

Candidate's Name:

Signature:

Random No.						Personal No.		

(Do not write your School/ Centre Name or Number anywhere on this Booklet.)

553/1
BIOLOGY
Paper 1
(Theory)
Oct./Nov. 2024
2½ hours



UGANDA NATIONAL EXAMINATIONS BOARD

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 booklet(s) provided.

Answer five items in all.

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

SECTION A

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

Item 1

Badru is a pumpkin farmer in Kitumba village. The village experienced a long dry season characterised by high temperatures, much sunshine and dry windy conditions. During the season, the hairy pumpkin leaves would droop (bend downwards) and flower petals remained closed for a longer part of the day but they would straighten and open during early morning hours respectively.

Badru had a very poor yield of pumpkins.

Task:

- (a) Mention the processes in the pumpkin plants that were affected by the conditions experienced.

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

- (c) Explain how the pumpkins managed to survive the conditions experienced.

Item 2

Donald joined a group of young boys who sniff petrol and smoke marijuana frequently. The group became known for crime, violence and causing chaos in trading centres.

Donald and his group members were one day surrounded by policemen and the policemen fired gun shots at them. This caused Donald's heart beat to increase suddenly and he ran very fast back to their home.

Task:

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

(b) Describe how Donald's body coordinated and made him reach home.

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

Item 3

David got married to Joan and they produced a son. Their son, when injured, bleeds a lot even with a slight cut on the skin and this causes a lot of distress in the family. When Joan got pregnant for the second time, David advised her to abort on the belief that they would get a child with similar condition like that of their first born son. However, when David and Joan went to the hospital concerning their son's condition, they were told that the condition was as a result of Joan being a carrier of haemophilia.

Task:

- (a) Explain why Joan should not take David's advice.

- (b) Show how their son inherited the condition.

- (c) What should Joan and David do to manage the challenges associated with the condition of their son?

SECTION B

Part I

Answer only one item from this part. Answers should be written in the answer booklet(s) provided.

Item 4

Mr. Ouma 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 fertilisers in his maize garden. These caused many challenges to the environment.

Task:

Explain;

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

Item 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. Incidences of strong wind, mud slides and flooding of gardens in the valleys have become common in the area.

Task:**Explain;**

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

Part II

Answer only one item from this part. Answers should be written in the answer booklet(s) provided.

Item 6

John, whose mother has hepatitis B 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 John should undergo blood transfusion in addition to other medication.

The health centre did not have blood but John'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 John's available relatives.

Table 1

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

Task:

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

Item 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.