

Candidate's Name:

Signature:

Random No.					Personal No.		

553/1
 Biology
 Paper 1
 (theory)
 Final touches
 Set 10
 2 Hours : 30
 Minutes



STUDY SPHERE EXAMINATION BOARD

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Biology

Paper 1

2 hours and 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

Mr. Kwizera is a popular crop farmer in Kigezi sub region. Last year, there was a serious hailstorm that hit and destroyed his Irish potato garden at the time of tuber formation. After the hailstorm, the neighbors encouraged him to abandon the Irish potato garden and plant something else. However, some potato plants sprouted and continued growing. At the time of harvesting, the yields were poor



Fig. 1 Shows Mr. Kwizera's garden after it was destroyed by the hailstorm.

Task

- a) Identify the potato plant organs affected by the hailstorm.

- b) Explain how the hailstorm affected the processes in the potato plants.

- c) Why were potato yields at the end poor despite the fact that some plants sprouted after the hailstorm?

Item 2

Canary was suspended from school as a result of drinking alcohol. He engages in heavy drinking of alcohol in the nearby trading center. One day, as John approached a swamp on his way home staggering from drinking alcohol at 6:00 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.



Task

- a. Describe how Canary's body coordinated to bring about his reactions from the time he encountered the snake up to when his rate of breathing increased.

- b. What are the likely effects of Canary's lifestyle as described in the scenario?

- c. Suggest ways in which Canary can change his lifestyle.

Item 3

Musa was a man of Honor, with a very good job, lived in Munyonyo where he had constructed a very big house where he married and stayed with his new bride. Two years ago Musa's wife got pregnant and gave birth to a son with a very low birth weight, the child experiences pain in his joints, that are always swollen. A medical examination revealed a damaged spleen and low blood count. Musa has sold most of his things to treat his child and feels like God has abandoned him. Musa started living in a grass thatched house in Bwaise with his wife where their son eventually died from leaving them devastated. A year ago, Musa's Wife got pregnant again and experienced a miscarriage. And since then all subsequent pregnancies have been miscarried. Musa is depressed and has sworn to commit suicide. A medical examination revealed a rhesus blood incompatibility causing the miscarriage

Task:

- a. Explain;
 - i. The disorder their person son had.

- ii. Using a genetic cross how their son got to have such a disorder.

-
- b. Suggest
- i. An explanation for the possible causes of the miscarriage and why their first pregnancy never got miscarried.

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-
-
- ii. Which advice you can give to Musa so as to deal with the problems his family is facing.

SECTION B

PART I

Attempt only one item from this part.

Item 4

In Uganda, the beautiful landscapes are home to diverse ecosystems that provide vital natural resources. However, increasing human activity, such as illegal poaching and deforestation for agricultural purposes, has begun to take a toll on these precious environments. The beautiful forests of Bwindi Impenetrable National Park, a UNESCO World Heritage Site, are known for their rich biodiversity, including endangered species like the mountain gorilla. Nonetheless, the pressures of land reclamation for farming and unsustainable logging practices have led to significant ecological disruption.

Task:

Explain the effects of such human activities highlighting the natural resources at risk of being affected and what can be done to reverse the effects. Discuss the benefits of preserving such a UNESCO World Heritage Site emphasizing the importance of biodiversity and ecosystem health.

Item 5

Many residents had cleared and constructed residential and commercial buildings and various factories in Lubigi, a large wetland in Kampala. Due to the many environmental challenges brought about by their actions, the National Environmental Management Authority NEMA has decided to force them out of the area and destroyed all their buildings in order to restore the wetlands and residents are not happy.



Task:

Explain to the residents how their actions have brought about the environmental challenges in Kampala city. Suggest what could be done to avoid such challenges if they were allowed to sustainably live in the area and why is it important for NEMA, to restore the area to its original state.

PART II

Attempt only one item from this part.

Item 6

A boy, feeling sick, went to a nearby healthy facility (hospital). The doctor asked him to present a sample of urine to be taken to the hospital laboratory for urinalysis. On carrying out several tests, the urine sample **tested positive** for both **glucose** and **proteins**. The doctor recommended some treatment procedures to the boy to remedy the illness he was facing.

TASK:

Identify to the boy the problem he is facing; help him understand how the substances above ended up in his urine. Also help him understand the treatment procedures recommended to him by the doctor.

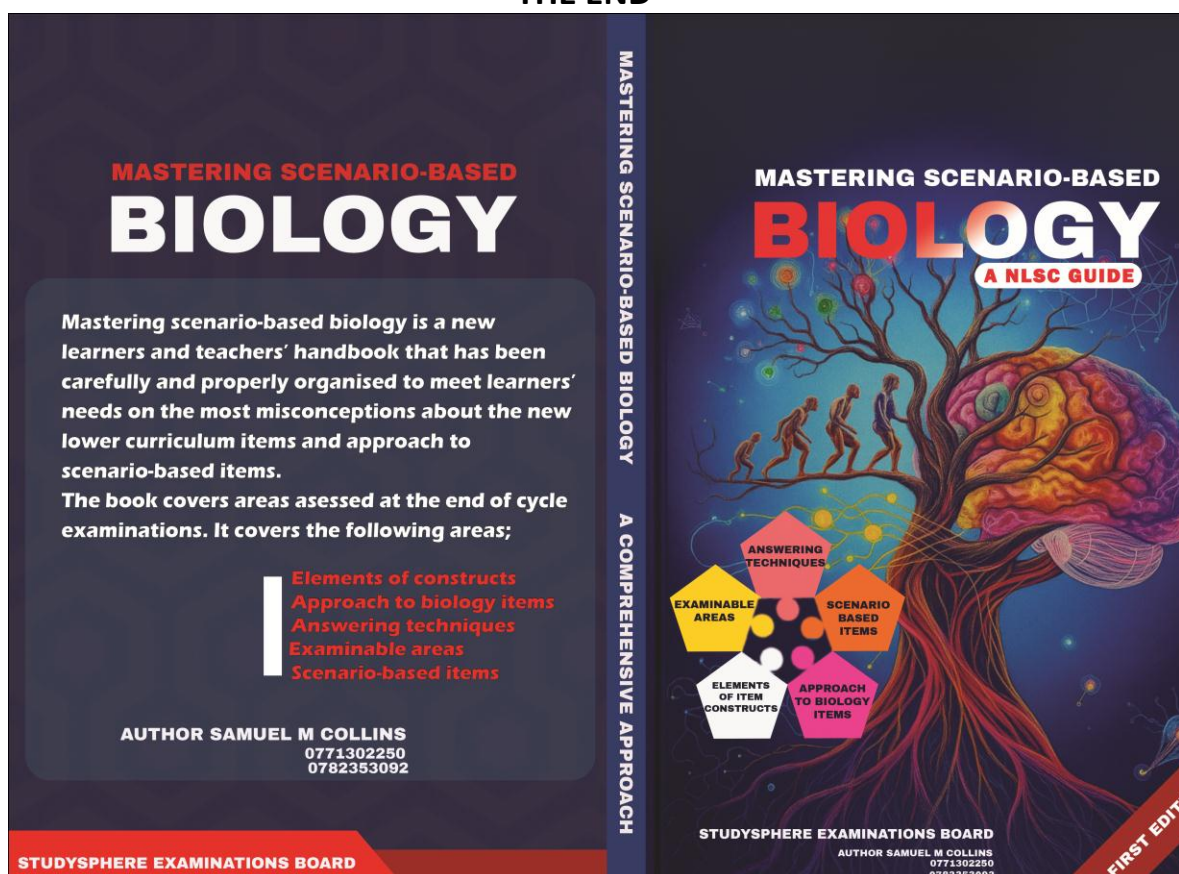
Item 7

Gembe, a village in Luwero is composed of the following groups of people; Pregnant women, Crawling babies, footballers and athletes, office workers and old people. The health care providers of the area want to design the right diet for each group of people but they don't know what to include. You have been consulted on what to do.

Task:

- Identify the nutrients and their uses that should constitute a greater percentage in the diets of the above groups of people in Gembe village.
- Suggest what would happen if the individuals above depended on an imbalanced diet.

***** THE END *****



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