

Geography and environment

Date: 23 / 06 /2022

Period: 8H30 – 11H30



END OF TERM III EXAMINATIONS

GRADE / LEVEL: LOWER LEVEL

COMBINATIONS: S1

DURATION: 3HOURS

MARKS:

..... /100

INSTRUCTIONS

There are 18 questions in this paper

This paper has two section A and B.

SECTION A: This section is compulsory. (55marks)

SECTION B: Attempt any three question. (45marks)

Use only a blue or black pen.

SECTION A: ANSWER ALL QUESTIONS

(55MARKS)

1. What are three elements of a good map? **(3marks)**
2. (a) Define the term altitude. **(2marks)**
(b) Name the marine relief features found on oceanic crust. **(3marks)**
3. List three components of soil. **(2marks)**
4. (a) What is Weather? **(1mark)**
(b) List the elements of weather and climate. **(3marks)**
5. (a) Define hazard. **(2marks)**
(b) Identify any three ways through which volcanoes cause hazards. **(3marks)**
6. Outline the major effects of earth rotation. **(3marks)**
7. (a) Give the characteristics of igneous rocks. **(2marks)**
(b) Explain how sedimentary rocks are formed. **(3marks)**
8. (a) Explain how winds influence the climate of a given area. **(4marks)**
(b) Using diagrams, explain the difference between Katabatic and anabatic winds. **(4marks)**
9. Compare the rural settlements activities with that of urban. **(4marks)**
10. Outline the different types of vegetation. **(3marks)**
11. With diagram, describe radial and centripetal drainage patterns **(4marks)**
12. Identify the function of secondary economic sector to sustainable development. **(5marks)**
13. Draw a diagram of river channel and locate the following points: **(4marks)**

(4marks)

*confluence

*delta

*meander

*affluent

SECTION B: ANSWER ONLY THREE QUESTIONS OF YOUR CHOICE.

(45MARKS)

14. (a) Build a table of the following weather elements showing their measuring instruments for each. Temperature, rainfall, wind speed, humidity and sunshine. **(5marks)**
(b) Explain the layers of the atmosphere. **(10marks)**
15. (a) Outline five problems on which soils are facing in Rwanda. **(5marks)**
(b) Examine the importance of soils to human beings. **(10marks)**
16. (a) List two main primary phases of the moon. **(2marks)**
(b) Distinguish between latitude and longitude. **(4marks)**
(c) Evaluate the effects of the earth's revolution. **(5marks)**
(d) Describe the main characteristics of Jupiter. **(4marks)**
17. (a) List the different types of natural vegetation. **(3marks)**
(b) Explain any three factors that influence the distribution of vegetation. **(6marks)**
(c) Assess the importance of vegetation to Rwanda. **(6marks)**
18. (a) Identify different forms of precipitation. **(3marks)**
(b) Discuss the factors that influence climate. **(6marks)**
(c) Discuss how climate has influenced human activities in the world. **(6marks)**

- END -

END OF TERM III EXAMINATIONS

MARKING SCHEM

Subject: Geography and environment

Grade: S1

Marks: /100

SECTION A: ANSWER ALL QUESTIONS (55MARKS)

1. What are three elements of a good map? **(3marks)**
Elements of good map are Title, key, compass direction, scale, flame
2. (a) Define the term altitude. **(2marks)**
The term altitude means the height or elevation of a point above a given reference point. In Geography the reference level is the Sea. Therefore; altitude is the height above Sea level.
(b) Name the marine relief features found on oceanic crust. **(3marks)**

The marine relief features of the ocean bed are:

- Continental shelf
- Continental slope
- Oceanic ridges
- Oceanic trench
- Deep sea plain (Abyssal plain)
- Oceanic islands.

3. List three components of soil. **(2marks)**

Soils are made up of the following components:

- Inorganic particles
- Organic matter
- Water (moisture)
- Air (gases)
- living organisms

4. (a) What is Weather? **(1mark)**
Weather refers to the day to day conditions of the atmosphere. It is described in terms of temperature, wind, rain, moisture, atmospheric pressure, humidity, sunshine and clouds.
(b) List the elements of weather and climate. **(3marks)**

The following are the elements of weather and climate:

- Sunshine
- Temperature
- Atmospheric pressure
- Wind
- humidity
- Cloud cover
- Precipitation
- Visibility

5. (a) Define hazard. (2marks)

Hazards are events or activities that cause a threat to life, health, property or the environment.

(b) Identify any three ways through which volcanoes cause hazards.

(3marks)

Massive volcanic eruptions result in the following:

Displacement of people.

Loss of lives.

Destruction of settlement areas and property.

Air pollution that occurs from the volcanic ashes and gases that are released.

Destruction of transport and communication lines.

Destruction of farmlands leading to food shortages.

6. Outline the major effects of earth rotation. (3marks)

The rotation of the earth has the following effects:

- ✓ Succession of day and night.
- ✓ The rising and falling of ocean water (tides).
- ✓ Differences in time between longitudes.
- ✓ The deflection of winds and ocean currents.
- ✓ Variations in atmospheric pressure over the earth's surface.
- ✓ It influences the revolution of the moon round the earth.

7. (a) Give the characteristics of igneous rocks. (2marks)

Igneous rocks are formed from the cooling and solidification of magma or lava, are crystalline, not layered, and without fossils

(b) Explain how sedimentary rocks are formed. (3marks)

Sedimentary rocks are formed by the deposition of materials on the earth's surface and on the beds of water bodies. They are formed through the process of sedimentation where mineral and other organic particles settle and accumulate and some of them precipitate.

8. (a) Explain how winds influence the climate of a given area. (4marks)

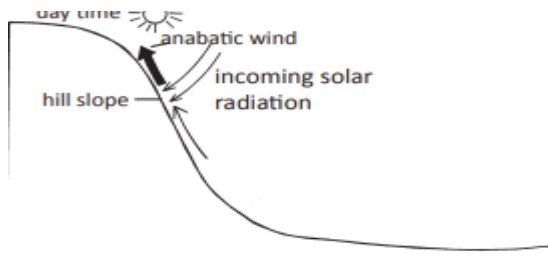
The wind influence climate by:

* Wind ward sides are cool and wet due to humidity provided by sea breeze and anabatic wind.

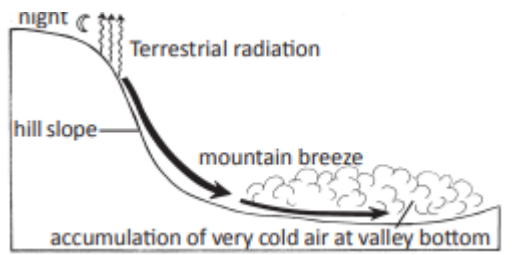
* Leeward sides are dry because are hidden from wet air masses and undergo to katabatic winds.

(b) Using diagrams, explain the difference between Katabatic and anabatic winds. **(4marks)**

Anabatic: hot winds blow during the day from bottom valleys to upper slopes. It is known as valley breeze.



The katabatic: wind descending cold wind sometimes known as the mountain breeze. which blows during night(evening) form upper slope towards bottom valley.



9. Compare the rural settlements activities with that of urban. **(4marks)**
Rural settlements are villages occupied by people in primary production such as subsistence agriculture while **urban settlements** are areas occupied by people who are involved in trade, commerce and industrial activities.
10. Outline the different types of vegetation. **(3marks)**

Vegetation is classified into three main groups, namely:

Natural vegetation: grows naturally in an area without any human aid.

Artificial vegetation: this is composed of the vegetation that has been planted by human beings.

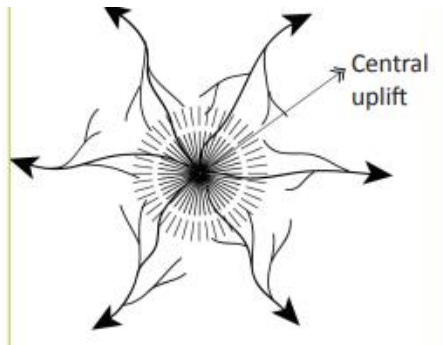
Secondary vegetation: grows naturally in an area after being interfered with by people or animals. It is also known as derived vegetation.

11. With diagram, describe radial and centripetal drainage patterns

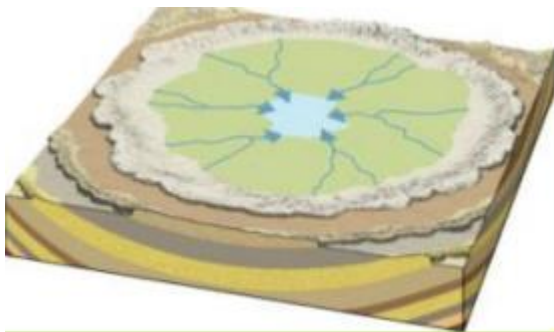
(4marks)

The rivers flow outwards from a central high point.

Radial drainage pattern is a drainage pattern that forms on volcanic cones or domes.



b) Centripetal drainage pattern is a drainage pattern where rivers flow from all directions into a common basin.

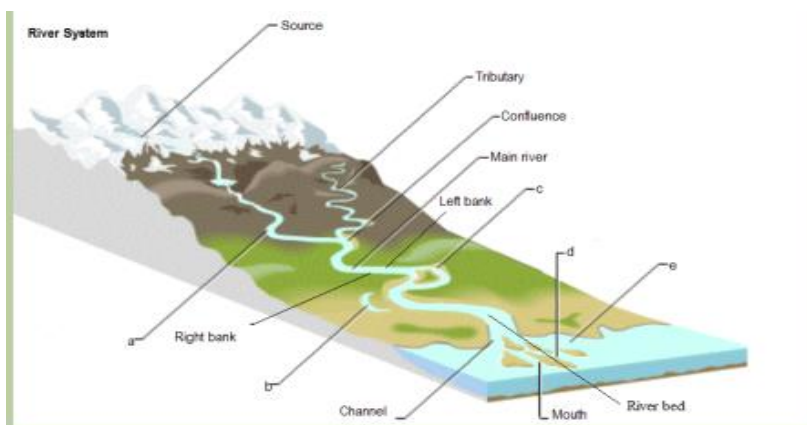


12. Identify the function of secondary economic sector to sustainable development.

(5marks)

13. River channel diagram show:

(4marks)



Draw a diagram of river channel and locate the following points:

*confluence

- *delta
- *meander
- *affluent

**SECTION B: ANSWER ONLY THREE QUESTIONS OF YOUR CHOICE.
(45MARKS)**

14. (a) Build a table of the following weather elements showing their measuring instruments for each. Temperature, rainfall, wind speed, humidity and sunshine. **(5marks)**

Weather elements table:

Weather element	instrument
Temperature	Thermometer
Rainfall	Rain gauge
Wind speed	Anemometer
Humidity	Hygrometer
Sunshine	Sunshine recorder

- (b) Explain the layers of the atmosphere. **(10marks)**

The layers of atmosphere are:

- * **Troposphere** is the lowest layer of the atmosphere with vertical movement of air.
- * **Stratosphere** is the second layer of the atmosphere containing ozone layer.
- * **Mesosphere** is a part of the atmosphere that is above the stratosphere which is the coolest.
- * **Thermosphere** is layer starts from the mesopause – a line of transition that separates the thermosphere from mesosphere. It then continuously reaches up to the upper limit of the atmosphere.
- * **Exosphere** is the uppermost region of earth's atmosphere as it gradually fades into the vacuum of space.

15. (a) Outline five problems on which soils are facing in Rwanda. **(5marks)**

The problems that facing soils in Rwanda are:

- * Erosion caused by heavy rainfall
- * Deforestation encourages sheet erosion
- * Overpopulation leads to soil exhaustion
- * Overgrazing
- * Climate change
- * Poor agricultural methods
- * Over cultivation
- * Careless of steep slopes

(b) Examine the importance of soils to human beings. **(10marks)**

Importance of soils are following:

- Soil has vital nutrients which support the growth of plants
- Soil supports animal biodiversity, above and below ground.
- Soil is important in providing an adequate water supply and maintaining quality vegetation.
- The water absorption property of soil helps in reducing pollution from chemicals in pesticides
- Soil holds the key to the earth's history. It contains and preserves artefacts of the planet's past. For example, dinosaur fossils were discovered in the earth.
- Clay soils are commonly used in pottery, ceramics, bricks and other clay works.
- Ordinary soil when mixed with water forms earth blocks that are used in building houses.
- Murram soils are used in the construction of roads.
- Some soils contain valuable minerals which are mined and sold to earn income.
- Some soils contain minerals that are used by animals as salt lick.
- Some soils are used to make medicine.

16. (a) List two main primary phases of the moon. **(2marks)**

Primary phases.:

- New moon
- First quarter
- Full moon
- Last quarter

(b) Distinguish between latitude and longitude. **(4marks)**

A latitude is the angular distance of a place north or south of the earth's equator; while* **A longitude** is the angular distance of a place east or west of the Greenwich Meridian. Longitudes are measured in degrees, minutes and seconds east

(c) Evaluate the effects of the earth's revolution. **(5marks)**

The effects of earth revolution are:

- The occurrence of the four seasons: summer, winter, autumn. Spring. /each year.
- Varying lengths of day and night.: Equinoxes and solstices.
- Changes in the position of the overhead sun:
 - . During equinoxes, the overhead sun position occurs at equator
 - . During solstices, the overhead sun position happens on tropic of cancer on 21st June, and at tropic of Capricorn on 23rd December.
- Lunar eclipse changes; when the earth passes between sun and moon.

- not same temperature in different parts of the Earth

(d) Describe the main characteristics of Jupiter. **(4marks)**

The key features of Jupiter are:

- It is the largest planet in the solar system.
- It has 63 satellites.
- It is composed of hydrogen and helium,
- It has the diameter of 88,729 miles.
- It takes 9.84 earth hours to complete its rotation on its axis.
- Its revolution around the sun takes 11.862 earth years.

17. (a) List the different types of natural vegetation. **(3marks)**

The types of natural vegetation are:

- Forests,
- Grasslands,
- Swamp vegetation,
- Desert vegetation,
- Steppes

(b) Explain any three factors that influence the distribution of vegetation. **(6marks)**

Factors influencing vegetation distribution:

Edaphic factors, this refers to soil particularly with respect to its influence on organisms. Deep well drained soils support a variety of large trees. Soils that are shallow in depth support the growth of shallow rooted plants such as grass. The pH of the soil also determines the type of plants found in a region. Soils with nutrients and humus support the growth of plants. Soils with few nutrients support very little plant growth.

Topographic factors, this include relief, slope and aspect. These factors affect vegetation through soil formation processes, climate, soil moisture.

Biotic factors, these are the living organisms which have an effect on the growth of vegetation. These include human beings, animals, bacteria, burrowing animals and insects.

Climatic factor, elements of climate that influence vegetation include precipitation, temperature, sunlight and wind.

(c) Assess the importance of vegetation to Rwanda. **(6marks)**

Vegetation is important because of the following reasons:

Food – Some vegetation is a source of food for human beings and animals. Some insects also feed on vegetation.

Habitat for wild animals – Forests and other vegetation provide a home for wild animals. Wild animals attract tourists. They earn the country foreign exchange that aids in economic development.

Sources of medicine – Some types of vegetation such as barks, roots and leaves of trees are used as medicine.

Prevent soil erosion – Vegetation holds soil together and prevents erosion by water and wind. Vegetation also reduces the speed of water when it is raining.

Purify the air – Vegetation purify the air that we breathe and utilise carbon (IV) oxide in the atmosphere and release oxygen.

Improve soil fertility – Plant materials that fall from different vegetation decompose into humus then improves the fertility of the soil.

Source of timber – Trees are a source of timber. This is used in making furniture and building. Trees are also a source of fuel.

18. (a) Identify different forms of precipitation. **(3marks)**

Precipitation is the deposition of moisture in liquid or solid form. The moisture falls from the clouds in the atmosphere onto the earth's surface. Moisture falls in the **form of rainfall, dew, mist, fog, sleet, snow, haze, and frost.**

(b) Discuss the factors that influence climate. **(6marks)**

the factors influencing climate:

Latitudinal location: The latitude of an area determines the amount of the sun's insolation received in the area.

Altitude: has a direct influence on temperature, precipitation and atmospheric pressure.

Areas that are mountainous and hilly have a cool climate.

The atmospheric pressure at high altitudes is also low.

Presence and absence of water bodies: areas that are near water bodies are humid. while, areas which lack water bodies are less humid thus have unreliable rainfall except the mountainous areas.

Vegetation: Areas with dense vegetation such as the Amazon and Congo Basins, receive heavy rainfall but, the areas with no vegetation experience arid conditions.

Distance from the sea: Regions neighbouring the sea experience maritime climate where sea water is warm, the coastal areas also experience warm conditions.

Areas far away from the sea may experience less rainfall.

Human activities: Human activities greatly influence the climates of different regions. Activities such as mining, deforestation and lumbering have negative effects on climate.

Ocean currents: Warm ocean currents carry warm conditions to the neighbouring areas but, cold ocean currents associated with cold and dry winds cause cold temperatures and arid conditions of the areas.

Relief: The nature of the land like hilly and mountainous areas are associated with orographic rainfall, windward sides are wet but, leeward sides experience dry conditions.

(c) Discuss how climate has influenced human activities in the world.

(6marks)

Influence of climate on human activities:

- High and reliable rainfall in moderate levels supports the growth of crop food security hence promoting agriculture
- Moderate and abundant rainfall supports growth of grass hence favouring livestock farming. and supports herbivorous wildlife hence developing the tourism
- Heavy and reliable rainfall supports the growth of trees of high value leading to the development of forestry and lumbering.
- The warm tropical climate attracts many tourists who come to enjoy the warmer conditions. when they have winter conditions back home.
- In areas where with arid climates, humans are forced to find ways of irrigating the crops.
- Heavy and reliable rainfall sustains water bodies like rivers, swamps, lakes and wetlands support aquatic life: tourism sports and provide water that is used for domestic purposes.

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