

Candidate's Name.....

553/1

**Biology**

**Paper 1**

**(Theory)**

**April**



UGANDA CERTIFICATE OF EDUCATION  
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 Two**

Sarah 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 Sarah's body to bring about the response that protected her eyes.

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

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



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c) Show the ways the 14-year-old can cope up with such biological changes to live a healthy life.

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**SECTION B**  
**PART 1**

**Item 4**

In the recent times, there has been a cry of climate change, which is believed to be caused mainly by increased levels of greenhouse gases. The increased levels of fossil fuel burning, industrialisation and agriculture is the main cause of the increase in the concentrations of greenhouse gases.

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
Carbondioxide	290	354	400-500
Methane	0.9	1.7	2.2-2.5
Nitrous oxides	0.28	0.3	0.33-0.35

**Task:**

- a) Explain the environmental challenges the above changes in greenhouse gases have caused.
- b) How is it important to nature to maintain the levels of the above gases at environmentally friendly levels.
- c) 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 favour of their use in order to get more crop yields and food for the increasing human and animal population.

**Task:**

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

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

Mr. Mukasa, a sixty-year-old urinates frequently, has blurred vision, feels thirsty oftenly 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. Mukasa, which gave a positive test with Benedict's solution.

**Task:**

- a) Identify the malfunctioning organ(s) in Mr. Mukasa's body.
- b) Explain how specimen solution **P** is formed inside Mr. Mukasa's body.
- c) 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 centre 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**

Babalanda.