

Name..... Stream.....

553/1

BIOLOGY

Paper 1

(Theory)

2025

2 $\frac{1}{2}$ Hours



APEX EXAMINATION COUNCIL

Uganda Certificate of Education

Pre-Registration Examination 2025

S.4 BIOLOGY 553/1

Paper 1

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

- This paper consists of two sections; A and B.
- 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 answered in the spaces provided.
- Answers to Section B must be answered in the answer sheets provided.
- **Answer five items in all.**
- Any additional item (s) answered will not be scored.

FOR EXAMINER'S USE ONLY			
SECTION	ITEM	SCORE(S)	EXAMINER SIGNATURE
A	1		
	2		
	3		
B	4		
	5		
	6		
	7		
TOTAL			

TURN OVER

SECTION A

Answer all the questions in this section in the spaces provided.

1. Bashir is a watermelon farmer in Kitatya village. The village experienced a long dry season characterized by high temperatures, much sunshine and dry windy conditions. During the season, the hairy watermelon leaves could droop (bend downwards) and flower petals remained closed for a longer part of the day but they could straighten and open during early morning hours respectively. Bashir had a very poor yield of pumpkins.

Task:

a) Mention the processes in the watermelon plants that were affected by the conditions experienced.

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b) Describe how the conditions experienced affected the functioning of the watermelon plants which led to poor yields.

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c) Explain how the watermelons managed to survive the conditions experienced.

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TURN OVER

2. Samuel joined a group of young boys who sniff petrol and smoke marijuana frequently at school. The group became known for crime, violence and causing chaos in trading centers. One day when they were hiding and smoking behind the chemistry laboratory, Samuel sighted the headteacher and quickly alerted his group mates and they ran very fast back to class.

Task:

a) What challenges do you think Samuel may face if he continues associating with such a group?

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b) Describe a series of events that occurred in Samuel's eyes from the moment the head teacher appeared to him up to when the head teacher's image in Samuel's eyes was interpreted.

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c) Explain how Samuel can avoid challenges associated with being in such a group.

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3. Nancy, a 13-year-old girl, is experiencing changes in her body as she enters puberty. She is concerned about her physical development and wants to know more about the changes she is experiencing. In one of her science lessons, she learned how HIV/AIDs is becoming a concern among youth.

Task:

- (a) Explain the changes Nancy can expect during puberty

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- (b) Give Nancy guidance on how she can maintain a positive body image and self-esteem during this time of change and help her know the transmission of HIV/AIDS

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TURN OVER

SECTION B

Part I

Answer only one item from this part.

4. Mr. Okello had a piece of land with many shrubs and indigenous trees. He cleared the land in order to grow maize on large scale. In addition, he destroyed all ant hills with chemicals because he feared that termites would attack his maize. He also applied fertilizers in his maize garden. These caused many challenges to the environment.

Task:

- a) Explain to Mr. Okello the challenges he caused to the environment.
- b) Explain why it was important for Mr. Okello to conserve his environment.

5. A hilly place previously covered with thick vegetation has recently been dominated by many activities that include, timber-cutting, charcoal burning, rearing of cattle and crop gardening. Farmers practice bush burning in preparation for planting and also dig up and down the slopes of the hill. Incidents of strong wind, mud slides and flooding of gardens in the valleys have become common in the area.

Task:

- a) Explain how the different activities have caused challenges in the area and how they can be overcome.
- b) Explain why the community should conserve the hill.

Part II

Answer only one item from this part.

6. Stephen was involved in a motor accident. He hit his head, lost a lot of blood and became unconscious. He was rushed to a nearby health centre IV where they found that he is of blood group AB and also had injured his kidneys. The doctor advised that Stephen should undergo blood transfusion in addition to other medication. The health centre did not have blood but Stephen's relatives with safe blood were willing to donate blood to save his life. However, they were confused as to who of them could donate the blood. Table 1 shows the blood groups of Stephen's available relatives.

Table 1

Relative of John	Blood Group
Cousin	A
Mother	B
Sister	AB
Brother	O

TURN OVER

Task:

- a) Explain how the accident affected the functioning of Stephen's body.
- b) Without referring Stephen to another hospital, suggest with reasons, which relative(s) could donate blood to Stephen.

7. Chandiru, a good sports lady, and her husband who is a smoker, live near a swampy area. As time went on, she developed poor appetite and was found to be HIV positive, having heart and respiratory diseases and frequently suffers from malaria. Chandiru observed that her level of performance had greatly declined and she could not understand the cause.

Task:

- a) Explain why Chandiru's level of performance in sports had declined.
- b) Advise Chandiru on how she can manage her health condition.

END

Apex Examination

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