

Name Stream.....

Signature

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BIOLOGY
Paper 1
(Theory)
2 Hours 30 minutes

UGANDA CERTIFICATE OF EXAMINATIONS
END OF TERM ONE EXAMINATIONS, 2026
BIOLOGY PAPER ONE

DURATION: 2 HOURS 30 MINUTES

INSTRUCTIONS TO CANDIDATES

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

*Section **A** has **three compulsory** items*

*Responses to Section **A** must be written in the spaces
provided.*

*Section **B** has **two** parts; **I** and **II**. Respond to one item from
each part.*

*Responses to section **B** must be written in the answer
sheets/ booklets provided.*

*Responses to each item in section **B** should start on a fresh
page.*

*Respond to **five** items in total.*

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

For Scorer's Use Only

Item No.	Basis Code	Weighted Score	Scorer's Initials
1	PU		
	PA		
2	CU		
	CA		
3	RU		
	RA		
4/5	EU		
	EA		
6/7	MU		
	MA		
Total Weighted Score			

SECTION A

Respond to **all** items in this section in the spaces provided.

Item 1

Kitwe village received heavy rains which caused heavy floods around the area and most gardens remained water-logged for a long time. Recently, Mary who practices mixed cropping in the same community observed that the leaves of her maize and bean plants are falling off prematurely and yellowing. Some have brown edges and seem to be growing slower than before. She is wondering why.

Task:

(a) Which plant requirements could be absent in Mary's garden?

(b) Explain how the weather patterns experienced in Kitwe village led to observations made by Mary.

(c) How did the arrangement of Mary's garden prevent the situation from getting worse?

Item 2

Leander is a student with serious eye complications. Medical examinations on him revealed that whenever he is given a poster, he holds it with both of his arms and stretches them fully to read comfortably. Leander also faces a problem of involuntary muscle contractions, which are very painful. One day Leander was asked about his lifestyle and he stated that he is an office worker who always sits for a long period of time and enjoys taking alcohol.

Task:

a) Explain the major causes of Leander's medical conditions and describe other possible effects of his lifestyle.

i) Causes of Leander's medical conditions.

(b) How he can recover the white-feathered birds in the second generation.

SECTION B

Part I

Respond to only one item from this part.

Responses should be written in the answer sheets/ booklets provided.

Item 4

Ms. Atieno has acquired a large plot of land on a steep mountain slope that was previously a dense tropical forest. To establish a high-yield coffee plantation, she cleared all the trees and undergrowth using the "slash-and-burn" method. To ensure high production, she uses heavy machinery to create flat terraces and applies large amounts of nitrogen-based fertilizers. Recently, she noticed that after heavy rains, the nearby stream which the local village uses for drinking water has become brown and dirty, and many fish have died.

Task:

- (a) Explain the environmental consequences of Ms. Atieno's land clearance and farming methods.
(b) Suggest sustainable agricultural practices Ms. Atieno can implement to protect the mountain ecosystem while continuing her coffee farming.

Item 5

A community living on the shores of Lake Kyoga depends on the surrounding wetlands for papyrus (to make mats), water for domestic use, and fish. In recent years, a large portion of the wetland has been drained for commercial rice growing.

The Fisheries Department monitored the population of three key species in the area over a four-year period. Their findings are shown in Table 3 below.

Table showing Species Population Trends.

Animal species	Number in 2022	Number in 2026
Dragon flies	5,400	1,200
Frogs	1,850	450
Snakes	120	310

Note: The species live naturally in the wetland. During this period, the rice farmers used heavy amounts of insecticides to protect their crops.

Data from the village health outreach program indicates a sharp rise in malaria, kwashiorkor and bilharzia cases among children.

Residents have also complained that during heavy rains, their homes now flood easily, and the lake water which used to be clear is now brown and smells of chemicals.

Task:

- (a) Explain the observations from:
 - i) The Fisheries Department.
 - ii) The Health Outreach Program.
- (c) Explain the roles played by wetlands in communities around lake Kyoga.
- (d) Suggest measures that the community should take in order to reduce challenges reported by the health outreach team.

Part II

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

Responses should be written in the answer sheets/ booklets provided.

Item 6

Prior to his routine physical training session, Mr. Okello consumed a serving of millet porridge, a meal rich in slow-release carbohydrates. He began his gym exercises with notable endurance, but later experienced muscle pain and fatigue. While resting, he exhibited rapid breathing and thermoregulatory responses such as profuse sweating. These symptoms gradually diminished, after which he rehydrated (restored lost body fluids) and returned home.

Task:

- (a) Discuss the metabolic role of the porridge in supporting Mr. Okello's exercise performance.
- (b) Explain in detail the body reactions encountered by Mr. Okello during his physical efforts.

Item 7

Sarah, a 4-year-old girl of blood group A, was recently moved from a village to an urban center. Her diet consists almost entirely of maize porridge and boiled sweet potatoes. Lately, Sarah's mother noticed that the girl's belly is swollen, and her skin has become thin and pale. Sarah often complains of pain in her legs, and her mother noticed that Sarah's legs are beginning to curve outward. Furthermore, Sarah struggles to see clearly in the evenings when the lights are dim. Due to her extreme weakness, Sarah was rushed to the clinic. The doctor found her to be severely anemic and required an urgent blood transfusion. However, the only blood bag available at the local clinic was labeled group B. The doctor refused to use this blood, leaving Sarah's mother in great distress.

Task:

- (a) i) Identify and explain the likely causes of the different health conditions Sarah is suffering from.
- ii) Suggest practical ways to improve Sarah's health through diet without using factory-made supplements.
- (b) Using your knowledge of antibodies and antigens, explain why the doctor refused to give Sarah the blood of group B.

END