SENIOR ONE END OF TERM TWO EXAMINATION

BIOLOGY SET 1

TIME: 1:45 HOURS

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

INSTRUCTIONS TO CANDIDATES:

- *This paper consists of **two** structured scenario-based items.*
- *Attempt **all** items in this paper.*
- *Pay attention to the tasks assigned in each scenario to ensure full scores.*

ITEM 1

Mukasa lives in a village where his family relies heavily on farming. One evening, while walking through their banana plantation, he noticed that the leaves of the banana plants were wide and flat, positioned in a way that captures the maximum evening light. Suddenly, as continued to walk, he stepped on a hidden thorn, causing him to instantly pull his foot away before he even thought about it.

The next morning, his father asked him to help mix a local organic manure using decaying plants and cow dung. Mukasa noticed that the compost pile was warm, smelled strongly, and was being swarmed by microscopic organisms breaking down the waste. He began to wonder how his own body, the huge banana plants, and the invisible soil microbes could all be considered alive when they look so different.

Later at school, his Biology teacher provided him with two microscopic diagrams: one showing a cell with a rigid outer boundary containing green structures, and another cell with an irregular shape and no green structures. The teacher told him that these microscopic structures hold the secret to how all these living organisms manage to stay alive and respond to their environments.

Task.

As a student of biology, write an explanation to help Mukasa understand the science behind his observations. Your essay must:

1. Identify and explain the specific life processes Mukasa observed in the plantation when looking at the banana leaves and when he stepped on the thorn.

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2. Explain four other characteristics shared by Mukasa, the banana plant, and the soil microbes that prove they are all living things.

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3. Identify which basic units was got from the banana leaf and which represents Mukasa's skin, drawing a clearly labelled diagram of both cells side-by-side to show their similarities and differences.

Basic unit from a Banana leaf : .....

Basic unit from Mukasa's skin: .....

DRAWINGS

…… ……

4. Explain how specific structural differences between these two cells allow the banana plant and Mukasa to live different lifestyles.

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ITEM 2

The environmental club of a given secondary school in Uganda visited a local community, where there is a high malaria outbreak due to the surrounding wetland due to the abundance of insects spreading the disease. During their walk, the students collected several organisms: a honeybee, a grasshopper, a spider, a tilapia fish, and a crested crane bird.

When back in the school laboratory, a heated debate arose among the club members. One group of students suggested that the honeybee and the crested crane should be put in the same group because they both possess wings and can fly. Another student argued that the spider and cockroach are identical to the grasshopper because they all have hard outer coverings and jointed legs.

Task

a) Construct a clear table to show how you would correctly sort all the collected organisms into their respective, Phyla and Classes based on observable features.

Organism	Phylum	Class	Observable Characteristics
1.			
2.			
3.			
4.			
5.			

b) Explain why a cockroach belongs to a different class than the spider.

c) Which examples of organisms belong to the following phyla of animals;
-Platyhelminth
-Nematoda
-Annelida
-Mollusca.