

Candidate's Name:

Signature: Stream.....

553/1
BIOLOGY
Paper 1
June, 2024
2½ hours

INTERNAL MOCK EXAMINATIONS, 2024

Uganda Certificate of Education

S.4 BIOLOGY

Paper 1

(Theory)

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

*This paper consists of **seven** examination items. It has 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.*

*Answer **five** items in all.*

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

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

Turn Over

SECTION A [30]

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

Item 1.

Lena an S.4 learner went to the library and got a newspaper to read but noted that she could not clearly see the letters unless when placed a bit far. Some words were invisible. When she visited an optician eyes were examined, she was given reading glasses to use. To her amazement when she put glasses on, she could easily read the newspaper at a close distance. Lena's friend Natalia complains of urinating frequently large volumes of urine and doctors advised her to always be administered daily doses of insulin.



Figure 1: Lena reading newspapers in the library

- (a) Identify the healthy problems/difficulties faced by Lena and Natalia (03 scores)

- (b) Describe how the problem faced by Natalia arises. (03 scores)

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- (c) How was Lena able to see clearly using the lenses given to her by the optician (use a drawing) (03 scores)

Drawing

- (d) What advice can you give to Natalie to overcome the problem? (03 scores)

Item 2.

Adam was chased from his village as a result of taking Marijuana and alcohol frequently on the outskirts of a nearby business centre. One day, as Adam approached a swamp on his way home staggering from drinking alcohol at 5:30 pm, he encountered a snake. His heart started beating faster and his breathing rate increased. He tried to pick a nearby stick but he could not get hold of it on several attempts, so the snake escaped.



Figure 3: Adam walking home from drinking alcohol.

Task

(a) Mention the organs, structures responsible for the changes in Adam's body.

(03 marks)

(b) Describe how Adam's body coordinated to bring about his reactions from the time he encountered the snake up to when his rate of breathing increased.

(03 scores)

(c) What are the likely effects of Adam's lifestyle as described in the scenario?

(03 scores)

(d) Suggest ways in which Adam can change his lifestyle.

(04 scores)

Item 3.

In Rwampara village, farmers were given two cassava plant varieties to select one that can form a larger tuber. The first batch grown had tiny leaves and could not grow tall. While the second batch had broad leaves and could grow tall. The cassava plants were both grown at the same time and harvested after 6 months.

Task

(a) Suggest with reasons the batch that developed larger tubers. *(03 scores)*

(b) State why the plants were grown and harvested at the same time.

(02 scores)

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- (c) Suggest the batch of cassava that can survive in dry conditions. Explain your suggestion. (03 scores)

- (d) Explain the process involved in the interaction of leaves and tubers. (02 scores)

SECTION B

Part I

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

Item 4

Plants provide one of the most diverse environments for organisms on earth. Unfortunately, they are facing threats due to various factors, causing their populations to reduce at an alarming rate. As a result, the delicate balance of the environment is disturbed, posing a significant challenge to variety of living organisms dependent on the plants and the sustainability of natural resources.

Task.

Explain how possible threat factors to organisms in scenario affect long-term survival of variety of living organisms and the natural resources and provide solutions to ensure environmental stability. (15 scores)

Item 5

As a result of a civil war for the independence of South Sudan, very many people were displaced from their homes, and these sought refuge in the neighboring countries including Uganda. Akotto-Kirema is a large village in the northern Uganda boarder district, crossed by river Nile. The river banks of the village had been covered by an artificial eucalyptus

forest plantation for years as a forest reserve. Due to the influx of people running away from the civil unrest, the eucalyptus forest was progressively cut down as people established a illegal refugee camp.



Figure 5 Photo showing a cleared forest and a nearby refugee camp.

Task

The ministry of disaster preparedness has hired you as an environmentalist, make a write up to government clearly explaining the environmental problems and how they can be solved. Explain why the village should conserve the natural resource (land) that has been exposed as a result of clearing the forest. (15 scores)

Part II

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

Item 6

Makerere-kikoni is a slum area in Kampala district and has residents from two living economic standards i.e. the rich and the poor.

The slum has one community health centre III, which has a routine health camp every first monday of the month to check on the health status of especially community children. During one of the health camps, data was collected about a number of children who visited the health centre and given to their parents but did not know how to interpret the data. Below is an extract of the data collected about the two children assessed?

Child A	Child B
Body weight = 1.3kg	Body weight = 18kg
Body height = 0.916m	Body height = 0.72m
Sores on the body	Has ox-bow legs
Muscle wasting	High ventilation rate

Support material



Child A

Child B

Figure 4: Showing child A and B

Standard BMI chart

<18.5	Under weight
18.5 to 24.9	Normal/ideal weight
25 to 30	Over weight
30 to 35	Obese
>35	Gross obesity

Task

Analyse the data from the health workers and explain to the parents what is causing such data in their children. Suggest nutritional remedies for the two children that their parents can undertake and of what importance is it to have a balanced diet. *(15 scores)*

Item 7

A 60 year old woman has a neck lump (swelling), frequent back pain and poor vision. Doctors further revealed that she has porous bones in her back bone and Age-related long sightedness. Her family members may manage her condition through diet. The family people lack correct plan and nature of diet to administer.

Task.

Explain cause for the old woman's health condition, suggest how a suitable diet and sight defect correction would manage her condition. *(You may include sight defect correction diagrams in your response).* *(15 scores)*

END