P250/1
GEOGRAPHY
Paper 1
2026
3 hours

UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Advanced Certificate of Education

GEOGRAPHY

Paper 1
(Physical Geography)

3 hours

INSTRUCTIONS TO CANDIDATES:

This examination paper consists of two sections; **A** *and* **B**. *It has* **four** *items.*

Section **A** *has* **two compulsory** *items.*

Section **B** *has* **two** *optional items; Respond to* **one** *item.*

Respond to **three** *items* **in all**.

You may use diagrams where applicable to illustrate your responses.

Any additional item(s) responded to will **not** *be scored.*

Responses to each item **must** *start on a new page.*

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SECTION A

All *items in this section are* **compulsory**.

Item 1

For this item use the East Africa: **1:50,000 (UGANDA)** *map extract of Awer series Y732, sheet 22/1, Edition 1-DOS.*
The people of Awer are predominantly engaged in subsistence agriculture, which is greatly affected by climate change and limited road infrastructure.

Efforts are being made by the area Local Government to improve road network and commercialise local economic activities, but it is feared that increased economic activities may worsen the effects of climate change in the area.

The Local Council Administration of Lamogi and Pabo Sub-Counties have proposed to construct a loose-surface road from Guruguru (972235) to Patiko (043248) and to encourage climate sensitive commercial activities in the area.

A stakeholder meeting has been organised to discuss those proposals and you have been invited to participate.

Task:
Prepare a write-up that you will use to guide your discussions at the meeting. The write-up should include an illustration of the topography of the area along a line from Guruguru to Patiko, and recommend suitable commercial activities that can be carried out in the area.

Item 2
Mountainous areas in East Africa have various slopes on which local people carryout various activities like agriculture and settlement, as shown in Fig. 1.

A field study in one of the mountainous areas in East Africa found that upper slopes had exposed rocks due to constant erosion. Middle section had gentle slopes with fairly deep soils where farming could be carried out. Lower slope had thick accumulation of rock materials which formed very deep soils from rock deposition.

The impact of mass movement of soil down slope was found to be severe, affecting food security, infrastructure and livelihood.

Public interest in the findings from that study was high, and they demanded that it be published in the local News Paper.

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Fig. 1 *Photograph of one of a landscape in Uganda.*

Task:
Write an article on the findings for publication. The article should account for the different slopes of slopes in the area, and propose measures to manage slope related hazards.

SECTION B

Respond to only **one** *item from this section.*

Item 3
Bulamagi Sub-County (Iganga District) has 68% of its population dependent on rain-fed agriculture. Major crops grown in Bulamagi include maize, beans, cassava and bananas. Rainfall in the area is historically bimodal, with long rains from March to May, and short rains from September to December. Average temperature is relatively stable at 21℃-22℃.

Since 1990, Bulamagi's total rainfall amount remained relatively stable, but the timing, onset and end of rains have greatly changed unpredictably. For example, during the 1990's, rains reliably started in the 1st, or 2nd week of March. That became highly variable during 2000's with frequent delays until late March or early April, affecting traditional farmers' calendar.
Rain seasons would at times stop earlier, or go for much longer than expected. The daily amount of rainfall would exceed the expected, leading to rapid surface runoff, crop and soil destruction and occasional flooding.

The previously stable average temperature is no more. The temperature sometimes rises too high, contributing to drying of soils and higher evapotranspiration and crop failure. These factors have adversely affected farmers in the area.

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Farmers groups in Bulamagi have asked you to advise them on the ways of managing the effects of this weather condition.

Task:
Write a report to present to those farmers. The report should assess causes of the weather phenomena described and recommend measures to manage its effects.

Item 4
For 21 consecutive days, the community in Thelma, a lake-side town in hilly countryside in tropical Africa have experienced an abnormal weather.
Every morning from 4.00am to 10.30 am, a dense grey-white advection fog is seen rolling from the surrounding lake. Visibility drops to less than 20 meters.

Cold air at 12°C got trapped in the valley. Above 300 meters, a warm layer at 19°C acted like a lid preventing for from rising. The air remained stagnant while humidity stayed at 95%.
The fog cleared by 11.00am as the day temperature rose, but returned the next morning. The Meteorological Department warned that that situation could continue for weeks if the atmospheric pressure remained high.

Environmentalists reported drastic decline in quality of air, while health facilities reported increasing cases of respiratory diseases. Farmers and the Department of Agriculture warned of crop failure. Transport services sharply declined during that period.

This situation caused panic in the society. You have been asked to write an article for publication in the Thelma Weather Magazine to educate the population on the occurrence of the weather phenomena.

Task:
Write an article for publication in *The Thelma Weather Magazine*. The article should assess causes of the weather phenomena in the area and recommend measures to manage the effects of that weather conditions.

SAMPLE PAPER

END

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Uganda Advanced Certificate of Education

P250/1 GEOGRAPHY (PHYSICAL GEOGRAPHY)

SCORING GUIDE

FOR THE SAMPLE PAPER

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P250/1 PHYSICAL GEOGRAPHY SAMPLE PAPER SCORING GUIDE

In assessing the candidate's work, the scorer shall look for knowledge, reasoning/ thinking skills, and application of knowledge and coherent presentation of the work. The candidate who gets the maximum score in each part must have scored at least ¾ of what is expected in that part of the task.

SECTION A (Compulsory)

Item 1
Indicators of Achievement:

The candidate is required to use geographical knowledge in the context of map, to think critically, and to apply solutions coherently in a problem situation.

The write-up should have;

(i) Introduction

-Clearly describes the location, landscape, climate and vegetation of Awer.
-draws a cross section of the area between Gurugu (972235) and Patiko (043248).

(ii) The Body

-The candidate analyses the topography of the area from the map and deduce climate of the place from altitude and the vegetation type shown in the map and;

-Proposes economic activities that can be supported by the climate and topography of the area.

(iii) Conclusion

-The candidate makes a summary of the main points in the write up, and emphasizes the most critical ones.

Sample expected responses

Introduction

- Awer is found between 393°E - 410°E, and 312°N-331°N. The area is generally flat with an isolated hill, and altitude of 086 to 1080 feet above sea level.
- The vegetation is woodland and shrub with isolated forests. Given the mid-altitude and generally flat topography, and savanna like vegetation, the area must experience Savanna type of climate.
- This type of climate is characterized by high temperature of 20°c-30°c, moderate rainfall of 500mm-1200mm per year, clearly marked wet and dry season, high humidity during wet season and very low during dry season, abundant sunshine and strong winds.
- Construction of the proposed road in the area is bound to meet difficulty crossing or winding around the slopes of Guruguru hill, and the forests.

- When the road is constructed along the line, it will ease transport.
- Draw a cross section of the area along the stated line. The cross section should have all the marginal information (title, horizontal distance, consistent vertical scale, named vertical scale, starting and end points, and shaded ground).

Body

From that background of the area and keeping the value of climate sensitivity, the following commercial activities are recommended;

- Wildlife conservation, eg birds, animals, variety of plant species supported by the hilly Guruguru, and forests.
- Agroforestry, the existence of the forest reserve and woody grassland shows the possibility of integrating forestry in to farming.
- The savanna climate and vegetation can support animal rearing. Especially zebu breed of cattle and goats native to tropical region.
- Bee keeping due to the savanna vegetation.
- Sparse population, gentle relief, and the proposed road when constructed can support large scale crop cultivation/ commercial agriculture.
- Rivers and streams in the area can support fish farming, most especially cage farming for environmental conservation. Building fishponds can have adverse effect on the eco system.
- Trade can be promoted in the trading centres around.
- Market gardening can be supported by the large population in the nearby dense settlements and larger markets in the distant.
- Carbon credit. Dedicating a large portion of the unsettled land to forest conservation.

Conclusion

Being a mid-altitude savanna, Awer area has a lot of commercial opportunities in its climate, vegetation, relief/ topography, and the road. These opportunities can be harnessed through the proposed commercial activities.

Item 2.

Indicators of Achievement:

The candidate is required to use geographical knowledge in the context of geomorphic process, to think critically, and to apply solutions coherently in a problem situation.

The write-up should have;

(i) Introduction

-Defines a slope.

-Uses the text and photograph in the scenario to name different types of slopes and describe their characteristics.

-Draws a labeled illustration of different types of slopes.

(ii) The Body

-The candidate analyses different slope-related hazards and recommends possible measures that can be taken to manage slope-related hazards.

(iii) Conclusion

-The candidate makes a summary of the main points in the article, and emphasizes the most critical ones.

Sample expected responses

Introduction

- Slope is steepness or gradient of the land surface.
- It is commonly seen on mountains, hills, rift valley scarps, and coasts.
- Slopes are not constant. They keep changing from one type to another as forces of denudation keep working on the scarps.
- The three types of slope represented in the scenario are; convex/ waxing slope (curved outwards like a ball, it's found on the upper most part of the hill, it's the youngest since it due to intense erosion, and made of exposed rocks and thin skeletal soils due to weathering and intense erosion), concave/ waning slope (curved inwards like a bowl, gentle at the base, found at the lower/ foot slopes, deposited materials accumulate on it, has lower rate of surface runoff, and fairly well developed soil), flatland/ lowland slope (generally more gentle/flat land, a lot of deposition, poorly drained soil, deep soils with fine textures.

Causes for slope development:

- Uplifting of the land - uplands have steep slopes (convex).
- Nature of rocks - hard rocks (convex), soft rock (concave),
- Weathering type - physical (convex), chemical (concave).
- Rate of erosion - high (convex), slow (concave, lowland).
- Rate of deposition - high (lowland, concave), low (convex).

The candidate may explain these in relation to slope decline, slope replacement, slope declination, and parallel retreat theories.

Body

From information in the text and photograph in the scenario, the area faces the following slope related hazards with many negative consequences;

- Landslides.
- Severe soil erosion.
- Flooding.
- Slope failure.

Measures that can be taken to manage slope relate hazards in the area include preventive and emergency responses such as:

Preventive measures;

- Afforestation and reforestation. Tree roots bind soils to give it resistance against erosion and other mass movements. Leaves form canopy that reduce force of rain water hitting the soil.
- Agroforestry
- Grass trip methods. Dense grass covers slow surface runoff and bind soils.
- Mulching. Cover soil with crop residue to reduce effect of splash.
- Terracing in upper slopes/ convex zones to reduce speed of surface runoff and severity of erosion.
- Building retaining walls along infrastructures like roads, compounds, that cut through hill slopes.
- Land use zoning.
- Outlaw/ prohibit settlement and other human activities on very steep (convex) slopes. Reduce pressure on steep slopes and turn to other environmentally/ slope friendly economic activities.

Emergency responses measures;

- Relocate community from high risk areas.
- Continuous community sensitization on slope hazards and management.
- Effective use of early warning systems through meteorological and environmental data.

Note. ***The candidate should attach each of these measures to a hazard it can address.***

Conclusion

There are many measures that can be applied to manage slope related hazards. These measures are preventive and emergency response in nature. Preventive measures should be emphasized more as it saves lives and properties, while emergency responses are applied in the worse situation.

SECTION B

Item 3.

Indicators of Achievement:

The candidate is required to use geographical knowledge in the context of atmospheric process, to think critically, and to apply solutions coherently in a problem situation.

The write-up should have;

(i) Introduction

-Defines climate variability.
-Defines climate resilience.

(ii) The Body

-Assesses causes of climate variability.
-Suggests realistic and practical ways that farmers in Bulamagi can taek to build climate resilience.

(iii) Conclusion

-The candidate makes a summary of the main points in the article, and emphasizes the most critical ones.

Sample expected responses

Introduction

- Climate variability is the natural fluctuation in temperature and the amount of precipitation, timing and distribution from year to year, season to season or place to place.
- The Bulamabi experiences climate variability due to the factors that are global, regional/ local, and human induced.
- Climate resilience refers to the ability of the people, economies and ecosystems to anticipate, withstand, adapt to and recover from climate related disasters/ negative impact.

Body

Causes of climate variability in Bulamagi:

Large scale/ globalcauses;

- ✓ Effects of Inter-Tropical Convergence Zone (ITCZ) due to its equatorial location.
- ✓ Effect of monsoon wind and Congo air mass.
- ✓ Elnino Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD)
- ✓ Topography and inland lakes.

Climate change effects;

- ✓ Rising temperature.

Human causes;

- ✓ Wetland and forest encroachment.
- ✓ Deforestation for charcoal burning.

- ✓ Wetland degradation.
- ✓ Greenhouse gas emission.

Effects of Climate variability in Bulamagi;

- ✓ Crop failure and food insecurity.
- ✓ Increased pest and diseases.
- ✓ Soil degradation.
- ✓ Flooding.
- ✓ Water scarcity and drought.
- ✓ Excessive high heat.
- ✓ Disease outbreak.
- ✓ Destruction of transport networks.

The following measures can be applied effectively to build climate resilience;

- Community awareness and early warning through regular dissemination of meteorological data.
- Sustainable livelihood by diversifying economic activities so that effects of bad weather on one enterprise may not totally disrupt livelihood.
- Protection of natural resources like forests and wetlands that have direct effect on rainfall occurrence and floods management.
- Planting early maturing and draught resistant crop species.
- Practice scientific methods of crop production and soil management eg mulching, terracing, etc.
- Building valley dams to trap excessive water during rainy season for use during periods of draught.

Conclusion

There is need for community to know the cause, effects and mitigation measures of the effects of climate variability because of its severe impact on human wellbeing.

Item 4.

Indicators of Achievement:

The candidate is required to use geographical knowledge in the context of atmospheric process, to think critically, and to apply solutions coherently in a problem situation.

The article should have;

(iv) Introduction

-Explanation of temperature inversion.
-Causes of temperature inversion.
-How temperature inversion occurs.
-Draws a graph to illustrate the concept of temperature inversion.

(ii) The Body

-Examines negative effects of temperature inversion.

-Recommend practical measures that citizens and authority can take to reduce risk resulting from temperature inversion and adapt to the situation.

(iii) Conclusion

-The candidate makes a summary of the main points in the article, and emphasizes the most critical ones.

Sample expected responses

Introduction

- The occurrence is temperature inversion. It's a weather condition in lower atmosphere that works in the reverse of normal adiabatic lapse rate. Under the condition of temperature inversion, the higher you go, the warmer it becomes.
- This causes clouds to form in the lower valleys in of highland regions in the morning.
- It is therefore an abnormal lapse rate up to a certain altitude.
- It is categorised in to high and low level inversion.

Formation of temperature inversion:

Effect of relief;

- Cold air from hill descends in to the valley.
- Cold air is dense and it displaces warm light air towards upper slopes.
- Valley fog forms in the cold lower valley while clear space is formed in the upper slopes. This is the most likely cause in the highland areas.

Effect of radiation inversion;

- After sunset, there is rapid heat loss from the ground by radiation.
- Clear and calm winds radiate the heat leaving the ground cold.
- Air touching the grounds cools first.
- Air above remains warm because it is not in direct contact with the ground.
- Cold air in contact with the ground forms ground fog.
- This is one of the most likely causes in Kampala area.

Effects of heat island.

- Urban areas like Kampala generate a lot of heat.
- At night, the warm air rises above the cold air.
- The cooling air develop fog.

Body

Temperature inversion cause the following negative effects on:

- Agriculture;
  - ✓ Temperature inversion causes draught thus affecting crop growth.
  - ✓ Excessively low temperature affects crop growth, pollination, and maturation.
  - ✓ Lower fish catch.
  - ✓ etc

- Transport;
  Excessive fog cause
  - ✓ Reduce visibility therefore affecting transport and communication by road, rail air and water.
- Health;
  Excessive fog cause
  - ✓ Cold related health challenges.
  - ✓ Air pollution. Smoke, dust, vehicle and factory emissions cannot rise.

The following are practical measures that citizens and authority can take to reduce risk and adapt to the situation of temperature inversion;

- Increasing use of fog lights in motorized transports to reduce risks of road accident.
- Lighting public places example streets and buildings.
- Use of cold weather clothes.
- Irrigation to address aridity.
- Planting cold resistant crop varieties e.g. pyrethrum, wheat, irish potatoes, etc.
- Growing crops under green house.
- Regulate/ avoid burning crop residue, and other bio-mass and carbon fibrates in the morning.
- Promote use of clean energy e.g. cooking gas (LPG), electricity and solar instead of carbon fuel.
- Afforestation and reforestation to absorb carbon.
- Promote use of public transport and electric vehicles to reduce pollution.
- Avoid building industries near residential places and vice versa.
- Increase public awareness and early warning systems.
- Enforce emission standards for vehicles, factories, etc.
- Wear masks in polluted areas.
- Keep the vulnerable e.g. children, elderly, etc away from smoke.
- Etc.

Conclusion

While temperature inversions are a natural part of our atmosphere, its impact can me mitigated by reducing carbon emission, afforestation and reforestation, promoting use of clean energy. This calls for commitment of everybody.

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