

## MARKING SCHEME OF OL PHYSICAL GEOGRAPHY NATIONAL EXAMINATION 2020-2021

### SECTION A: Answer all questions

1. The mean annual temperature is the difference between the highest and lowest mean monthly temperatures in a year while the mean monthly temperature is the sum of mean daily temperatures in a month divided by the number of days in that month.
  
2. Effects of rotation of the Earth:
  - Creates day and night because at any one time, one side of the earth faces the sun (day) and the other remains in darkness (night).
  - Causes deflection of winds and ocean currents in the North hemisphere to the right and in the South hemisphere to the left.
  - It causes rising and falling of ocean tides.
  - Causes time difference between longitudes. For instance, it takes one hour to go through 15° and 4 minutes to go through 1°.
  
3. Mudflow formation:
  - Movement of oversaturated weathered material in form of liquid down slope. It occurs mainly in dry areas after heavy rains.
  - It occurs in areas without vegetation.
  - Saturated material.
  
4. (i) **Burning:** burning may cause the soil to be less stable. Erosion is a major concern after a fire. The loss of root systems coupled with the water runoff caused by soil water can allow much of the soil to wash away.  
  
(ii) **Monocultures:** monocultures practice leads to exhaustion of certain minerals from the soil making it infertile and bare, leading to its erosion. Monoculture leads to loosening of soil particles thereby encouraging soil erosion.
  
5. (a) A river divide is the elevated boundary separating areas that are drained by different river systems.  
(b) Ways by which a river transports its load:
  - **Solution:** minerals are dissolved in the water and carried along in solution.
  - **Suspension:** fine light material is carried along in the water.
  - **Saltation:** small pebbles and stones are bounced along the river bed.
  - **Traction:** large boulders and rocks are rolled along the river bed.
  
6. Water can fall in holes in rocks and then freeze (expanding) physically weathering the rock. However water can also chemically react with

other elements and substances to wear something away. Another chemical weathering that can happen is oxidation.

7. Granitic magmas is thicker than basaltic magma because they contain more silica. This affects a volcano's eruption because thicker magma produces more explosive eruptions while basaltic magma that is more fluid causes quiet eruptions.

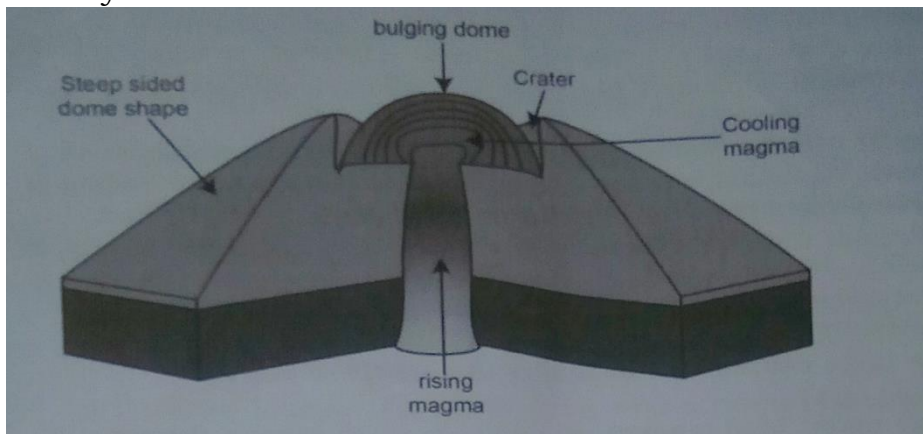
They also differ in terms of temperature.

Granitic magma have more gases than basaltic magma.

Granitic magma is more viscous.

8. Formation of lava dome:

Lava dome is formed by viscous magma being erupted effusively onto the surface and then piling up around the vent. Like lava flows, they typically do not have enough gas or pressure to erupt explosively, although they may sometimes be preceded or followed by explosive activity.



- 9.

- Disruption of natural ecosystem / loss of biodiversity / abnormal growth of plants caused by the increase in ultraviolet radiation / global warming / seasons / rainfall patterns.
- Flooding of land / coastal lands caused by increased temperature which leads to melting of glaciers thereby causing a rise in sea level / change in rainfall pattern / change in winds / air mass pattern.
- Increased temperatures may lead to drying up of water reservoirs thereby reducing their lifespan.
- Draught caused by increased temperature may lead to high evaporation / change in rainfall pattern/ season's pattern.
- Increase in rainfall leads to flooding / rise in sea level / soil erosion. Soil erosion by wind caused by change in wind / air mass pattern.
- High ocean / sea waves / storms due to change in wind / air mass pattern when they blow more frequency and are destructive (such as cyclones).

10. (i) Relief:

- High altitude areas have low temperature which encourage scanty / no vegetation / low altitude areas have moderate temperature which encourage dense vegetation.
- Gently sloping areas are well drained hence encouraging dense vegetation growth / steep slopes experience excessive drainage that discourage plant growth.
- Steep slope have thin soil hence little vegetation.
- Plateau have thick vegetation.
- There is succession of different vegetation types.
- Flat areas tend to be waterlogged hence covered by swampy plant species.

(ii) Soils:

- Fertile soils have a variety of nutrients which encourage the growth of dense vegetation / infertile soils have insufficient nutrients leading to scanty vegetation.
- Medium textured soils are well drained thus support a variety of plants / dense vegetation / coarse / fine textured soils are poorly drained leading to scanty / no vegetation.

11.

- Magma under high temperature and pressure moving through lines of weakness or faults.
- When tectonic plates move away from each other and boundaries give way to magma.
- Underground water coming into contact with hot materials hence changing into gaseous form.
- Pressure of the magma under the influence.
- Fissure / fault
- Convergence

12. Ways in which the clearing of vegetation has affected the natural environment in Rwanda:

- It has led to reduced volume of water in the rivers / caused by drying up of the rivers.
- It has led to the destruction of the natural habitat of wildlife. It has endangered some of the wildlife species.
- It has led to changes in the rainfall pattern / desertification.
- It has interfered with the beauty of the environment / lowered the aesthetic value of the environment.
- It has disrupted the ecosystem.
- It has accelerated soil erosion.

13. Processes of formation of each of the following types of sedimentary rocks.

a) Mechanically formed sedimentary rocks:

- Sedimentary rocks are formed by the accumulation of sediments. There are three basic types of sedimentary rocks.
- Classic sedimentary rocks such as breccia, conglomerate, sandstone, siltstone and shale are formed from mechanical weathering debris.
- Coal is an organic sedimentary rock that forms mainly from plant debris.
- Weathering of pre-existing rock.
- Weathered material are eroded and transported in low land area and compacted.

b) Organically formed sedimentary rocks:

Organic sedimentary rocks form from the accumulation and lithification of organic debris, such as leaves, roots and other plant or animal material. Rocks that were once swampy sediments or peat beds contain carbon and are black, soft and fossiliferous.

14. Environmental degradation is the deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems and the extinction of wildlife.

## **SECTION B: ATTEMPT ANY THREE QUESTIONS (30 marks)**

15. a) Factors that influence river erosion

- **River volume:** a river with a large volume has a greater kinetic energy to erode than one with a small volume.
- **Slope of land:** a river flowing on a steep channel has a greater velocity and therefore more energy to erode its channel than one flowing over gentle or flat land.
- **River load:** a river with large, rough and heavy load e.g. tree trunks and boulders erodes more than one with light, fine and smooth materials e.g. sand. A river carrying more load erodes more than one with less load as it has more abrasive tools.
- **Nature of bedrock:** erosion is faster where a river flows over soft bed rock and less where it flows over hard rock.

b) Formation of stream cut Valleys:

- In the source region, a river cuts itself a channel which starts as a gully.
- The channel is deepened by vertical erosion resulting into a V-shaped valley.
- In the middle stage, lateral erosion widens and deepens the valley resulting in a more open V-cross section.
- In the old stage, lateral erosion creates a very wide channel with a U-shaped cross section.

16. a) S: Lapolish  
P: Sill  
R: Batholith  
Q: Volcanic cone

b) Ways in which volcanic features influence human activities:

- Volcanic highlands or mountains are sources of rivers which provide water for domestic or agricultural or industrial use.
- Volcanic rocks weather down to form fertile volcanic soils which support agriculture.
- Volcanic rocks are important building materials in the construction industry.
- Volcanic features are tourist attractions which promote tourism.
- Volcanic mountains or highlands influence formation of relief rainfall which encourage agricultural activities.
- Volcanic highlands influence formation of relief rainfall which encourage agricultural activities.
- Volcanic highlands or mountains modify temperatures making them attractive to human settlements.
- Volcanic mountains hinder transport.
- Mining and quarrying.
- Hotsprings are used as health resort
- Promote communication.
- Volcanic features such as stream jets and geysers provide suitable sites for geothermal power generation.

17. (i) Time: where soil formation process takes a short duration, the soils are generally immature; where the process has taken a long period of time, soils are generally well developed/mature.

(ii) Parent rock:

- The nature of rock influences the rate of weathering in that soft rocks weather fast while hard rocks are resistant and weather slowly.
- The parent rock determines the soil texture in that large course grained rocks produce large/course grained soils/small/fine grained rocks produce small fine grained soils.
- The type of minerals in the parent rock are transferred to the soil during formation.

b) Describe the negative effects of soil formation:

- This is the degree of fineness or coarseness of the particles making up the soil.
- It causes uprooting/blowing away of plants/plants are washed away/buried.
- It can cause destruction of building/bridges.
- Gully erosion exposes underground water lowering the water table.

- It leads to destruction of vegetation cover which can cause desertification.
  - It causes deposition of sediments into water reservoirs.
  - Contaminated sediments deposited into water bodies lead to water pollution.
  - Sediments brought by water erosion to the beaches may make them muddy.
  - It causes land dereliction.
  - It can prevent soil fertility.
  - It can lead to flooding.
18. (i) A crater: eruption of lava through a central vent causes building up of a cone. The lava in the vent cools and contracts. The cool lava withdraws into the vent leaving a shallow depression of the cone. Gas explosions may blow away surface rocks causing a crater. Examples include Mt Longonot, Mt Menengai, Mt Suswa or Mt Marsabit.
- (ii) A geyser:
- Rainwater percolates down through cracks in the rocks. The water gets into contact with hot igneous rocks.
  - The water is super-heated and gases/steam form. Pressure builds up in the cracks. The pressure causes steam and water to be ejected explosively as jet to the surface intermittently.
  - The water and steam are emitted intermittently as pressure level changes. Example: Lake Bogoria.
- (iii) A lava plateau:
- It is formed when magma reaches the surface of the earth through a series of vents/fissures.
  - The lava is extremely fluid/ultra-basic. The lava spreads evenly over a large area.
  - The lava cools slowly and solidifies. Examples: Yatta plateau, Uasin Gishu plateau and Laikipia plateau.
19. a) Main causes of climate change in Rwanda:
- An increasingly numerous population needs more and more resources, which spreads up the increase in greenhouse gas emissions from all production processes.
  - The oceans are also carbon sinks, absorbing up to 50% of CO<sub>2</sub>. The problem is that when they reach their limit. The ocean acidifies and causes death and disease among marine flora and fauna.
  - Excess carbon dioxide caused by the burning mainly of fossil fuels in electricity generation, transport, heating, industry and construction.
  - Nitrogen oxide: caused by excess use of fertilizers and industrial activity.

- CFCs: gas of anthropogenic origin (result of human activities) replacing CFCs. Harmless to the ozone layer, but increases the greenhouse effect.
- Deforestation.
- Urbanization.
- Swamp reclamation.
- Bush burning.
- Global warming.
- Volcanic eruptions.

b) Measures would you put in place to avoid the increase of pollutant emissions:

- Discouraging the uses of burning of material that release harmful greenhouse gases such as O<sub>2</sub>, CFCs.
- Alternative sources of energy which are environmentally friendly, should be encouraged e.g. geothermal, power, solar energy and wind energy.
- Formation of an international policies and cooperation among different nations in the fight against air pollution.
- Modification of the combustion system in the machine.
- Control of pollution in order to control and discourages excessive uses of fossils and biomass energy.
- Recycling of wastes should be encouraged rather than burning or dumping on the surface.
- Afforestation.
- Use of renewable energy sources.
- Sensitizing people.
- Conservation of resources.

### **SECTION C: ATTEMPT ANY ONE QUESTION (15 marks)**

20. (a)

(b) Fishing: pisciculture  
 Agriculture: crops  
 Construction: settlements  
 Trade and commerce  
 Growing vegetables.  
 Administration centers

(c) Presence of business services in the area.  
 Easy transport and communication lines.  
 Presence of technical vocational training  
 Roads  
 Markets  
 Schools  
 Hospital  
 Bank

(d) Problems likely to face the people living in the area:

- Over population
- Pollution of the surrounding environment especially air, land and water resources.
- High accidents and criminal rates.
- Unemployment and slums.
- Traffic congestion.
- Diseases.
- Limited infrastructures.
- Soil erosion.
- Robbery
- Pollution.

21. (a) Livestock farming

Agriculture

Dairy cattle are out grazing in an open field.

b) (i) One geographical region in Rwanda where the activity identified:  
Gishwati, Nyagatare, Nyanza.

Most dairy cattle are reared in the Gishwati in Western province.

(ii) The geographical conditions that favour the activity identified in 21 (a) above:

- Moderate to heavy rainfall, well distributed all year round, resulting in plentiful water supply for cattle and for growing of fodder crops.
- Wet and cool climate all the year and average temperature of about 18°C.
- Plenty of nutritious grass grows in the Western province and Eastern province of Rwanda. Some of this grass is natural but some is sown.
- The volcanic soils are fertile and suitable for growing of grass and fodder crops such as Lucerne, clover, Napier grass and soya beans.
- The Gishwati enjoys a large market for dairy produce, especially in towns like Kigali, Musanze, Rubavu and Nyabihu.
- The infrastructure is relatively well developed and this has been supportive to dairy farming.
- The Gishwati cooperative creameries markets dairy products all over the country and provide processing companies are distributed all over dairy farming areas, dairy farming areas are well served with roads.
- Plenty of labour available from the large population living in those provinces of Western and Eastern.

c)

- The exotic breeds such as Friesians, jersey and Guernsey requires regular dipping to immunize them against diseases.



- The facilities have been provided and extension officers (veterinary inspectors) go around dairy farming areas to check on animal health and advising farmers on how best to look after their animals.
- Selective artificial insemination: the grade cattle produced through cross-breeding are better adapted to the Rwandan climate, produce high milk yields and are more resistant to diseases than the pure exotic breeds.
- Fodder crops are grown to supplement natural pastures.
- Insurance.
- Formation of cooperative.
- Introducing drought resistant plants.
- Establishing collection centres (for milk processing).
- Training of farmers.
- Land consolidation.
- Improvement of transport facilities.

**Geography and  
environment II**

**006**

**26/07/2021**

**2 PM – 5 PM**



**ORDINARY LEVEL NATIONAL EXAMINATIONS, 2020-2021**

**SUBJECT: GEOGRAPHY AND ENVIRONMENT II**

**PAPER II: HUMAN AND ECONOMIC GEOGRAPHY**

**DURATION: 3 HOURS**

**INSTRUCTIONS:**

- 1) Write your names and index number on the answer booklet as they appear on your registration form, and **DO NOT** write your names and index number on additional answer sheets of paper if provided.
- 2) Do not open this paper until you are told to do so.
- 3) This paper consists of **three** sections **A**, **B** and **C**  
**Section A:** Attempt **ALL** questions **(55 marks)**  
**Section B:** Attempt any **THREE** questions. **(45 marks)**
- 4) Use only a **blue** or **black pen**.

**SECTION A: Attempt all questions from this section. (55 marks)**

1. What are the problems facing the trans-Africa high way? **(2 marks)**
2. Describe three negative effects of urbanization in Africa. **(3 marks)**
3. Describe the issues associated with the development of industrialization in Germany. **(3 marks)**
4. (a) Differentiate between fecundity and sterility. **(2 marks)**  
(b) Explain how government drainage policies influence population distribution in Rwanda. **(4 marks)**
5. Describe three physical factors that have led to the development of hydroelectric power on River Tana. **(3 marks)**
6. Explain three reasons why the Chief Executive Officer of Rwanda Development Board encourages domestic tourism in Rwanda. **(3 marks)**
7. Describe the problems facing marine fishing in Africa. **(3 marks)**
8. Describe three ways in which the Government of Brazil solves problems faced by coffee farmers. **(3 marks)**
9. Explain how the social factors below influence agriculture in Africa:  
a) Land tenure system. **(3 marks)**  
b) Gender. **(2 marks)**
10. Describe three factors that limit trade among the member states of the East African Community. **(3 marks)**
11. Assume that you have been appointed as a member of the cabinet in the Ministry of Health, what measures would you put in place to reduce infant mortality rate in Rwanda? **(4 marks)**
12. Explain the importance of industrialization to the development of United States of America. **(3 marks)**
13. a) What is meant by the term “indigenous cattle”? **(2 marks)**  
b) Describe three advantages of keeping indigenous cattle in Africa. **(3 marks)**
14. Why is there such a large underdeveloped hydroelectric power potential in tropical Africa? **(2 marks)**
15. Classify the following wood types into tropical hardwoods and temperate hardwoods, (Oak, spruce, pine, ebony, maple and mahogany). **(4 marks)**

16. Explain problems resulting from industrial development in Rwanda. **(3 marks)**

**SECTION B: Attempt only three questions (45 marks)**

17. Read the passage below carefully and answer the questions that follow:

In April 2014, there was a disease outbreak in Kamembe slum of Rusizi district which caused many deaths. People who had contracted the disease had the following symptoms: diarrhoea, fever, stomachache and vomiting. On being diagnosed, it was confirmed that the disease was cholera and an epidemic.

a) What is meant by the term “epidemic”? **(3 marks)**

b) What are the economic effects of epidemics in an area? **(4 marks)**

c) Explain the likely causes of this epidemic disease. **(4 marks)**

d) Assume you were appointed by cabinet as a specialist in charge of epidemic diseases in the ministry of health in Rwanda, what prevention measures would you put in place to control the occurrence of such disease? **(4 marks)**

18. a) Describe four characteristics of dairy farming in Kenya. **(4 marks)**

b) Explain the difficulties facing dairy farming in Kenya. **(6 marks)**

c) Suppose you have been appointed as an advisor in charge of agriculture and animal husbandry in the East African Community, what innovations or techniques would you put in place to improve dairy farming in Kenya? **(5 marks)**

19. a) Draw a sketch map of Rwanda and on it, mark and label the following:

(i) Cyamugongo forest **(1 mark)**

(ii) Mukura forest **(1 mark)**

(iii) Nyungwe forest **(1 mark)**

b) Explain challenges facing the exploitation of forests in Rwanda. **(7 marks)**

c) Suppose you were in charge of Environmental management in Rwanda. Explain the measures you would put in place to conserve forests in Rwanda. **(5 marks)**

20. a) Describe how the site of New York has favoured its development as a port. **(5 marks)**
- b) Explain the problems created by the site of New York in its development as a port. **(5 marks)**
- c) Assume you have been appointed as an urban planner in New York, what measures would you put in place to overcome problems mentioned in (b) above? **(5 marks)**
21. a) What is meant by the term “biogas”? **(3 marks)**
- b) Explain the advantages and disadvantages of using biogas as a source of energy in African countries. **(12 marks)**

# MARKING SCHEME OF OL HUMAN AND ECONOMIC GEOGRAPHY NATIONAL EXAMINATION 2020-2021

## SECTION A: Answer all questions

### 1. The problems facing the trans-African highway

- High costs of maintenance between individual countries.
- Differences in political ideologies reduces the use of the highway, for instance border closures refusal of entry.
- Some sections of the road, for instance in the Central African Republic are poor quality roads difficult to use especially in the wet season when they become muddy.
- Political instability in the region hinders the use of the highway.
- Mountainous relief challenges the effectiveness use of the road
- Language barriers
- High taxes in some countries where the highway passes
- Highway robbers
- Spread of diseases
- Wild animals which may bloc the highway

### 2. Negative effects of urbanization in Africa:

- There is inadequate housing facilities which leads to development of slums/shanties in urban centres.
- There is traffic congestion in urban centres due to poorly planned roads Unemployment in urban centres leads to high crime rates, for instance prostitution, robbery and so on.
- There are various forms of pollution in urban centres due to poor garbage disposal and emission of smoke from vehicles and industries. There is strain on social amenities in urban centres due to rapid population growth
- There are street families in urban centres due to poverty.
- Cultural erosion due to cosmopolitan population. Overcrowding due to population explosion in urban centres
- Rural exodus due to urban attractions.
- Poor hygiene o High costs of living.
- Environmental degradation.

### 3. The issues associated with the development of industrialization in Germany:

- High level of mechanization and automation in industries leads to loss of jobs.
- There has been a decline and closure of some industries due to exhaustion of raw materials and some sources of energy such as iron and steel as well as coal.
- There is congestion in urban centres due to high population which is attracted by industries.

- Environmental pollution problems due toxic wastes that pollute land and water.
  - Land degradation resulting from mining.
  - Competition between industrial development and other sectors of economy.
  - Limited space for industrial expansion.
  - Displacement of people due to industrial expansion.
  - Slum development due many people attracted by industries.
  - High crime rates.
  - Accidents.
4. (a) **Fecundity** is the ability of a woman to conceive and give birth to a child. In other words, it is the ability of a female to produce an abundance of offspring. On the other hand; **sterility** is the inability of a woman to conceive and give birth to a child. It is also defined as the inability to achieve a pregnancy.
- (b)
- Valley dam construction encourage settlement.
  - Buffer zones discourage human settlement.
  - Government discourages economic activities like agriculture near water bodies.
  - Well drained areas attract dense population while poorly drained areas are sparsely populated.
  - Government has gazetted wetlands hence discouraging settlements.
  - Construction of wells and boreholes attract dense settlements.
5. Physical factors that have led to the development of hydroelectric power on River Tana:
- A large and constant volume of water such as River Tana and its tributaries.
  - Presence of waterfalls, rapids and Knick point in River Tana Channel. Presence of narrow gorges behind the dam which minimize the costs of construction.
  - Presence of deep gorges that act as water reservoirs.
  - Presence of hard basement rocks that provides a strong foundation construction of a dam.
  - Less silted water from River Tana.
  - Good climatic conditions enhancing the supply of water to rivers.
  - The steep slopes have an impact on the speed of water
6. Reasons why the Chief Executive Officer of Rwanda Development Board encourages domestic tourism in Rwanda:
- To understand features available in the country so as to appreciate them.
  - To understand and appreciate the needs to conserve wildlife.

- To compensate for the low turnouts of international tourists in July and August, this helps to run the hotels without relying on foreign tourists.
- To facilitate the circulation of money/currency within the country.
- To promote self-reliance culture.
- For encouraging local people to understand and appreciate their culture.
- Increase creation of employment opportunities.
- Creation of markets for local produced goods.
- To increase government revenues which will be used for developing the country.

7. The problems facing marine fishing in Africa:

- Inadequate markets due to low purchasing power of the surrounding community.
- Poor transport networks to the interior of the countries and availability of agricultural products in some coastal areas which reduces the rate of fish consumption.
- Inadequate capital which causes fishermen unable to afford expensive equipment used in deep sea fishing which restricts them to fish near the shore, hence the low catch.
- Poor fishing methods.
- Profit repatriation.
- High tax charged on fishermen.
- Presence of coral reefs.
- Water hyacinth (water weeds).
- Fish predators.
- Pollution.

8. Ways in which the Government of Brazil solves problems faced by coffee farmers:

- The government lobbies for higher quotas in world market
- Prohibiting new planting.
- Buying and storing surplus to artificially stabilize supply to maintain profit margins.
- Creation of artificial shortage of coffee in the world market by the institute for permanent defense of coffee to maintain high prices.
- Encouraging crop diversification and mixed farming to reduce overdependence on coffee o Use of capital intensive technology.
- Offering loans with low interest rates to farmers.
- Improvement of transport networks.
- Provision of chemicals to farmers like pesticides, insecticides as well as fertilizers.
- Training of coffee farmers about the better techniques of farming.
- Intensive and comprehensive scientific researches.



9. (a) Land tenure system:

- Cash crops such as coffee can't be grown on leased land.
- Large scale farming can't be practiced on excessively fragmented land.
- Nomadic pastoralism and shifting cultivation can be practiced on communally owned land.
- Cooperative farming is encouraged on government owned land.
- Landlords determine agricultural practices.
- Permanent individual ownership of land ensures sustainable production.
- Individual land ownership gives a farmer liberty to carry out agricultural practices of his/her choice.
- Individual land acts as a collateral security in agriculture.

(b) Gender:

- In some communities; food production is sole responsibility of women and children so the produce and land under cultivation will depend on women and children labour inputs.
- Subsistence farming is reserved for females while the rearing of animals is mainly carried out by males.
- Males are more involved in commercial farming than females.

10. Factors that limit trade among the member states of the East African Community:

- Poor transport facilities leading to delays of goods and services.
- Differences in tariffs and custom duties hinders trading activities.
- Difference in currency makes transactions difficult.
- Production of similar goods limit trade in EAC member states.
- Different levels of industrial development create imbalance in trade.
- International border barriers limit the cross-border trade among the country members of EAC.
- Different political ideologies, political instabilities and insecurities in some countries challenge trade within EAC member states.
- Language barriers.
- Price fluctuations of some commodities on international market.
- Landlockedness of some EAC member states prevent the effectiveness of trade due to delays of goods in transits.
- Limited capital for investment.
- Low purchasing power of EAC population.
- Shortage of experts to enhance trade.
- Smuggling of goods.
- Weak institutional good legal framework.
- Corruption among some member countries.
- Low level of advertisement.

11. Measures would to put in place to reduce infant mortality rate in Rwanda:

- By re-forcing the widespread immunization for children to control diseases.
- By providing parental education to ensure better care for children breast-feeding campaigns/ Family planning.
- By providing free medical services for children/ free mosquito nets.
- Advising government by introducing a policy granting longer maternity leave for mothers/paternity leave to take care of the new born.
- Training of traditional mid-wives.
- Advising government by wide spread of improved/ increased medical facilities more especially in rural areas.
- Emphasizing family planning o Promotion of proper hygiene and sanitation.
- Encouraging parents to provide nutritious food to their children (balanced diet).
- Discouraging early marriages and such crimes as prostitution, defilement.
- Provision of proper routine anti-natal and post-natal check-ups
- Screening of newly born babies.
- Increasing medical facilities in villages.

12. Importance of industrialization to the development of United States of America:

- It provides jobs to many people. Jobs include those of managers, engineers, accountants, technicians, among others.
- It promotes local and international trade.
- It is a source of revenue to the government.
- It is a foreign exchange earner to the country.
- People obtain exceptional skills from industries.
- Industrialization has diversified the country's economy.
- Promotion of international relationships.
- Promote optimum utilization of natural resources.
- It promotes infrastructural development.
- Industrialization has increased the popularity of USA internationally.
- Addition of value to primary goods.
- It has encouraged forward and backward linkages.
- It has led to USA supremacy.

13. (a)These are local breeds of animals/cattle kept by native inhabitants of a given region/ country.

These are cattle that belongs to the country in which they are found.

(b) Advantages of keeping indigenous cattle in Africa:

- They are tolerance to high temperatures and drier conditions, therefore they can be kept successfully in dry savanna lands and semi-desert areas.
- They are resistant to some diseases, for instance tick-borne disease.
- Their coats (hides) are tougher and therefore provide good protection against disease bearing insects.
- They give high quality products.
- They are cheap to keep and to maintain.
- They represent African cultural preservation.
- They can withstand the rugged relief of most African regions.
- They fully survive on natural pastures.

14. Reasons why is there is such a large underdeveloped hydroelectric power potential in tropical Africa:

- Lack of enough capital and technical-know how to enable African countries develop these power potentials.
- Shortage of equipment and technology.
- Inadequate market for power, industries in many countries of Africa are still few.
- Changing regimes or seasonal fluctuations in water volumes in many rivers limit their use.
- Hydro-electric power sites are far from population concentrations and economic activities.
- Use of other sources of power limit the development of HEP.
- Disagreement between power developers and environmentalists.
- Siltation of some rivers.
- Some rivers cross many countries hence requiring negotiations before constructing HEP plants.
- Political instabilities in some countries.
- Absence of many and large rivers in some regions.
- Absence of waterfalls and rapids to some sections of rivers.

15.

<b>Tropical hardwoods</b>	<b>Temperate hardwoods</b>
Ebony and mahogany	Oak, spruce, pine and maple

16. Problems resulting from industrial development in Rwanda:

- Industrial development has caused serious pollution due to emission of dangerous gases in the atmosphere.
- Inefficient industries have come up with produce low quality goods due to the policy of the government aimed at developing infant substitution industries.
- Emergence of industries within urban areas has resulted into rural urban migration, thus causing decline in agricultural

production in rural areas because energetic youths go to towns leaving the old and very young for growing crops.

- Industries have led to the destruction of forests as they creating sites for industrial development.
- Industrialization has caused an increase in temperatures in Rwanda due to the emission and concentration of more industrial fumes or gases like CO<sub>2</sub>.
- It has led to displacement of people as industries expand towards land which is meant for other activities like agriculture and settlement.
- Depletion of ozone layer due to fumes emitted in the atmosphere.
- It leads to overexploitation of natural resources leading to their exhaustion.
- Overcrowding of people leading to easy spread of diseases.
- There is growth and development of urban centres and the associated problems.
- It has led to swamp reclamation which destroys the rain cycle and death of aquatic life.
- Profit repatriations as most of industries belong to the foreigners who benefit from them more than Rwandans.
- Competition of labour with other sectors of economy o Reduction of employment due to use of machines and robots.

### **SECTION B: Attempt any three questions (45 marks)**

17. a) An **epidemic** is an outbreak of a disease that spreads rapidly among many people in a community at a particular time. Examples of epidemic diseases are Ebola, influenza, cholera, malaria and typhoid.

b) **The economic effects of epidemics in an area:**

- Poor services deliver in business sector.
- High cost of treatment.
- Shortage of labour due to disposition or death of energetic people.
- Reduced productivity of people due to illness. This leads to poor economic development in an area.
- Increased poverty due limited services operating.
- High government expenditures.
- Loss of jobs.
- Heavy debt burden to the government.

c) **The likely causes of this epidemic disease.**

- **Climatic conditions:** climatic conditions such as flooding lead to the spread of epidemics. The flood water causes sewages to overflow. The water for domestic use then becomes contaminated causing outbreak of diseases.

- **Lack of water:** poor water supply in an area can cause an epidemic. People have little or no access to safe water for their day to day use.
- **Inadequate sanitation facilities:** people living in poverty usually live in areas with poor hygiene and that lack proper facilities for disposal of wastes. These unhygienic conditions cause epidemics.
- **Unsafe food:** when people eat food that is contaminated, they can get diarrhea and other such infections.
- **Overcrowding of people in an area**
- Illiteracy and ignorance of people.
- Poor personal hygiene.
- Free movement of people who are contaminated.

d) Prevention measures would you put in place to control the occurrence of such disease:

- **Vaccination:** people should be vaccinated against various diseases that may cause death rapidly. This will protect them against infection.
- **Proper hygiene:** most epidemics are brought about due to lack of proper hygiene. People should practice personal, environment and food hygiene to prevent outbreaks of diseases such as cholera and typhoid.
- **Education:** people should be educated on different types of epidemics and their effects to a community. They should also be educated on how to protect themselves against infections and how to handle the epidemics if they get infected.
- **Encouraging eating a balanced diet:** a diet that has all the nutrients needed by the body will make the immune system strong. This will make people resistant to certain diseases. Lack of nutrients in the body makes the body's immune system weak.
- *Quarantining people infected with cholera.*
- *Availing medical facilities to people.*
- *Strict laws to people who contaminate the environment with wastes.*

18. a) Describe characteristics of dairy farming in Kenya:

- Keeping cattle for milk production.
- Animals are kept for commercial purposes
- It is usually practiced in areas with good economy i.e. developed infrastructure for quick transportation of milk and a good ready market because dairy products are perishable.
- Employment of high modern technology of processing, packaging because milk is a perishable product which should be processed in a short time after it is milked.
- High milk yielding cows are reared. E.g: Friesian, Ayrshire, Guernsey, Jersey, Alderney, Sahiwal.
- Cross-breeding is done to increase the production.

- Rich and nutritious grasses are grown to supplement the natural pastures.
- There is the control of diseases and scientific management of farms.
- Capital intensive techniques of farming are used.
- It is done in areas with cool and wet climatic conditions. It is mostly adapted in highland areas.

b) The difficulties facing dairy farming in Kenya:

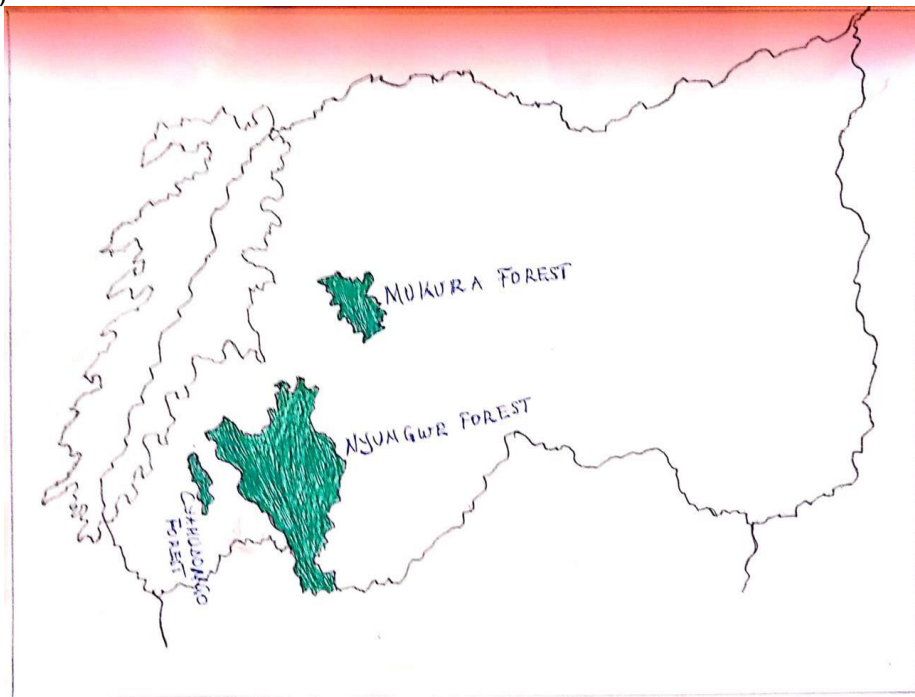
- Small scale dairy farms face stiff competition from other economic activities such as cash crops like tea and coffee, vegetables and passion fruits, etc.
- The cost of inputs is very high which has minimized mechanization and resulted into low profit margins.
- Impassability of roads during the rainy season making milk delivery difficult.
- Excessive droughts which result in inadequate feeds which causes temporary milk shortage.
- Risk of cattle pests and diseases which has restricted dairy farming to Kenyan highlands.
- Inadequate training for dairy farmers.
- Shortage of land to be used as pastures.
- Shortage of veterinary services
- Price fluctuations.
- Raiders that steal cattle.
- Competition for land with other sectors of economy.

c) Innovations or techniques would you put in place to improve dairy farming in Kenya:

- Appointing supervisory boards for dairy cooperatives.
- Extending credit facilities to farmers through cooperatives.
- Holding agricultural shows to educate farmers on good dairy farm management.
- Setting up demonstration farms which breed high quality bulls to be released to farmers.
- Establishing well maintained roads for delivery of milk.
- Carrying out extensive research on possible solutions to diseases.
- Strengthening security to guard against cattle raiding.
- Establishing of dairy processing factories to improve the quality milk.
- Price control to solve price fluctuation problem.
- Construction of cattle dips and spraying centres.
- Irrigation is carried out to ensure sustainable pastures.
- Preparing and storing hay and dry fodder to be used in the dry season.
- Providing cooling facilities to farmers to ease transport to the market.
- Training dairy farmers to improve the production.

- Providing veterinary services to small scale farmers.

19. a)



b) Challenges facing the exploitation of forests in Rwanda:

- There is limited capital that can be invested in the forestry for example to buy the needed equipment such as saws, paying workers among others.
- The harsh jungle environment scares workers for example dampness, existence of wild animals, presence of disease causing organisms like mosquitoes, tsetse flies among others.
- Some trees have a long gestation period thus their returns are not immediate and don't easily match with the prevailing demand in the market.
- Some trees have strong buttress roots which need construction of plat forms to facilitate their felling and transportation thus making the whole process expensive.
- Trees may not be existing in pure stands and thus identifying and accessing commercial species becomes difficult.
- Some of the forests contain thick under growth and climbing plants thus causing accessibility and tree felling problems.
- Fire outbreaks which destroy forested areas.
- Insecurity in the forested areas
- Encroachment on forests due to population pressure
- Stiff competition with neighbouring countries.
- Pests and diseases destroying trees.
- Forest disappearance due to indiscriminate cutting down of trees for infrastructural development.
- Few tree species of commercial value.
- Climate change leading to disappearance of some tree species.

c) Measures you would put in place to conserve forests in Rwanda:

- **Afforestation:** trees should be planted in new areas where trees never existed using seedlings from nursery beds.
- **Re-afforestation:** trees should be grown in areas where deforestation has taken place.
- Carrying out protection of the existing trees from the effects of natural hazards like fire and pests through controlling, spraying, using no smoking signs posts among others.
- Using improved methods of felling trees through selective felling of trees to ensure better regeneration of trees.
- Practicing of silviculture so that the water logged areas are planted with trees and put under great care.
- Avoiding wastage of forest products so that a high demand for forest products is avoided.
- Eviction of forest squatters so as to reduce on deforestation in need for land for settlement and cultivation
- Re-gazetting of forest boundaries to make it clear to the population boundaries and avoid further destruction.
- Imposing laws which restrict unnecessary forest activities like charcoal burning, firewood collection and hunting.
- Increased awareness and sensitization of the public about the importance of forest and should be done through the mass media, workshops and newspapers.
- There is need to train more forest guards in order oversee the forest to avoid their further destruction.
- Construction of more hydro-electric power stations so as to increase on power supply so as to reduce on the rate of forest destruction in need of fuels.
- Agro-forestry should be encouraged by planting multi-purpose trees together with crops for examples mangoes, oranges, guavas, etc.
- Planting of commercial wood trees near urban centres like Kigali so as to provide town wood requirements.
- Big wood consumers should be encouraged to plant their own trees so as to satisfy their own wood requirements, for example tea factories which would reduce on the rate of forest destruction.
- Establishment of institutions to monitor the existing forest in the country for example Rwanda Environment Management Authority and encourage non-government organizations to participate in growing of trees.

20. a) How the site of New York has favoured its development as a port:

- It had a natural harbour.
- Its location on the western side of the Atlantic Ocean made it easy for her to trade with other regions. It is not surprising that the port of New York is one of the largest in the world.
- The presence of Hudson River enabled New York to navigate into inland and access the interior.



- Its harbors are ice free since they never freeze, which makes loading and offloading of goods possible throughout the year.
- Its relief is flat, which ensures easy construction of warehouses, roads and docks.
- Its hinterland is very fertile which has enabled successful agriculture o It has a low tidal range of about 2 metres
- Its waters were relatively deep and little dredging was needed o Good strategic location.

b) The problems created by the site of New York in its development as a port:

- It has large slum areas such Harlem which is one of the oldest residential areas in the city.
- It has high unemployment rate due to more job seekers.
- It experiences high rates of crimes.
- It experiences traffic congestion due to its high population.
- Limited land for expansion.
- Racial discrimination.
- High rate of violence, especially among the youths.
- Pollution of the environment.
- Overcrowding on the port.
- Problem of fog during the unfavourable weather conditions, this may make the city to be on a standstill for some time.
- Easy spread of diseases due to congestion.

c) Measures would you put in place to overcome problems mentioned in (b) above:

- Congestion problem would be solved by construction of sky-scrapers, tunnel, subways, and bridge construction.
- The problem of pollution should be solved by the reduction in the number of vehicles on the road, reduction in the use of coal as the source of fuel and encouraging the industrialists to treat their industrial wastes before their disposal.
- The problem of slum development would be solved through construction of the sky-scrapers and clearing of worst slum areas.
- The problem of unemployment should be minimized through establishing various industries where the black Negroes and Puerto Ricans who are who are mostly unemployed can obtain jobs.
- The problem of traffic congestion (jams) should be minimized through using trains underground instead of people using their personal vehicles. Underground sub-ways and tunnels have been constructed to ease on the traffics jams.
- Installation of radar systems to reduce accidents caused by tides. Restricting migrants from entering New York.
- Using underground trains to solve the problem of traffic congestion.

21. a) **Biogas** is a renewable source of energy made from human and animal wastes.

b) **Advantages of biogas:**

- It is a renewable energy source that cannot be depleted
- It reduces reliance on firewood and hence reduces the rate of deforestation
- It uses sewage and waste materials especially from animals and toilets that would otherwise be useless.
- It does not require advanced Technology like other sources of energy.
- Biogas is a green energy source in form of electricity and heat for the local grid.
- Considerable environmental advantages. Less emission of greenhouse gases, methane, CO<sub>2</sub> and nitrous oxide.
- Environmentally friendly recirculation of organic waste from industry and households.
- Less odour inconveniences when spreading slurry on the fields.
- Protection of subsoil water: improved nitrogen exploitation reduces leaching and thereby drinking water contamination.
- Reduced cost for artificial fertilizers.
- It is clean energy since it does not produce soot/ smoke.

**Disadvantages of biogas:**

- High capital for installation
- It does not make a good commercial activity as its value is low
- It contains some gases as impurities which are crossing to the metal parts of internal combustion engines
- It requires participation of many people
- Its yields are lower due to dilute nature of substrates and so it also leads to pollution in terms of noise, air and water as a lot of industrial waste remains after the process of decomposition.
- Biogas can cause obnoxious smells.
- Degasification increases the risk of evaporation of ammonia.
- Major issues of using biogas in transportation are its limited quantity and then the local production.
- It can't be used in transportation o It leaves behind less organic matter for compost or fertilizers
- It can produce very limited quantity of electricity on a global scale.