERN REGION OF AFRICA IN 2015 AND 2020



(b) Outline the merits and demerits of using the statistical method in (b) above.

Advantages

- Easy to draw
- Good for visual impression
- Good for comparison
- Simple calculations
- Represents a lot of information
- Easy to read and interpret
- Can be superimposed. (3mks)
- Congested with many items

Disadvantages

- Tiresome because of showing many items
- Occupies big space
- Hard to get scale with big range
- Many calculations take a lot of time
- Hard to maintain accuracy
- Difficult to read individual items

(c) Explain the conditions which have led to high population density in the region shown on the map

- Presence of wet and dry savanna climate.
- Presence of well drained hills and plateaus
- Presence of fertile soils for agriculture
- Presence of water supply for agriculture and people
- Limited pests and diseases in well drained areas
- Presence of natural resources for economic activities
- Limited natural calamities and hazards reducing destruction
- Favourable government policies attracting settlement
- Influence of political stability and security.
- Improved transport and communication
- The role of cultures and traditions
- The growth of urban centres
- The historical factors like missionaries and centralized kingdoms
- Influence of religious like Moslems and Catholics
- The improved social services and infrastructure
- Improved science and technology
- The presence of economic activities and employment

(d) Examine the implications of small population size in any one country given in the table.

Negative effects

- Limited labour supply to exploit resources and develop economic activities.
- Limited government revenue because of limited taxation of

people and economic activities.

- Political instability and insecurity like rebel activities in the DRC.
- Under utilization of resources e.g. soil, forests, minerals, water, animals.
- Limited market for economic activities like trade, industrialization.
- Poor transport and communication e.g. roads, railway lines making the areas remote and backward.
- Poor social services i.e. schools, leading to low standard of living e.g. water and power supply.
- Pests and diseases like Malaria, bilharzias, sleeping sickness because of forests, poor drainage, mosquitoes, tsetse flies.
- Lack of innovators and planners to exploit resources and develop economic activities and entrepreneurs.

Positive effects

- Limited pests and diseases
- Extensive land for agriculture
- Less conflicts and tensions
- Reduction of land pressure
- Less pollution by human activities
- Environmental conservation like national parks, game reserves, forest reserves.

3. Describe the factors for the development of commercial intensive farming in either Netherlands or California.

Netherlands

Netherland or Holland is found in Europe and it is a developed country and it is important for horticulture like the growing of fruits and vegetables and it is important for dairy farming and zero grazing.

Agriculture is mainly carried out on reclaimed areas like Zuyder zee, Eastern Polder, Western Polder, Friesland, Markerland and these are found near North Sea and mouth of R. Rhine.

It is important for growing fruits and vegetables like grapes, Barley, Apples, Spinach, Lettuce, Pears, Tomatoes, Cabbage, Cucumber,

onions, oranges, mangoes, carrots. The animals reared include Fresian, New Jersey, Aghus, Red bull, Ganze, which are important for milk production and its products e.g. Cheese, Butter, Ice cream. Characteristics include; using scientific and modern methods of farming, irrigation farming, indoor grazing, agro based industries, research, artificial feeds, glass houses for crops, applying fertilizers, near markets and urban centres and transport routes, growing cereal and urban crops for commercial purposes, using small piece of land

California (USA)

California is a dry area found in USA and it is important for irrigation farming in areas around imperial valley around rivers San Joaquin, Colorado and Scramento, around Delta Mondata, Frient dam, Shasta dam.

It is important for crops like fruits and vegetables like cucumber, eggplants, oranges, pears, lime berries, cauliflower.

- Fertile soils support growth of cereals, vegetables and sugar beet
- Gentle relief favours mechanized agriculture, transport, drainage, construction
- Favourable temperate climate with mild winters for crop growth and hot summers for ripening of crops and rearing animals
- Accessibility to R. Rhine a major waterway for marketing the crops
- Numerous rivers e.g R. Dendre, Neuse etc provide water for irrigation
- Vast land for arable farming on large scale because of sparse population near water bodies
- Adequate capital to invest in arable farming like industries, equipment, input, storage, marketing, research
- Skilled labour for growing crops and working in processing factories
- Strong cooperatives for timely market of the products
- Modern technology e.g. refrigerated trucks, cold rooms and construction of canals
- Ready market for farm produce within and outside Belgium
- Supportive government policy to arable farming like giving

- loans, gazetting land, research
- Reclamation of land from the sea to increase acreage under crops
- Spraying with chemicals to control pests and diseases
- Application of fertilizers and manure to increase on land productivity
- Selective breeding to increase productivity in dairy and beef productivity
- Promotion of on-site processing to reduce post harvest losses
- Use of glass houses / green house technology to produce crops all year round.
- Dam construction to protect farms from sea invasions / floods and irrigation
- Continued research and development by universities and colleges
- Pollution control by promoting treatment recycling of wastes, treatment, dumping sites, providing agricultural land
- Formation of trade blocks e.g EU to widen the market for agricultural production
- Increasing agricultural land by removing land mines after major war to make land viable for farming
- Specialisation in the production of high yielding crops / livestock
- Availability of skilled labour force / hiring migrant labour to boost on production
- Expansion of the transport sector into the areas like roads, rail lines, air transport, waterways help in marketing and movement of people and goods.
- Limited land in both countries e.g. in Kenya population is concentrated on the coastal and Lake Victoria region while in Netherlands most of the land is below sea level hence causing pressure on land hence intensively used to feed the population.
- Presence of water supply from rivers and lakes e.g. Esel in the Netherlands used for irrigation.
- Gently sloping relief aiding in both countries and transportation of produce to market places.

- Low incidence of pests and diseases because of cool climate, using scientific methods, hybrids
- Availability of natural pasture for livestock because of fertile soils and wet climate
- Improved breeds of crops and animals leading to high production
- Improved technology e.g. in the Netherlands e.g. in the construction of glass houses which provide ideal temperatures for growing of crops throughout the year.
- Improved means of transport and communication
- Good / favourable government policies of agricultural modernization like extension of subsidies to farmers
- Improved research and education in high quality seeds and animals
- Political stability attracting workers, investors leading to high agricultural production
- Improved power supply and energy used in farms, industries, research, transport, storage
- Improved storage facilities and preservation reducing on wastes and maintaining good quality
- Specialization of farming practices leading to high production by farmers in cooperatives and the government
- Presence of co-operative societies which give loans to farmers and teaches them better farming methods,

3a. Account for the rapid destruction of forests in either the Congo Basin or the Amazon Basin.

Forestry is the scientific management of forests involving exploitation conservation. A forest is a conservation of trees of vegetation like natural forests growing according to physical conditions and artificial forests planted by man.

Forest destruction refers to destruction of forests and vegetation by physical and human factors. Congo basin are areas near river Congo and its tributaries in central Africa like DRC, Gabon, Central African Republic.

Amazon basin is found in South America near river Amazon and its tributaries covering countries like Brazil, Argentina, Uruguay, Paraguay. Forest destruction is mainly in urban areas, densely populated areas, dry areas, near transport routes, mining areas.

There are physical and human factors causing deforestation or environmental degradation.

- Population increase causing deforestation for settlement and agriculture in densely populated areas
e.g. Nigeria, China, India, Bangladesh, Rwanda, Burundi.
- Excessive lumbering for timber and other building materials in densely populated areas.
- Development of industries destroying forests for raw materials and causing pollution which leads to destruction of vegetation.
- Construction of transport routes like roads, railway lines, expansion of sports leading to destruction of forests and wetlands
- Fire outbreak caused by natural and human factors like shifting cultivators, nomadic pastoralists, smokers like in the Congo and Amazon basin,
- Climatic change causing drought desertification and aridity leading to global warming and discouraging the growth of vegetation
- Presence of pests and diseases destroying vegetation e.g. locusts, termites, ants, caterpillars and they discourage the planting of trees.
- Getting fuel like firewood and charcoal used for domestic and industrial purposes like rural areas in developing countries.
- Mining and quarrying using open cast method leading to the destruction of the landscape and vegetation
- Use of poor methods of farming causing soil exhaustion and discouraging the growth of vegetation
- Weakness of the government in implementing laws and regulations leading to illegal activities e.g. forest encroachment, bush burning, illegal lumbering.
- Political instabilities and insecurity leading to use of

- ammunition destroying the landscape and vegetation causing bush burning .
- Ignorance and backwardness about environmental matters causing bush burning, illegal lumbering, forest encroachment like peasants in rural areas, shift cultivators.
- Presence of wild animals destroying vegetation like elephants and herbivorous animals which cause overgrazing.
- Occurrence of landslides and mass wasting leading to destruction of landscape and vegetation through rock fall, rockslide, rock slump common in areas of mountainous areas and highlands.
- Corruption in the forestry departments and environmental conservation cooperation causing illegal lumbering, forest encroachment, excessive lumbering.
- Presence of wind system which causes dry conditions
- Occurrence of soil erosion in highlands, mountainous areas and desert areas causing soil exhaustion through gully, rill, sheet erosion.
- Presence of cold ocean currents leading to dry conditions in the surrounding areas.
- Presence of infertile soil discouraging the growth of vegetation.
- Drilling or construction of boreholes in dry areas, lowering the water table and discouraging the growth of vegetation.
- Distance from the sea leading to less effect and encouraging desertification
- Latitude like areas far from the equator less affected.
- Presence of relief features like highlands and mountains encouraging landslides, mass wasting and causing dry conditions in the leeward side.
- Presence of poor vegetation like herbs and shrubs leading to rainfall.
- Absence of water bodies leading to low rate of sea and land freeze causing dry conditions.
- Absence of cloud cover in the atmosphere causing excessive evaporation leading to high temperature range and dry conditions.

- Control of pests and diseases leading to destruction of forests for destroying the habitats like for mosquitoes, snails, tsetse flies.
- Occurrence of natural calamities and hazards like floods in lowlands and valleys, volcanic eruptions, earthquakes, destroying the landscape and vegetation.
- Land shortage especially in densely populated countries have resulted into reclamation of wetlands for cultivation and settlement.

(b) Explain the impact of deforestation on the environment in the area chosen in (a)above.

Effects of deforestation

- It leads to soil erosion e.g. sheet, rill causing soil exhaustion.
- It leads to reduction in rainfall, humidity causing climatic change, global warming, destruction of the ozone layer. Aridity and desertification Sahara, Namibia.
- Decline in tourism industry reducing on foreign exchange.
- It leads to pollution due to accumulation of carbon dioxide and reduction of oxygen, destruction of dumping sites, destruction of the Ozone layer e.g. in developed countries and urban centres.
- Reduction in human activities which depend on forestry like lumbering leading to shortage of timber and other building materials, unemployment, low economic growth and development (over exploitation of resources).
- It leads to siltation, segmentation and sedimentation and deposition of water bodies, affecting fishing, navigation and the water quality
- Occurrence of floods in lowlands and valleys causing destruction of people, property, transport routes, causing breeding grounds, drainage channels.
- Spread of pests and diseases like water borne and air born diseases e.g. Bilharzia, Dysentery, Cholera, flu, TB, cough.
- It leads to low life expectancy because of poor quality of life like in less developed countries.
- Development of tourism industry because of desert land forms

- like rock out crop sand dunes, Isenberg earning foreign exchange.
- Availability of land for settlement, agriculture, industrialization, in the areas which were covered by forests.
- Mining of sand which is used for building and construction like of houses, dams, transport routes.
- Promotion of quarrying from exposed rocks helping in getting murram, boulders, pebbles, stones used in building and construction.
- There is easy transport and communication like the construction of roads due to reduction in obstacles or barriers.
- Destruction of hiding places from criminals like rebels, smugglers, rapists leading to peace and security.
- Destruction of habitats for disease vectors reducing on the effects of pests and diseases like mosquitoes, tsetse flies.
- Development of industries which need a lot of space and space craft like in USA, industry making ammunition.
- Development of irrigation farming like growing fruits, vegetables, cotton like in Sudan and California.
- Development of arable farming like growing of cereal and annual crops which are drought resistant, sorghum, millet.
- Environmental protection like gazetting National parks, Game and Forest reserves.
- Development of livestock farming helping in providing animals productions.
- Promotion of sports and games for leisure and creation like car rallies, hunting, donkey and camel riding, filming.
- Provision of reserve areas for accommodating landless people like for resettlement skills like refugees.
- Development of art and craft industry by using desert vegetation like herbs and shrubs and using stones for decoration.

NB: The effects are mainly negative with some few positive.

4. Examine the impact of rapid industrial development on the environment in either the Ruhr region of Germany or China.

Approach:

- Candidates should select a case study.
- Define industrialization
- Give types and areas
- Explain effects – positive and negative

Industrialization is the use of raw materials into finished products using labour and capital.

Ruhr region of Germany found R. Ruhr, R. Lippe, R. Wupper with types like Engineering, Iron and Steel chemical electronics, Machinery, Food processing, Transport equipment, Towns like Dussburg, Essen, Bonchum, Duns Dolf Cologne, Wappetal Liverkusen Dortmund.

China is found in S E Monsoon Asia with high rate of industrial growth.

Types electronics, chemical, vehicle assembling, food processing, home appliances. Towns; Beijing, Tianjin, Shangai, Machura, Canton valley, Hong Kong.

Importance / effects of industrialization on the environment in R.C / Germany

Positive:-

- Provision of employment opportunities leading to high standards of living e.g. ship building, iron and steel rolling around Duisburg, Essen, Dortmund.
- Growth of urban centres because of high population promoting trade and improving social services e.g. Duisburg, Essen.
- Development of tourism industry because art and craft industries, visiting industries and use of high income around Ruhr conurbation.
- Promotion of education and research by visiting industries leading to acquisition of skills and improvement in science and technology.
- Foreign exchange by exporting industrial products like machines, vehicles.
- Resource exploitation through mining of coal, lumbering contributing to economic growth and development.
- Improvement in transport and communication like construction

- of roads, railway lines, canal e.g. Lepesite, Dortmund canal. Industries have helped in self sustenance by providing basic needs e.g. chemicals, clothes, processing food leading to economic development.
- Alternative land use around urban areas with limited land and resources for other activities.
- Economic diversification by creating other activities like mining, trade, transport and tourism reducing on dependency burden.
- Promotion of agriculture by providing equipment inputs.
- Improvement in social services like water supply, health facilities, power supply leading to high standards of living around industrial areas.
- Promotion of international relations and regional cooperation through export and import like USA, Japan, Britain.
- Capital accumulation through foreign exchange earnings, capital investment leading to high incomes.

Negative effects:-

- Pollution of air, water and land because of sewage and waste affecting plants and animals for example ship building at Duisburg, iron and steel rolling at Essen.
- Environment degradation through deforestation, swamp reclamation, destruction of the landscape through construction work e.g. around Essen, Duisburg.
- Destruction of the ozone layer by industrial gases containing chlorine and carbon contributing to global warming e.g. chemical industries, metal works.
- Limited land by occupying big areas displacing people and activities around the gazetted industrial areas.
- Urban problems because of high population leading to high costs of living around the Ruhr conurbation.
- Unemployment because of specialization and using capital intensive technology like using robots, lifts.
- Over exploitation of resources causing exhaustion like exposed coal near R. Ruhr.
- Promotion of accidents through machine cuts, accidents leading to destruction of people and property.

- Diversion of labour and capital into the industrial sector affecting other economic activities like agriculture.
- Regional imbalance causing economic problems like the Ruhr conurbation developing more than other areas in Germany e.g. East Germany.

5a. Describe the commercial methods of marine fishing.

Methods of fishing:

- **Drifting:** This is the use of drift nets which are hanged vertically in the sea like tennis with open end where the fish enters. It has floaters on top and sinkers at the bottom which help it in balancing. It is tied with a rope and pulled by a boat. It has locks for opening and closing. It is mostly used for getting pelagic fish which live near the surface of water like sardines, herrings mackerel. **Diagram**.
- **Trawling:** This is the use of trawl nets shaped like a bag with open end where the fish enters. It has sinkers at the bottom and floaters on top tied with a rope and pulled by a boat it has locks for opening and closing, it is mainly used for getting demersal fish which live at the bottom of the sea. It is mostly used in seas and oceans with smooth sea bed. It is used for getting big fish like tuna, cod, Halibut, Haddock, sharks, whales. **Diagram.**
- **Purse seining:** This is the use of seines tide with rope & pulled by two small boats it has open end where the fish enters, it has floaters on top & sinkers at the bottom helping it in balancing it is used for getting pelagic fish which live near surface of water like sardines, mackerel, Herrings. **Diagram.**
- **Long lining:** This is the use of hooks which are many in number like 500 on the hooks there are baits which attract fish the hook are tied with rope and pulled by boat. It is mostly used for getting big fish like tuna, cod, halibut, haddock, sharks, whale, mostly used in seas and oceans with rough sea bed(sea bed with obstacles) for commercial purpose. **Diagram.**

(b) Explain the problems facing fishing industry in either Peru or Norway.

Candidate should choose a case study.

Fishing is the exploitation of marine resources for commercial and subsistence purposes.

Peru is found south America in LDC Grounds in Pacific Ocean. Landing sites like Peruvian coast line, Clumbote Atics, Pisco, Mollendo, Trayfio lime Callao species Aruhones, Surdires, Henings, Markerel Cod, Tuna.

Norway a developed country in Europe grounds Atlantic Ocean, Mertoragean sea, North Sea sites Nantes Bergen Stransinger Brest Tramso species Haddock Pollack cod Tuna.

The problems of fishing are physical and human.

Problems of Peru include;

- Poor transport affecting marketing like port.
- Conflicts and tensions over boundaries.
- Poor government policies like high tax not giving loans.
- Reduction in guano used by farmers for fertilizers.
- Inadequate capital to purchase equipment causing low production.
- Pollution of water bodies by industries in urban settlement destroying fish and plantations.
- Accidents caused by strong waves obstacles destroying people and property.
- Competitions with other countries on world market and other land use patterns.
- Over fishing causing fish exhaustion like sharks, whales
- Presence of obstacles like rough sea bed limited continental shelf.
- Limited research affecting fish conservation.
- Poor species like surdires bonny fish not for commercial
- Presence of fish predators like sea birds, big fish.
- Warm tropical climate affects breeding; plantation growth and fish migration.
- Limited skilled labour leading to expatriates immigrant labour.
- Political instabilities, insecurity like corps causing destruction.
- Profit repatriation by foreign companies from Japan, USA.

- Fish smuggling and encroachment by neighboring countries like Japan.
- Presence of other resources, economic activities, diverting labour and capital.

Problems in Norway;

- Pollution by industries and coastal settlement
- Government policy of conservation like limiting sharks and whales
- Conflicts and tensions with neighbouring countries over boundaries
- Fish predation like shark, whales, coastal birds.
- Limited unskilled labour causing high cost for immigrants.
- Over exploitation causing fish exhaustion by modern methods
- Presence of other resource activities diverting labour and capital.
- Winter climate with snow and ice affecting labour and transport.
- Accidents by strong waves obstacles causing destruction.
- Poor species not good for commercial like sardines, bonny fish
- High transport costs during winter, highlands, mountains, forests, landforms.

6. Assess the factors which favoured the establishment of the Multi-Purpose River Project in either Ghana or USA.

River dam projects refer to the transformation of river water into social uses like power production, irrigation and flood control. Dams that perform more than one of the above are referred to as multi purpose in nature.

They have aims and objectives like; To control floods, pests and diseases, To help in land reclamation, Provide employment opportunities leading to economic growth and development, To help in economic diversification reducing dependence burden, To improve social services and infrastructure to improve standards of living.

River dam projects in USA:

- St. Lawrence seaway / Great lakes, Niagara falls, Ullis dam (H.E.P)
- In California around; R. Sacramento, R. San Joaquin and R.

Colorado. These include: Shasta dam, Delta modenta, Houver, Friant, Cachella.

- Tva around R. Mississippi, R. Ohio, R. Tennessee, Cumberland. States include: States of Mississippi, Tennessee, N. Carolina, S. Carolina, Kentucky, Ohio. Dams include; Nashville, Hutzerville, Pickwick, Chattanooga.

Ghana is a developing country found in West Africa. It has river dam projects like Akasombo, Buwic, Kapong which were developed by Kwame Nkrumah. They are found on river Volta around L. Volta central Ghana.

Factors are physical and human and they include;

- Seasonal floods on R. Volta which caused accidents led to pests and diseases leading to the development of Akasombo high dam.
- Presence of hard basement rocks composed of granite, quartz, murram soils providing a site for the construction of the dam.
- Presence of a narrow George covering which provided a good site for the damming of the river.
- Low and unreliable rainfall because of desert climate which encouraged the construction used in the dry season.
- Presence of extensive land because of sparse population giving enough area for the construction.
- Construction of the dams, canals, aqueducts.
- Presence rivers which provided water for domestic and industrial purposes and for irrigation.
- Relief which is steep and gentle leading to construction of the dam at the steep gradient and gentle slopes for water flow.
- Presence of natural resources like minerals, fertile soils, tourism potential which needed exploitation.
- Limited obstacles around Akasombo dam like relief features, drainage features, thick forests making development easy and cheap.
- Availability of labour both the skilled and unskilled to construct the dam.
- High levels of technology e.g. use of machines leading to

- improved skilled labour.
- Presence of positive and supportive government policy e.g. gazetting land, constructing roads, attracting foreign investors.
- Political stability and security attracting investors.
- Good international relations and regional cooperation which helps in marketing, getting loans.
- Presence of research stations for exploiting resources leading to sustainable development.
- Availability of wide market both internal and external like HEP.
- Improved transport and communication, constructing roads, railways helping in movement of workers.
- Nature of the population being hardworking, innovative, good planners, enterprising because of early utilization.
- Positive and supportive government policies like to control floods, pests and diseases, to provide HEP for domestic and industrial use
- There was need to improve navigation, to provide employment opportunities, to conserve the environment
- The availability of adequate capital for financing the construction, purchasing equipment, water reservoirs, canals, etc
- Improved science and technology associated with skilled labour
- Positive and supportive government policies
- Low population rate due to availability of land for constructing water reservoirs, canal.
- Limited resources like minerals and obstacles like relief features, vegetation making construction and development easy and cheap.
- Good international relationships help in marketing, getting labour from other countries

7. Discuss the factors for the growth and expansion of conurbations with reference to either South Africa or Great lakes.

A conurbation is formed by merging / amalgamation / combining / grouping / collection of two or more neighboring cities or towns.

Rand – this is found in the middle of S. Africa formed by towns

like Johannesburg, Pretoria, Germiston, Springs, Upington, Kimberly, Krugersdorp, Vereenenging around R. Limpopo in the mining areas of gold and diamond.

Great lakes – this is found in USA and Canada in North America around the Great Lakes e.g.

L. Huron, L. Superior, L. Michigan, Erie, Ontario. Formed by towns like Chicago, Duluth, Buffalo, Quebec, Montreal, Detroit, Ottawa, Toronto, Pittsburgh.

Characteristics / features:

- Has high population and dense population, improved infrastructure, Consists of several cities / towns merging together, Presence of a large population, Well developed communication lines like telephones, Gazette with varied administrative government units, Developed transport like roads, railway lines, ports, pipelines, Varied economic activities, Heterogeneous population (comprising of different races), Planned settlement like estates, Heavy traffic flows which cause delay during rush hours, They are hubs for technological advancement, Characterized by pollution with a lot of waste and sewage, High consumption of energy resources, water and industrial raw materials.

The factors are physical and human and they include the following;

- Presence of natural resources like Gold at Witwatersrand, diamond at Kimberly attracting many people for employment and investments.
- Extensive land gazetted for the construction of urban areas or urban development e.g. Pretoria, Johannesburg.
- Flat and gentle slopes forming an undulating landscape leading to easy transport, construction and drainage.
- Presence of water supply from R. Limpopo used for domestic, industrial purposes and for dumping wastes and sewage.
- Limited obstacles like relief, drainage features, landforms making construction easy and cheap.
- Strategic location around the mining areas near transport routes like roads, railway lines leading to easy connection with the

- coastal towns.
- Ice and forest free conditions attracting many people for settlement and cool temperatures leading to limited pests and diseases.
- Presence of hard rocks composed of granite quartz, giving a hard basement for the construction of buildings, transport routes.
- Presence of power supply used for domestic purposes, industrial development, mining activities and providing social services like using coal, natural gas and HEP.
- Positive and supportive government policies like gazetting areas using Pretoria as the capital city attracting investors.
- Political stability and security attracting investors, people for settlement, employment because of good governance.
- Improved transport and communication like the construction of roads, railway lines, telephone services leading to easy movement of goods, passengers and easy interaction.
- History, culture and traditions making it good for tourism and because of mineral revolution.
- Improved social services leading to increased standards of living like water and power supply.
- Presence of capital provided by the government private investors, used for economic activities, infrastructure, social services.
- Improved science and technology leading to availability of skilled labour for developing economic activities improving infrastructure and social services.
- Nature of the population being enterprising, innovative, hardworking leading to economic growth and development.
- Rich and productive hinterland with a lot of resources like minerals, forests, fish with many exports, imports, passengers.

(b) Explain the problems resulting from the growth of conurbations in the region chosen above.

- There are problems because of population increase and because of its physical expansion and the problems are physical and human.
- Congestion in terms of traffic and housing causing

- inconveniences and delays like in Johannesburg, Pretoria.
- Development of slums with poor living conditions like Soweto in Johannesburg.
- Pollution of air, water and land because of wastes from industries, urban settlements causing destruction of plants, animals and the Ozone layer.
- Increased crime rate and social problems like prostitution, drug addiction, robbery.
- Unemployment and under employment leading to low standard of living especially uneducated people and unskilled labour.
- Increased cost of living because of paying for basic needs like food, accommodation, health facilities causing poverty.
- Easy spread of diseases which are contagious because of poor sanitation and facilities.
- Increased government expenditure on the provision of social services and developing infrastructure.
- Limited land for expansion making land expensive.
- Encroachment of gazetted greens like national parks, game reserves, forest resources.
- Poor urban planning because of limited resources causing conflicts and tensions.
- Political instabilities and insecurity, strikes, demonstrations because of unemployed people being idle, limited facilities.
- Racial discrimination because of mixing different tribes and cultures i.e. the blacks, whites, Indians.
- Environmental degradation because of deforestation, swamp reclamation, destruction of the landscape causing destruction of plants and animals.
- Over exploitation of resources causing exhaustion of forests, minerals.

8(a) Describe the characteristics of trade in low developed countries.

Trade refers to exchange of goods and services. Internal or domestic trade is done within a country, external or foreign trade is done between different countries.

Types of traders; Retail traders, wholesalers, importers, multinational companies, exporters, hawkers.

Low developed countries are found in Africa, South America, parts of Asia, in the tropics, equatorial regions, sub sahara Africa.

Characteristics of trade in Ldc's include;

- Wood products like timber, plywood, wood pulp, Fish products like fish fillet, frozen fish, fresh fish, Agriculture products like coffee, vanilla, tea, coca, tobacco, Livestock products like hides, skins, goats, sheep, Industrial products like textile products, iron and steel, cement, Alcoholic drinks, Art and craft materials, Services through tourism, immigrants to other countries.
- Exports are mainly from the primary sector, Agricultural products, Few and limited, Poor quality and not processed, they earn low income
- Imports are mainly Textile products, Amnition (guns, grenade, tear gas), Vehicles from Japan, Auto parts or spare parts, electronics (China), alcoholic drinks like spirits, wine, Cosmetics (perfumes, lotions), Stationary and printing materials like books, Iron and steel, Computers and their accessories, Leather products (bags, shoes, belts)
- The Implications of trade in LDCs include; Balance of payment problems, Poor terms of trade, Unemployment because of few industries, Foreign debts because imports are more than exports, Economic dependence, Imported inflation, Dumping of foreign goods.

(b) Examine the factors hindering the development of trade and their future prospects with reference to either COMESA trade bloc or ECOWAS trade bloc.

COMESA (Common Market for Eastern and Southern Africa States) include countries like Uganda, Zambia, Zimbabwe, Tanzania, Rwanda, Kenya.

ECOWAS (Economic Community of West African States) include countries like Ghana, Nigeria, Ivory Coast, Mali, Togo, Liberia, etc.

- Problems are physical and human and almost the same
- Unfavoured trading balance i.e. where the exports are cheaper and imports are expensive leading to loss of foreign exchange.
- High tariffs i.e. clearance charges tend to be so high leading to limited foreign exchange earnings.
- Protectionism policies form different countries limiting free trade among the countries.
- Bureaucracy and logistical challenges such as clearance, insurance, storage, shipment, etc.
- Shortage of skilled manpower to handle international trade e.g. in handling international trade protocols, foreign exchange dealings, etc.
- Limited trade among developing countries due to production of similar goods (similar comparative advantage). Therefore the African countries find it difficult to trade with each other.
- Illegal trade / smuggling across international boundaries leading to loss of revenue.
- High cost of transport due to land lockedness e.g. Uganda, Rwanda, Burundi and other countries else where suffer such costs as they export and import through Mombasa to their respective countries.
- Poorly developed transport and communication networks. These expose the users to accidents, robbery and delays.
- Uncoordinated implementation of agreed on policies by trading partners. Thus limiting trading activities.
- Competition between trading countries.
- Dumping of goods which are substandard and unhealthy.
- Political instability and insecurity. This affects the trading activities.
- Differences in currency value which makes trading activities difficult.
- Language barrier, which makes business communication and interruption difficult and expensive since it may require hiring an interpreter.
- Differences in political ideology for instance Tanzania being socialist whereas Uganda and Kenya are capitalistic. This

- results into difficulties in making trading decisions.
- Choice of preference, different countries have different preferences when it comes to who should provide goods and services to them and where to sell their goods / services.
- Pandemics such as diseases that limit business interactions hence affecting international movement. For example, Covid 19 pandemic, Ebola, etc.
- Marketing problems because of price fluctuations affecting planning.
- Political instability and insecurity diversion of resources to defense destroying property.
- Competition between different traders leading to low prices.
- Poor entrepreneur skills causing mismanagement, poor planning.
- Limited capital leading to small scale business enterprises like hawkers.
- Poor transport and communication in rural and remote areas.
- Poor government policies like high taxes, not giving loans.
- Poor economic integration affecting joint investment causing competition.
- Conflicts and tensions of traders because of mismanagement.
- Presence of physical obstacles / barriers like water bodies, drainage features, forests.
- Corruption and embezzlement leading to poor services, mismanagement and diversion of public fund.
- Poor storage facilities causing wastage like food crops, perishable products.
- Profit repatriation by foreign investors causing capital outflow.
- Limited resources leading to limited economic activities.
- Poor marketing and advertisement by using the local media.
- Low levels of education leading to limited skilled labour and causing poor planning and management.
- Dumping of foreign goods affecting local infant industries.
- Hostile tribes and backward cultures scaring investors.
- Limited market because of low incomes, sparse population.

Future prospects

- They should acquire loans from financial institutions and development agencies for expanding businesses.
- They should improve on transport and communication like construction of roads, ports, telephone services.
- They should maintain political stability and surety in urban areas, promotion of economic integration like PTA, COMESA, AU.
- They are planning to train traders using workshops, seminars, courses.
- Should improve on marketing and advertisement like using the internet, trade shows, magazines.
- They should form government agencies and organizations like UMA, URA, UA, UNCCI, KACITA.
- They should gazette areas for markets, shopping centres, privatisation and economic liberalization attracting foreign investors.
- They should diversify trading activities reducing on dependency burden.
- The government should open more areas for more trade opportunities.
- Government should support by giving loans attracting investors, gazetting areas, tax holiday.
- They should fight corruption using government agencies, procurement companies, commissions of inquiry.
- They are planning to promote political stability between countries such as DRC, South Sudan, Somalia, etc
- They should encourage economic co-operation / integration / widen market
- The government should improve on transport network to ease transportation of goods.
- They should increase tariffs paid on imports and reducing tariffs paid on exports.
- They should encourage liberalisation of trade to allow many people participate in trade
- They should promote privatizing forex bearuals to ease

exchange of money

- Increasing research to expand market
- The government should set up more industries to add value to primary products
- They should establish more power stations to increase power supply
- They should improve technology especially online trading
- The government should promote trade fairs / exhibitions / shows both locally and internationally
- The government should acquire grants and loans from world bank, ADB, UDC, etc
- They should boost other sectors of the economy e.g. mining, fishing, etc
- The government should advertise export promotion agencies e.g. Uganda export promotion board
- Diversification of export items
- They should establish information portal for documentary and disseminating information
- They should encourage the training of traders on entrepreneurship skills / improving on skilled labour
- They should set up anti-smuggling units by URA
- They should promote monitoring of production of quality goods by Uganda National Bureau of Standards (UNBS)
- They should regulate importation of some goods through BUBU (Buy Uganda, Build Uganda)
- They should introduce new languages

9. Account for the increased development of the tourism industry for either Kenya or Switzerland.

Candidates are expected to select one country, identify the tourist attractions / resources and identify the tourist centres / resorts, Kenya has one of the most developed tourism sectors in East Africa.

It receives over one million visitors every year and it is the highest foreign exchange earner.

Major attractions include; the beautiful scenery which include snow

caped Mt. Kenya, Aberdare ranges, Mau escarpment, Elgon the rift valley.

Drainage features comprising of the rift valley lakes such as Nakuru with flamingos, Naivasha, Rivers like Tana, Athi, River Nzoa with ex-bow lakes, crater lakes, Indian Ocean with related coastal features, climate with hot beaches at Mombasa, Lamu, Malindi and cool climate of Kenya, highlands, historical sites like Fort Jesus, major tourist centres / towns Mombasa, Nakuru, Nairobi, Eldoret, etc.

Switzerland

The Swiss tourist industry is very well-developed and a major foreign exchange earner. Major attractions include; Relief i.e. Alpine region with snow capped mountains and glacial features such as the pyramidal peaks, the Swiss plateau. Drainage features such as Lake Geneva Constance and Rivers like Rhine Rhone vegetation comprising Alpine vegetation, varied climate, temperate, Mediterranean, montane, etc.

Main tourist centres; Basel, Zurich, St. Moritz, Lucerne, Bern, Davos, etc.

Factors may include the following: -

- Magnificent landform scenery like Alpine, Mountain ranges, dissected by rivers with snow capped peaks.
- Varied drainage features, rivers Rhine, Rhone in Switzerland, rivers like Athi, Tana for Kenya.
- Varied vegetation types comprising Alpine vegetation and in Kenya Savannah.
- Presence of many fauna in Switzerland, fox bears, birds and Kenya lions, elephants.
- Ideal climate winter and summer for various activities in Kenya, hot weather for sunbathing.
- Strategic location in the heart of Europe for Switzerland and Kenya in East Africa the countries can easily be reached.
- Vast land with a number of attractions.

Human factors: -

- Availability of large sums of capital for investment pay workers, among others.
- Availability of skilled labour to work in hotels, tour companies among others.
- Availability of efficient transport and communication network.
- Developed accommodation facilities, hotels of international standards making tourists feel at home.
- Favourable government policies of giving soft loans to investors in the tourist industry.
- Relative political stability supporting touring all year round.
- Effective and increased advertisement hence increased awareness of the attractions.
- Hospitality of the people in both countries very welcoming people.
- Availability of tour companies with a good tour package given to tourists e.g. accommodation and transport.
- Efficient banking services banks are spread all over the countries hence easy access to finance.
- High levels of technology for example the use of cable cars, sky lifts.
- Diversity in languages spoken e.g. Spanish, English, Italian, French, Germany makes people feel at home.
- Availability of a fluent class of people with high incomes therefore visit the different attractions.
- Swiss policy of neutrality gave people confidence hence continued to visit the country.
- Availability of headquarters of international organisations e.g. W.H.O, W.F.P, FIFA.
- Cultural diversity different ethnic groups of people.
- Historical sites.
- Art facts.

10.a) Causes of rampant famine / food crisis in Africa.

Famine refers to an acute shortage of food in a given region resulting into death starvation, hunger malnutrition, in Africa, some countries

suffer from periodic famine and others persistent countries like Chad, Mali, Somalia suffer from persistent Uganda, Kenya, Zimbabwe suffer periodic famine.

Natural / physical causes may include: -

- Unfavourable climatic changes which lead to limited water and rainfall.
- Rugged relief limits mechanisation farming to increase food production.
- Pests and diseases destroy crops e.g. maize weevils, banana wilt, cassava mosaic.
- Natural catastrophe e.g. floods hence destroying crops and kill animals.
- Poor breeds of cattle leading to low yields.
- Infertile sandy soils reduce crops yields limit growth of pasture.

Human factors:-

- Political instability destroys farmlands.
- Population pressure on land reducing available land hence fragmentation.
- Poor storage facilities yet out put is perishable hence cannot be stored.
- Colonial policies encouraged cash crop production instead of food crop production.
- Poor land tenure system reducing land for farming by absent landlords,
- Low levels of technology use of simple tools e.g. Hand hoe strikes.
- Low levels of research into better breeds of animal and crop varieties.
- Shortage of skilled labour due to low levels of education.
- Rural urban migration youth moved to towns e.g. Lagos.
- Unfavourable government policies e.g. lack of a national food policy.
- Laziness due to aid constantly.
- Conservatism and cultural backwardness.

- Inadequate capital to modernise production.
- Poorly developed transport and communication.

b) **Solutions consider the tense: -**

- Constant spraying to control pests and diseases.
- Improved storage facilities.
- Use of irrigation farming.
- Formation of cooperatives.
- Agricultural diversification.
- Application of fertilizers mainly organic.
- Use cross breeding.
- Research on better crop varieties which are a disease resistant.
- Provision of loans at lower interest rates.
- Land reforms to avail land to land less peasants.
- Training labour to acquire skills.
- Population control.

P250/3

1. **For any fieldwork study carried out as a group or an individual;**

(a) (i) **State the topic of study.**

Candidates are expected to state the topic of study, clearly showing WHAT was studied and WHERE the study took place. The topic should bear a geographical relationship.

(ii) **Outline the objectives of the study.**

Candidates are expected to identify the objectives of the study which should be;

- Related to the topic of study.
- Specific, measurable, achievable and time bound.

N.B:

Accepted phrases include;

- To find out.

- To identify
- To establish
- To examine

None accepted phrases include;

- To know
- To understand
- To learn
- To appreciate
- To see

(b) Draw an annotated sketch map/Landscape sketch/Line transect of the area studied and on it mark and name;

- (i) Physical features
- (ii) Human features

Candidates are expected to draw an annotated sketch map /landscape sketch /line transect.

The land scape sketch should have;

- Title
- Frame/boundary
- Key/labelling
- Physical features
- Human features

NB: Features on a land scape sketch should be presented in form of pictures.

For a sketch map it should have;

- A title
- Frame
- Direction
- Key/labelling
- Physical features
- Human features

NB: Features on a sketchmap should be presented in form of symbols.

For a line transect it should have;

- A title which should bear the direction e.g. from Bendegere hill in the north of Lake Victoria in the south.....

- Frame/boundary
 - Direction
 - Key/labelling
 - Shading
 - Direction on the horizontal axis
- NB:** Features should be presented using pictures for prominent features and arrows for linear features.
- (c) Describe any three methods you used to collect information from the field. Candidates are expected to describe methods used and should;
- Identify and define the method
 - Describe the method with the help of a tool
 - Give information obtained with illustrations/evidence/examples.
- NB:** Definitions should not be in past tense.
- (d) How did you organise the fieldwork?
- Candidates are expected to come up with the field work preparations/activities which include;
- Pilot study
 - Topic of study
 - Objectives
 - Methods
 - Tools
 - Literature review
 - Permission
 - Formation of groups
 - Briefing
 - Departure
- NB.** Candidates should present these activities using the following guidelines;
- The order of the activities especially the first five
 - They should be presented in past tense
 - The activities should be explained.
- (e) Explain the challenges faced during data collection.
- Candidates are expected to bring out the problems faced during data collection which include;

- Speedy respondents
- Abrupt weather changes e.g. rainfall, fog, mist, etc.
- Hostile respondents
- Language barrier
- Concealing/hiding of information
- Inadequate tools
- Faulty tools
- Inaccessibility
- Physical obstacles e.g. hills, forests, mountains, etc.
- Obsolete equipment
- Some areas are out of bounds.

NB: Problems must be stated in past tense.

- The problems faced can be attached to the method or not
- No information missed no mark at all.

(f) To what extent was your fieldwork geographical?

Candidates are expected to bring out the geographical relationships i.e.

- Physical to physical relationship
- Physical to human relationship
- Human to human relationship

NB: The relationship should be identified

- A candidate should bring out the place names of the features and their directions.
- The accountability should be brought out using connecting words such as favoured, promoted, encouraged, led to, because of and the reasons for the relationship should be brought out such as fertile soils, favourable climate, nature of relief and processes such as deforestation, erosion, etc.

(g) How did you conclude your fieldwork?

Candidates should come up with the follow-up activities such as;

- We assembled in class and discussed data collected.
- We presented data and compared it with each other
- There was data analysis
- We polished up sketches, tables and diagrams

- We drew conclusions
- We made recommendations
- We wrote a report
- The report was cross examined by the teacher
- There was dissemination of the report to the various stakeholders.

N.B: Activities should be described in past tense with some form of explanation.

- The order of activities does not matter
- Mere statements of activities not in past tense no mark at all.

2. (a) Explain the influence of faulting on drainage in Uganda.

Candidates are expected to bring out the influence of faulting on drainage in Uganda as;

- Definition of faulting
- Origin of faulting
- Influence of faulting on drainage
- Faulting is the process of breaking up or fracturing of the earth's crust that eventually leads to displacement of large blocks of land.
- This is caused by geo-chemical reactions and radio-activity that produce convective currents leading to very strong tensional and compressional forces.
- Faulting leads to formation of fault lakes such as lake Albert, lake Edward and lake George.
- Fault guided rivers such as river Aswa.
- Water falls such as Murchison falls
- Radial drainage systems with rivers such as Mpanga, Mubuku, Nyamwamba, Nyamusani, Rubona, etc.
- Down warped lakes such as Lake Victoria and lake Kyoga.

Candidates should illustrate with the use of diagrams.

(b) Assess the contribution drainage features to the development of Uganda.

Candidates should assess the contribution of drainage features such as lakes and swamps.

- They modified the climate of the surrounding areas
- They have promoted water transport e.g. Obongi to Lalopi on river Nile, Nakiwogo to Lutoboka on L. Victoria
- They are sources of water for domestic and industrial use e.g. L. Victoria is a source of water for areas like Kampala, also Mukono get water from L. Victoria pumped at Gabba and Katosi.
- They act as fishing grounds and therefore provide fish which is a source of food in form of proteins e.g. L. Victoria.
- They have promoted the mining industry because they are sources of minerals e.g. salt at l. Katwe.
- They have promoted agriculture by providing water for irrigation e.g. R. Sebwe for Mubuku irrigation scheme.
- They have promoted the art and craft industry by providing raw materials such as papyrus for example on the shores of Lake Victoria, R. Katonga etc.
- They act as tourist attractions by provision of activities such as boat riding, sport fishing, beach volley ball etc.
- They promote wildlife conservation through provision of habitats for aquatic animals like hippos, crocodiles e.g. on Kazinga Channel.
- They have promoted the growth of urban centres especially ports e.g. Port Bell, Junge port on L. Victoria.
- They have promoted international relationships among countries that share lakes e.g. L. Albert between Uganda and DRC.
- They act as natural resources or material filters such as swamps e.g. Lwera swamp on the shores of l. Victoria.
Candidates are expected to bring out negative contributions of the drainage features as;
- They often cause seasonal flooding especially the wet season leading to destruction of man and his property e.g. R. Nyamwamba, R. Nyamusani, R. Sironko, R. Manafwa, L. Victoria.
- The swampy vegetation around rivers and lakes harbour vectors of diseases e.g. R. Katonga, L. Kyoga
- Water falls, rapids and gorges long rivers hinder navigation e.g.

R. Nile

- Rivers and lakes contain dangerous wild animals which lead to death of man e.g. L. Kyoga, R. Kafu.
- Rivers, lakes and swamps make construction of transport routes difficult e.g. roads and railway lines e.g. R. Katonga, L. Victoria.
- Rivers and lakes cause accidents due to fast flowing water currents which sweep away small water vessels such as canoes on L. Victoria, R. Nile.
- They have led to urbanisation and their associated problems of high crime rate, prostitution etc.
- The shared drainage features such as L. Victoria, Albert have led to conflicts among the countries e.g. Mizingo island between Uganda and Kenya on L. Victoria.
- They have also promoted smuggling between countries that share these drainage features e.g. R. Malaba, L. Victoria. L. Albert.

3. Examine the causes and effects of rural urban migration.

Candidates are expected to define the term rural urban migration as the movement of people from villages/rural areas to urban centres/towns.

Candidates should bring out examples of rural urban migration e.g. People move from;

- Rural areas of Kotido to Kampala capital city.
- Rural areas of Gulu-to-Gulu city
- Rural areas of Mukono to Kampala
- Rural areas of Mbale-to-Mbale city
- Rural areas of Masaka-to-Masaka city
- Rural areas of Kabale to Kabale city

Candidates are expected to draw a sketch map of Uganda showing rural – urban migration Candidates are expected to bring out the causes of rural-urban migration as;

- Generation of employment opportunities in urban areas e.g. Kampala, Wakiso.
- Occurrence of natural calamities such as floods, landslides which force people to run to towns

- e.g. landslides in Bududa led to people moving to Mbale town.
- Land shortages in rural areas due to high population growth rates e.g. from rural areas of Luwero to Kampala capital city.
- Political stability and insecurity in rural areas forcing people to migrate to urban centres.
- Better infrastructural services in urban centres e.g. hospitals, electricity, recreative centres.
- Maintenance of family ties where some people living in urban areas encourage people in rural areas to move to towns.
- Hostile cultural practices such as circumcision among the Bagisu.
- Mining activities that attract people from rural areas to mining centres
- Fishing activities attracting people to move from rural areas to landing sites.
- Social misfit of some people in rural areas such as murderers, rapists forcing them to move to urban centres
- Social conflicts in rural areas for example land wrangles which force people to leave rural areas and move to urban centres.
- Band wagon effect /peer influence attracting people from rural areas e.g. from rural areas of Masaka to Kampala capital city.

Candidates are expected to bring out effects of rural urban migration which include both positive and negative effects on the recipient and donor areas i.e. Rural and urban.

Positive effects on the recipient (Town).

- It has increased cheap supply of labour in urban centres.
- It has increased the market size for products in urban centres
- Increased urbanisation as a result of increase in population.
- It has encouraged creativity and innovativeness in urban areas
- It has increased government revenue through taxation
- It stimulates provision of social services e.g. Water, electricity due to movement of people to urban centres.

Negative effects.

- It has resulted into environmental degradation as a result of many industries in urban centres.

- It has led to unemployment in urban areas
- It has led to increased government expenditure in urban areas
- It has led to easy spread of diseases
- It has resulted into high crime rate in urban areas
- It has led to shortage of accommodation and growth of slums in urban areas like Kampala, Jinja, Masaka etc.
- It has led to increased pressure on existing social and economic infrastructure such as roads, hospitals, schools, etc.
- It has led to insecurity in urban areas as people struggle for survival.
- It has led to shortage of food due to high dependence ratio in urban areas.
- It has led to congestion and traffic jams in urban centres such as Kampala
- It has led to increased cost of living due to high demand for goods in urban areas like Kampala, Jinja etc.

Effects to areas of origin/ donor /rural areas.

- Rural urban migration has reduced pressure on land hence expanding land for agriculture in rural areas
- The income received in urban areas is used to develop rural areas
- It reduces social conflicts in rural areas due to movement of people from rural areas.
- It has led to reduction and loss of capable labour force in rural areas
- It has disrupted social setup and family structure due to splitting of family members.
- It has reduced market for goods and services like transport, medical care in rural areas due to reduced rural population e.g. in rural areas of Kayunga, Kamuli and Mbale.

- 4. Assess the contribution of internal and external trade to the development of Uganda. Candidates are expected to come up with the current status of Uganda's trade as;**
- There is low volume of exports
 - Prices of exports are low and fluctuating

- Uganda's exports are mainly semi processed/low value-added exports
- Uganda imports more than it exports
- Exports are mainly agricultural products
- Few services are exploited e.g. doctors, maids
- Few industrial products are exported
- Imports are mainly manufactured goods
- Uganda imports more skilled personnel in form of expatriates in banking insurance and telecommunication
- It involves foreign currency exchange
- It involves import and export duties

Candidates are expected to draw a sketch map of Uganda showing tradable items such as tea, fish, coffee, cement, electricity, flowers.

Candidates are expected to give the positive and negative contributions of trade as;

- Source of foreign exchange through exportation of products to foreign countries such as tea from Kasaku tea estate to Kenya, Russia, USA.
- Source of government revenue
- Source of employment opportunities in form of traders, transporters, revenue officers enabling them to earn income and improve on their standards of living
- Trade has encouraged diversification of the economy which has reduced on over dependence of agriculture.
- It has led to development of infrastructure such as roads, railway lines to help trade activities
- It has promoted research, tourism and education
- It has promoted internal relations between Uganda and trade partners for example USA for coffee, Netherlands for flowers, Dubai for electronics
- It has encouraged industrialisation through providing market for various industrial products for example cement from Tororo.
- It has led to urbanisation where trading activities have attracted many people in areas leading to growth of towns e.g. Kampala, Mbale, etc.

- Trade has encouraged full utilisation of natural resources to meet the increased demand for example fisheries resources in L. Victoria for fish products exported to China.
- It has encouraged provision of a variety of companies in Uganda through importation of those commodities which are not locally produced e.g. Electronics, phones, computers from China, USA, etc.

Candidates are expected to bring out the negative contribution of trade in Uganda as;

- It has encouraged profit repatriation by foreign owned businesses leading to low rates of investment.
- It has encouraged smuggling of products across borders leading to low revenue generated e.g. sugar, beer, bread, etc
- It has led to over exploitation of natural resources to maximise profits e.g. trees from Mabira for charcoal trading.
- It has led to shortage of goods in domestic markets due to high profits realised from exportation of some goods
- It has led to decline in market for locally produced goods due to competition with foreign products
- It has led to urbanisation with related problems such as high rates of crimes, prostitution, unemployment, etc.
- It has led to environmental degradation such as deforestation, swamp destruction due to set up businesses.
- Trade has led to air and water pollution due to dumping of waste products.
- It has led to withdrawal of labour from other sectors e.g. agriculture
- It has increased government expenditure on provision of social and economic infrastructure to facilitate trade.

5. To what extent is wildlife a basis for the development of the tourist industry in Uganda? Candidates are expected to give the current states of the tourist industry as;

- It is one of the leading foreign exchange earner for Uganda
- It accounts for 1.5 million tourists per year
- It employs a sizeable number of people of about 700,000 people.

- It contributes about 7.7% the GDP.
- Uganda was valued as the leading tourist destination in 2017
- Wildlife is the major tourist attraction for Uganda
- The number of national parks has increased from 4 to 10.

Candidates are expected to draw a sketch map of Uganda showing major tourist attractions e.g.

- NPS, Wildlife Reserves, Zoos, Sanctuaries,
- Lakes, Rivers, Wetlands
- Historical sites
- Relief features e.g. hills, mountains, valleys
- Equator
- Forests

Wildlife as the basis for the tourist industry in Uganda

- Tourists want to see wildlife in the natural settings or habitats leading to the development of tourist activities like bird watching in Queen Elizabeth national park and gorilla tracking in Bwindi impenetrable national park.
- Tourists are interested in going for game sports like hunting and sport fishing thus encouraging them to go to Kazinga Channel in Queen Elizabeth national park.
- Tourists who are interested in research on ecological system use wildlife at Queen Elizabeth national park and Murchison falls national park for their research for example at the institute of ecology at Katwe.
- Wildlife provides camping sites for tourists for example in mountain Rwenzori national park and mountain Elgon national park for the tourists who love adventure.
- Wildlife provides special dishes in form of mushroom, antelopes among others that attract tourists to Mgahinga national park and Bwindi impenetrable national parks.
- Wildlife like animals and birds from Queen Elizabeth national park and Murchison falls national park provide a basis for advertising different brands like the Uganda cranes, and beers among others.
- Some business-oriented tourists engage in buying and selling of

products from wild life for example ivory from elephants in Murchison falls national park.

- Wildlife helps in maintaining the ecological balance which encourages various tourist activities in Queen Elizabeth national park and Murchison falls national park.

However, there are other factors that have led to the development of tourism sector in Uganda.

Physical factors:

- The presence of varied relief features such as mountain Rwenzori with its snowcapped peak Magherita which encourages tourist activities like mountain climbing, the rift valley with associated features like Butiaba escarpment.
- The presence of varied climatic conditions for example the equatorial climate in areas near the equator such as Entebbe, Ssese island and Masaka has encouraged tourist activities like sun bathing at Jinja, Entebbe and Ggaba beach around Lake Victoria.
- The presence of varied drainage features for example Lake Victoria the largest in Africa with beautiful beaches like Nabugabo and Ggaba beach which encourage activities like sport fishing and sun bathing.
- The presence of the equator crossing points signifying that Uganda experiences tropical climate like at Kayabwe/ Nabusanke along Kampala – Masaka road, the equator island at Entebbe and Kikorongo in Kasese.

Human factors:

- The presence of many impressive historical sites which attract tourists for research and education such as Kasubi Tombs, Fort Stanley in Kalangala, Fort Patiko In Gulu, Nyero rock paintings in Kumi.
- The presence of various climatic practices which attract tourists for leisure such as larakarakaa and dinging dance among the Acholi of Gulu, Ntgoro dance among the Banyoro of Hoima and the Karamojong way of dressing in Kaabong.
- The availability of improved transport network for tourists to

- access various tourist attractions for example Kampala – Masaka – Mbarara road tourists visiting Lake Mburo national park, Kampala – Jinja to Mabira Forest and source of the Nile.
- Supportive government policy for example constructing the supportive infrastructure like roads connecting to tourist attraction, liberalisation of the tourist industry and establishing the Uganda wildlife authority has encouraged the development of tourist attractions like Queen Elizabeth national park.
- The relative political stability has encouraged investment in the tourist industry and attract tourists to visit tourist centres like Queen Elizabeth national park and lake Victoria.
- Introduction of tourist courses in the higher institutions of learning like Makerere university has produced skilled labour in form of game wardens and tour guides, and receptionists in tourist centres like Queen Elizabeth national park, Lake Victoria and Mabira forest.
- Improved advertising being conducted by the Uganda Tourist Board (UTB) has created awareness about the available tourist attractions in Uganda such as Queen Elizabeth national park. Lake Victoria, Mabira Forest and mountain Rwenzori.
- Availability of improved accommodation facilities for the foreign tourists for example Mweya Safari lodge in Queen Elizabeth national park, serena hotel in Kampala.
- Hospitality of the people of Uganda encouraging interaction between the local people and foreigners visiting Queen Elizabeth national park, Lake Victoria, Mabira Forest and Mountain Rwenzori.
- Improvement in research concerning protection of wildlife which acts as tourist attractions in national parks such as Queen Elizabeth national park and Murchison falls national park.
- Promotion of community tourism where tourists come to experience the way of life of certain communities for example the Batwa on the fringes of Bwindi national park in Kanungu district.

6.(a) Describe the characteristics of livestock farming in Uganda. Candidates are expected to come up with the definition of livestock

farming as;

- The keeping/rearing of animals such as cows, goats, pigs, rabbits, poultry for subsistence and for commercial purposes. Candidates are expected to identify the types / forms of livestock farming in Uganda which include;
- Nomadic pastoralism. Practised in areas like Kotido, Moroto, Kaabong, Nakasongola, Isingiro, Lyantonde, Kasese, Sembabule etc.
- Dairy farming: practised in areas like Kampala, Bushenyi, Kabale, Masaka, Jinja, Mbale, Mpigi, Wakiso, Mityana etc.
- Ranching system found in areas like Masaka, Nakasongola, Mbarara, Rukingiri, Gulu, Soroti, Kiruhura, Mpigi, Bushenyi, etc
- Zero grazing found in areas like Mbale, Kapchorwa, Kampala, Soroti, Nebbi, Kasese, Bududa, Luwero, Kabarole, Bushenyi, Hoima, Masindi, etc
- Piggery found in areas like Soroti, Gulu, Arua, Kampala, Wakiso, Masaka, Bushenyi, Mbale, Kasese, etc
- Poultry found in areas like Kampala, Bushenyi, Kabale, Kasese, Mukono, Jinja, Mbale, Arua, Tororo, etc.

Candidates are expected to draw a sketch map of Uganda showing forms/types of livestock farming.

NB:

- Mere identification of any 3 forms of livestock farming with place names = 3 marks.
- Mere identification of any 3 forms of livestock farming without place names = 00 marks
- Identification of forms of livestock farming on a sketch map = 5 marks.

Candidates are expected to describe the characteristics of each type/form of livestock farming in Uganda which include;

Nomadic pastoralism.

- Animal grazing is done communally since land is communally owned.
- Bush burning is a common practice during dry season to allow

- growth of new pastures at the beginning of wet season.
- Pastoralists rear animals while moving from one place to another for pastures and water/no permanent settlements.
- Pastoralists depend on their livestock for food in form of milk, blood and meat/animals kept for subsistence.
- Family labour is commonly used looking after the animals kept.
- Large herds of cattle are kept as security against famine and cultural obligation like bride price.
- Traditional methods of animals rearing are commonly used since local breeds of animals are kept.
- Today, there is exchanging of cattle for other goods like food stuffs, guns, bicycles, etc.
- Local breeds of animals are mainly kept because they are drought resistant and can be able to move long distances.

Characteristics of dairy farming:

- Animals are mainly kept for production of milk and its products like cheese, yoghurt, etc.
- Scientific methods of animals rearing are employed like spraying, cross breeding, artificial insemination, etc.
- Animals are mainly kept near the source of water like wells, valley dams, swamp areas.
- Animals kept on the farms mainly produce milk for market / commercial purposes.
- Improved breeds of animals /exotic breeds are mainly kept for milk production like the fresians, borans etc.
- Improved pastures like exotic elephants, grass, silage is mainly used on the farms.
- Controlled number of animals are kept in relation to the size of land.
- Land is usually privately owned since the type of farming is capital intensive.
- Some dairy farms have got milk processing plants established.
- It requires highly experienced labour for taking care of animals e.g. milking animals on time, etc
- It is capital intensive i.e. requires large sums of capital to establish and maintain the farm.

- Records are strictly kept on the farm based on milk production.

Characteristics of ranching;

- Animals kept are mainly local and improved breeds like the borans, fresians, etc.
- Scientific methods of animal rearing are employed on the ranches like spraying, cross breeding etc.
- Rotational grazing is practiced in paddocks on the farms (ranches)
- Controlled number of animals are kept on the ranch depending on the carrying capacity of the land.
- There is permanent supply of water on the ranch like valley dams, wells, bore halls, river streams, etc.
- It is carried out on large pieces of land for easy establishment of paddocks
- Animals kept on the ranches are mainly for beef (meat) production
- Record keeping on the ranches is also highly done.
- Skilled labour is highly employed in managing the activities on the ranches like milking, disease control, etc.
- It is capital intensive since it requires large sums of funds to maintain the ranches.

Characteristics of zero grazing;

- Animals are confined/kept in one place
- Pastures and water are just brought/taken to the animals since animals are confined in one place.
- Both local and improved breeds are kept for subsistence and for commercial purposes
- There is use of scientific methods of animal rearing like dipping, spraying, etc
- Family labour is mainly used in looking after the animals kept
- Animals are kept on small scale for easy management.

Characteristics of piggery;

- Both local and improved breeds are kept
- Scientific methods commonly used like deworming, disease control, etc

- Local feeds are supplemented by improved feeds like maize bran, etc
- Family labour is commonly used in maintaining the farm
- Pigs are mainly confined in a small place for easy management
- Animals (pigs) are mainly kept for commercial purposes.
- Quick maturing pig varieties are mainly kept.

Characteristics of poultry farming;

- It is mainly engaged with the keeping of birds especially chicken.
- There is use of scientific methods like deworming, immunisation against diseases, etc.
- Chicken is kept in large numbers for market especially layers for eggs, broilers for meat and croilers for both.
- Local feeds is supplemented by improved feeds for proper growth and laying of eggs.
- Poultry keeping is for both subsistence and for commercial purposes.
- It involves keeping of both local and improved breeds like layers, broilers, croilers, etc.
- Family labour is mainly used in looking after the birds (chicken)
- Record keeping,

N.B. Consider any 3 forms of livestock. Farming and only 2 characteristics from each form. There should be a brief explanation of the characteristics.

(b) Assess the contribution of livestock farming to the development of Uganda. Candidates are expected to come up with the contributions of the agricultural sector to the development of Uganda which should be both positive and negative.

Positive contributions include;

- It has led to the provision of employment opportunities to the people which has improved on their standards of living e.g. At Jesa dairy farm in Busunju.
- It has contributed to foreign exchange earnings through exportation of agricultural products e.g. Milk from Jesa dairy

farm in Busunju, Beatrice's dairy farm in Kabale.

- It acts as a source of food to the people of Uganda which has helped in improving their diet e.g. milk from Beatrice's dairy farm in Kabale,jesa dairy farm in Busunju among others.
- It is a source of government revenue through taxes levied on farmers' income and issuing licences to agriculture processing factories e.g. at Jesa dairy farm in Busunju, Beatrice's dairy farm in Kabale.
- It has led to development/establishment of agro-based industries through provision of raw materials e.g. cattle rearing in Mbarara led to establishment of G.B.K milk processing plant.
- It has led to the development of transport routes due to the need to facilitate easy transportation of agricultural products to the market centers for example Kampala – Masaka – Mbarara highway for easy transportation of milk to Kampala, Masaka, Mukono among others.
- It has promoted tourism/education/research since agriculture farms act as tourist attractions and are used for research purposes e.g. jesu dairy farm at Busunju.
- It has encouraged diversification of Uganda's economy which has reduced over dependence on other sectors like mining, fishing etc and has also widened the government's taxable base e.g. Jesa dairy farm in Busunju, cattle rearing in Mbarara, etc.
- It has promoted the development of urban centres where livestock is sold for example Bukedea for cattle, goats and chicken.
- It has promoted international relationships between Uganda and countries like Kenya, Rwanda, DRC and South Sudan because of the exportation of livestock products.

Negative contributions may include;

- It has encouraged pollution of the environment due to establishment of agro-based industries e.g. G.B.K milk processing plant in Mbarara.
- It has encouraged the spread of diseases especially where there is animal rearing like cattle in Mbarara, Kotido, Moroto, etc.
- It has contributed to increased accidents during processing and

transportation of products from the farms to the processing centres as well as to the market centres.

- It has contributed to displacement of people due to the need to establish and expand agriculture farms e.g. Jesa dairy farm at Busunju.
- Some livestock like cattle, goats, sheep, destroy people's crops e.g. In Soroti, Kumi hence causing tribal conflicts.
- It also accounts for soil degradation due to over grazing e.g. the cattle, sheep, goat rearing in Moroto, Nakapiripiti, Abim, etc.

NB. Points should be well explained and illustrated with a name of a type of animal reared plus the place.

7. To what extent has the low level of technology hindered exploitation of forest resources in Uganda?

Candidates are expected to come up with the current status of the forest sector in Uganda.

- Afforestation and re-afforestation programmes are being undertaken.
- There is high rate of deforestation.
- About 23.6% of the forests are gazetted while 69% are not gazetted
- The forest sector is run under NFA (National Forestry Authority)

Candidates are expected to identify the categories of forests such as;

Tropical low land forests such as Budongo, Bugoma, Kabale, Mabira, Zoka, Kalinzu, Maramagambo, Malabigambo, etc.

Riverine forests such as along R. Nile, R. Kafu, R. Katonga.

Planted forests such as Mafuga, Abera, Lendu, Kateera, Kasojobha, Kitomi, Muko, etc. Savana forests such as Mt. Kei, Otze, Murangole.

Candidates are expected to identify these forests on a sketch map.

Candidates are expected to come up with the extent to which low levels of technology have hindered forest exploitation in Uganda such as;

- Use of local tools to cut down trees such as hand saws, pangas.
- Limited technology to detect illegal encroachers.

- Use of ropes to hug trees especially for non-fenced forests.
- Local processing plants which are not capable to change saw dust into ply wood
- Poor technology used in falling trees which destroy the young ones.

Candidates are expected to bring out other factors hindering forest exploitation such as;

- The scattered valuable species making exploitation hard e.g. in Mabira.
- Presence of wild animals /venin's which scare away exploiters.
- Natural barriers such as water falls, wetlands that cut off other forested areas.
- Pests and diseases which scare away forest exploiters.
- Inadequate capital needed to invest in the forestry sector.
- Uncontrolled fires which destroy large areas of forests.
- Competition from other land users such as agriculture, tourism settlement
- Unfavourable government policies which do not favour forestry.
- Limited market for forestry products such as hard wood tree species.
- Political instability /insecurity in forested areas.
- Land tenure systems especially if forests are owned by private individuals.
- Dampness in the forests as a result of heavy rainfall.
- Profit repatriation as some of the forests are owned by foreign investors.
- Corruption and embezzlement of funds by officers in the forestry department.
- Remoteness of the forests such as Semuliki, Murangole
- Inadequate power supply in the forested areas.

8. (a) Outline the challenges of developing the energy sector in Uganda.

Current status:

- The sector is developing.
- There is increased use of solar energy especially in rural areas.

- There is rural electrification going on.
- There has been discovery of oil.
- Biomass is a very popular source.

Candidates should identify the sources of energy e.g.

- H.E.P on rivers like Nile.
- Thermal /oil at Namanve.
- Biogas in Mbarara, Wakiso.
- Solar in Wakiso, Kampala e.t.c.
- Gas – imported.
- Wind energy e.g. in Moroto, Kotido, Kaabong.
- H.E.P is the major source for industries and urban population e.t.c.

A sketchmap of Uganda showing the distribution of energy sources

Candidates should explain the negative effects of the energy sector e.g:

- It has led to accidents.
- Displacement of people.
- Destruction of vegetation cover.
- Pollution of the environment.
- Urban related problems.
- Profit repatriation.
- It has led to competition with other sectors of the economy.
- Regional imbalance.
- High costs of production.

(b) Candidates should come with the steps being taken to improve the energy sector in Uganda.

- Promoting rural electrification programme e.g. in Bundibugyo, Ssembabule.
- There is construction of new hydro-electric power stations e.g. Isimba hydro-electric power plant in Kayunga.
- Research is being carried out to develop other sources of energy.
- The energy sector is being liberalized/privatized e.g. Tronter power firm from Norway.
- There is diversification of the energy sources to supplement hydro-electric power e.g. use of solar energy in Kampala.

- Government is ensuring security in order to promote investment in the energy sector.
- There is sensitization on the sustainable use of energy resources.
- Modern technology is being imported to facilitate the generation and distribution of energy.
- Capital is being acquired from financial institutions.
- There is training of man power to facilitate the effective exploitation of energy resources in Uganda.
- There is fighting illegal connection.
- There is improvement of transport routes to facilitate the transportation of energy resources.
- Promotion of the use of prepaid meters by UMEME.

9. Candidates are expected to define irrigation farming as a form of farming where water is artificially applied to the field especially in areas which receive low and unreliable rainfall.

Candidates can then bring up the major examples if irrigation farming schemes in Uganda for example.

- Mubuku irrigation scheme in Kasese
- Kiige irrigation scheme in Kamuli
- Labori irrigation scheme in Serere
- Ongom irrigation scheme in Lira
- Atera irrigation scheme in Apac
- Agoro irrigation scheme in Kitgum
- Kibimba irrigation scheme in Bugiri
- Olweny irrigation scheme in Dokolo
- Doho irrigation scheme in Butaleja
- Kakira sugar plantation in Jinja
- Lugazi sugar plantation in Buikwe
- Zhong Rice scheme in Lukaya – Masaka.

Candidates are expected to come up with the positive contributions of irrigation farming for example.

- Source of employment opportunities for example drivers, seeds, etc on Doho irrigation scheme in Butalejja.

- Training skills for example at Olweny in Dokolo, Kiige in Kamuli etc.
- Avails food to the people for example Kakira Sugar plantation in Jinja etc.
- It is a source of foreign exchange i.e. when goods are sold to outside countries for example Kibimba in Bugiri etc.
- Facilitates the growth of industries that process agricultural products for example Kakira Sugar plantation in Jinja etc.
- Reduces the risks of crop failure due to drought e.g. at Ongom irrigation scheme in Lira, Mubuku in Kasese etc.
- Creates market for irrigation equipment for example water pumps at Kiige irrigation scheme in Kamuli etc.
- Enables infrastructural development for example roads, schools, hospitals etc. at Kakira Sugar plantation in Jinja, Kibimba rice schemes in Bugiri etc.
- Urbanisation and related advantages of employment at Mubuku in Kasese.
- Promotes research / education / Tourism for example at Kakira Sugar plantation in Jinja, Mubuku in Kasese etc
- Source of revenue in taxes paid to the government for example Doho scheme in Butalejja etc.
- Promotes international relationship especially with countries where goods are sold e.g Kibimba rice scheme in Bugiri, Olweny in Dokolo etc.
- Enables the diversification of the economy e.g from tourism to agriculture by Mubuku scheme in Kasese.
- Makes use of land that would otherwise remain unutilized.

NOTE: Candidates must explain and illustrate their points with the name of an irrigation scheme and place.

Candidates can then bring up the negative contributions for example.

- Leads to displacement of people in the process of expanding of farms for example Kakira sugar plantation in Jinja.
- Encourage the cutting down of trees in the process of growing crops for example Doho scheme in Butalejja.

Increases the risks of disease spread especially the people who work in flooded water of Bilharzia, mosquitoes causing e.g in Kibimba rice scheme in Bugiri.

- Encourage rural-urban migration for people intending to get jobs at Kakira sugar plantation in Jinja etc
- Specialisation in a particular crop is affected by price fluctuations on the world market for example Kibimba rice scheme in Bugiri etc.
- There is contamination of the water that is used by other people during the spraying of pests and diseases e.g. at Mubuku irrigation scheme in Kasere etc.
- Monoculture leads to soil deterioration for example at Doho scheme.
- Has led to profit repatriation e.g at Kakira sugar plantation in Jinja.
- Brings about urbanization and its problems e.g Kakira in Jinja.

N.B: Points should be explained and illustrated with the names of irrigation schemes.

9.What measures are being taken to control environmental degradation in Uganda?

Candidates are expected to define the term environmental degradation as the decline in the productive value of the available renewable and non-renewable resources.

Areas experiencing environmental degradation/degraded areas in Uganda. These include;

- Eroded areas e.g. Bududa, Mbale, Sironko, Kabale, Kisoro, Bundibugyo etc.
- Deforested areas e.g. Kyenjojo, Buikwe, Hoima etc.
- Over grazed areas e.g. Kotido, Moroto, Kiruhura, Nakasongola etc.
- Polluted areas e.g. Kampala, Jinja, Wakiso, Mbale, Gulu etc.
- Soil exhausted areas e.g. Kasaku, Kyamuhunga, Kyenjojo etc.
- Over fished areas e.g. L. Victoria, Lake Kyoga etc.
- Mined/quarried areas e.g. Kajjansi, Kamonkoli, Kilembe, Lwera

etc.

Draw a sketch map of Uganda showing areas experiencing environmental degradation.

Candidates are expected to bring out measures being taken to control the problem of environmental degradation in Uganda.

These may include;

- Afforestation and re-afforestation which is the planting of trees is being done to control soil erosion e.g. Mubende, Ntungamo, Kabale etc.
- Paddocking and rotational grazing is being done to control overgrazing e.g. Kiruhura, Sembabule etc.
- Use of organic manure is being carried out to increase soil fertility e.g. Wakiso, Mukono etc.
- Using cut and fill method in mining/quarrying to cover the ditches/pits left by mining e.g. Kilembe mines.
- Treating of industrial toxic wastes before disposal is being done e.g. Uganda Breweries at Luzira.
- Terracing is being used on steep slopes to control the speed of water in order to control soil erosion e.g. Kabale, Kisoro, Rubanda etc.
- Eviction of encroachers on wetlands is being done by NEMA to restore wetlands e.g. Bushenyi, Kabale, Gaba, Lubigi etc.
- Laws/by-laws are being instituted to control bush burning, deforestation and wetland draining e.g. Rubanda, Wakiso, and Kotido etc.
- Sensitization of masses is being done to create awareness for forest, swamp and land conservation e.g. Moroto, Kabale, Kiruhura etc.
- Recycling of wastes is being done to control pollution e.g. recycling of plastics in Kampala, Mbarara, and Jinja etc.
- Strip cropping is being done to control soil erosion. This involves cultivation a strip around the hill, leaving another strip with grass e.g. grass separating cultivated strips e.g. Kisoro.
- Contour ploughing is being done to control soil erosion. This involves cultivation along a contour in a hill separated by

- trenches to reduce the speed of water e.g. Kabale, Rubanda.
- Mulching is being done to conserve soil moisture. This involves covering soil with plant material e.g. Wakiso, Mpigi etc.
- Crop rotation is being done to prevent soil exhaustion. It involves sub-dividing the plot and changing the crops grown in different crop seasonally e.g. Wakiso, Mukono etc.
- Intercropping is being done to maintain soil fertility whereby different crops are grown in the same piece of land e.g. Mukono, Wakiso etc.
- Use of gabions is being done to control soil erosion. This involves use of wire mesh and stones or sacks and soil as barriers along water passages on slopes e.g. Kabale, Kisoro, Bundibugyo, Kapchwora etc.
- Sorting garbage before disposal is being done to prevent pollution and contamination of soil e.g. Kiteezi, Kampala, Mukono.
- Planting of cover crops is being done to control soil erosion. These include pumpkins which protect soils from direct exposure to rain drops e.g. Kabale, Kayunga etc.
- Diversification of energy resources to control deforestation is being e.g. Wakiso, Mbarara, and Hoima.
- There has been establishment of environment protection organizations like NEMA, UWA, UFA which aim at environment conservation.
- Population control measures are being practiced to control population growth.
- Gazetting forests and swamps is being done.

NB: Points should be well explained and illustrated with place names.