

Candidate's Name.....

553/1

Biology

Paper 1

(Theory)

April

**UGANDA CERTIFICATE OF LOWER  
EDUCATION  
PRE-REGISTRATION  
EXAMS 2025**

BIOLOGY

Paper 1

(Theory)

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.

Section **B** has **two** Parts; **I** and **II**. Answer **one** item from each part.

Answers to Section **A** **must** be written in the spaces provided while answers to Section **B** **must** be written in the answer booklets) provided.

Answer **five** items in all.

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

**Item One.**

Mr. Kakooza is a prominent farmer in Wakiso district. Recently he hired a new land for crop farming. Later he planted the seeds, few seedlings managed to grow and these later produced crops which were small, with few small flowers and small yellow leaves which later gave low fruit yields. Later when he brought a specialist to analyse the cause of the low yields, the specialist reported that the soils were deficient in some essential mineral ions.

### Task:

- a) Identify the plant processes that were affected.

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- b) Explain how the affected plant processes lead to low yields.

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- c) Why was Mr. Kakooza able to get some yields?

[illegible]

## Item Two

Tracy is a P.7 pupil who is very bright in class. However, when she sits on the front row near the chalk board, she cannot see the writings on the chalk board, and she complains of pain in her eyes when she strains them to see in the work in her books. One day as she was coming from school, she closed her eye very fast and unconsciously as a speeding insect approached her eyes. She later wondered how such a response happened to protect her eyes.



### Tasks:

- a) Describe a series of events that occurred in Tracy's body to bring about the response that protected her eyes.

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- b) Using scientific facts, explain Tracy's problem and its cause to her parents.

[illegible]

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.....  
.....

c) Using illustrations, clearly show how Sarah's problem can be managed.

**Item Three.**

Recently a couple which has produced so far four children, all girls, were told by their Neighbor that there is a higher probability that their next child is a boy, they didn't believe the statements. One day when they went to the hospital, the doctor told them on the probabilities of the next child being a boy or a girl. Later their 14-year-old daughter found blood on her bed and some being released through her reproductive part (vagina) and she wondered what could be the cause of the changes that had happened in her body. Later her older sisters told her that the instance is a normal biological change.

### Task:

- a) Explain the possible probabilities the doctor explained.

[illegible]

- b) Describe the changes that occurred in their 14-year-old daughter in the past 4-weeks leading to the release of blood from her reproductive part.

[illegible]

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### Item 4

The table below shows how the concentrations of three gases have increased between 1890 and 1990 and their expected concentrations in 2030.

| Gas            | Concentration of gas in the atmosphere in a certain year/ part per million. |      |           |
|----------------|-----------------------------------------------------------------------------|------|-----------|
|                | 1890                                                                        | 1990 | 2030      |
| Carbon dioxide | 290                                                                         | 354  | 400-500   |
| Methane        | 0.9                                                                         | 1.7  | 2.2-2.5   |
| Nitrous oxides | 0.28                                                                        | 0.3  | 0.33-0.35 |

- Explain the environmental challenges the above changes in greenhouse gases have caused.
- How is it important to nature to maintain the levels of the above gases at environmentally friendly levels?
- Provide practical remedies to lower the concentration of the above gases.

**Item five**

Environment conservationists are against use of Pesticides and inorganic fertilizers while farmers are in favor of their use in order to get more crop yields and food for the increasing human and animal population.

**Task:**

- Explain the environmental challenges the farmers practice imposes on terrestrial and aquatic ecosystems.
- Show the value of not using the above chemicals to nature.
- Explain some options farmers can use to increase yields other than the above.

**PART 11****Item Six**

Mr. Kafeero, a sixty-year-old urinates frequently, has blurred vision, feels thirsty often and has swollen legs, feet and face, when he visited a physiologist, the Doctor recommended for Urinalysis test for proper diagnosis. The clinical laboratory Technician obtained specimen solution **P** from Mr. Kafeero which gave a positive test with Benedict's solution.

**Task:**

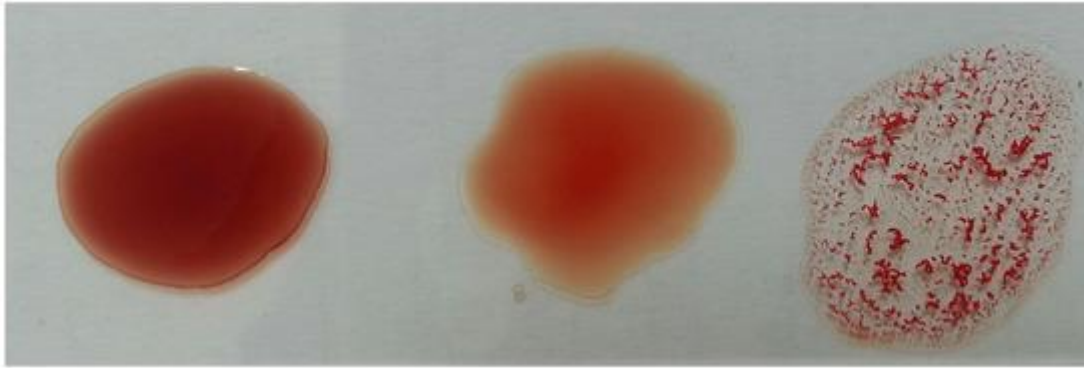
- Identify the malfunctioning organ(s) in Mr. Kafeero's body.
- Explain how specimen solution **P** is formed inside Mr. Kafeero's body.
- Explain how he can manage the disorder to live a normal life.

**Item seven**

Peter and John who are blood group A and B respectively got a fatal accident and lost a lot of blood. When they were taken to the health center IV, the doctor used their blood to test the blood group of individuals X, Y and Z so as to find a suitable donor. Later examinations revealed that John had severely injured his pancreas.

The table below shows the result.

| Person | X           | Y      | Z           |
|--------|-------------|--------|-------------|
| Peter  | Clumps      | Clumps | No clumping |
| John   | No clumping | Clumps | No clumping |



**Task:**

- a) Identify the blood groups of individuals X, Y and Z.
- b) Explain how the accident affected John's body functioning.
- c) Without referring Peter and John to another hospital, suggest with reasons which individuals could donate blood to Peter and John.

**END**