

Learner's Name.....

Signature.....

553/1

**BIOLOGY**

**Paper 1**

**2024**

2 hrs.30mins



**SHAPTA JOINT ASSESSMENT BOARD 2024**

**Uganda Certificate of Education**

**BIOLOGY**

**Paper 1**

**Theory**

**2 HOURS: 30 MINS**

### **INSTRUCTIONS TO LEARNERS**

- Answer **all** examination items in this paper.
- Use of relevant explanation and diagrams will earn u marks
- Be neat.

### Item 1

Last week, Louise went in the village with his aunt to spend a weekend. While there, in the early morning, the relatives could wake up in the garden and Louise and the aunt could remain at home with one of the young sister called Nakafeero to prepare breakfast. After finishing breakfast he decided to move around the area following where other members went for digging, on his way he came across different soil types but he could not distinguish them properly. Near the swamp, there was sticky and grey soil with a lot of water in it, around the rubbish pit, there was reddish brown soil with some earthworms coming out of it, when he approached the valley, there was dry soil with large soil particles. He decided to collect all the soil samples and brought them in the garden where other members were digging from.

#### **TASK.**

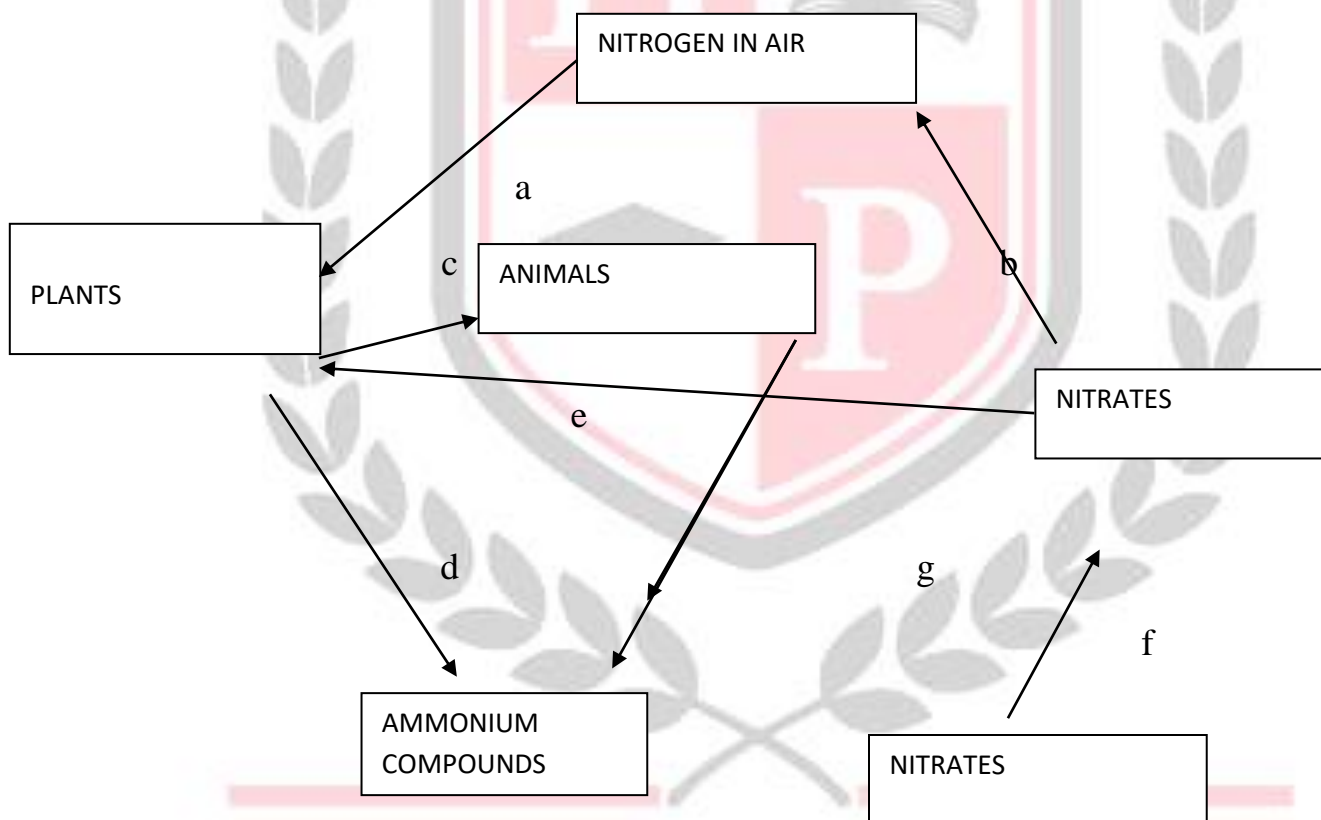
Help Louise to distinguish the different soil samples and explain him learn more about the different components of soil and their properties according to his picked samples. (15 scores)



## Item 2

A senior one learner came to your class carrying a biology chart and he was saying that he could not understand the things written on the chart but he was able to read the word NITROGEN CYCLE as the title. There were different arrows pointing at some words which he totally didn't understand, the chart is shown below.

### NITROGEN CYCLE



## TASK

Help him to find out the named arrow on the chart and explain him more about the different processes on the nitrogen cycle as indicated by the arrows. (10 scores)

### Item 3

In Bududa district, the area receives heavy rainfall and it is found on a steep slope. Members of the village always complain about the poor weather condition that keeps on destroying their crops and also faces challenges in taking back their children at school due to the poor condition of the roads. During the village meeting, one of the members raised his hand and talked about soil erosion as the major concern of all this, all members were wondering because of the word said by their fellow members which they didn't understand.

You have been called upon by the elders of the village to explain more about the said word since you are one of their educated children in the village.

#### TASK.

Explain the members the meaning of soil erosion and brief them more about the different types of soil erosion and their causes.

(10 scores)

### Item 4

Precious a senior two learner carried out an investigation to determine the percentage of air in a given soil sample and obtained the following values;

Volume of soil used =  $40\text{cm}^3$

Volume of water added to soil =  $50\text{cm}^3$

Final volume of water + soil after mixing =  $80\text{cm}^3$

- Determine the volume of air in the soil sample.
- Calculate the percentage of air in the soil sample.

In another investigation, 80g of a fresh soil sample was heated in a crucible.

After repeated heating and cooling, the constant mass of the soil was found to be 65g. Calculate the percentage of water in the soil sample and explain the factors that affect the water content of a given soil.

(10 scores)

### Item 5

Akello left food uncovered on the veranda during lunch time. On her return, she found houseflies all over the plate. She chased away the houseflies and ate the food. After a few days, she fell sick and had to spend some days away from school. What do you think caused her sickness? With reasons, advise her on what she can do to avoid suffering from sickness again. (10 scores)

### Item 6

Zika forest is a forest found in kitala village, Wakiso district. The village is found in the cattle corridor. The community members often times face conflicts with some species of insects whereby these insects bite them thus inflicting pain to them and even spreading some diseases. As if that is not enough the insects also bite their plants and animals thus running their health causing unrest and reduced productivity of the farms. The community members are carrying out a massive campaign to completely get rid of a creature called insect.

- a) As the district agricultural officer of Kayunga, write a speech you would present to the community members about their concern. (10 scores)
- b. The table shows the characteristics of some insects.

	Antenna	Mouth parts	Wings	Legs
A	Long	Mandibles	None	Short
B	Long	Proboscis	Has 2	Short
C	Short	Proboscis	None	Long
D	Short	Proboscis	Has 4	Long
E	Short	Proboscis	Has 4	Short

Construct a simple dichotomous key that can be used to identify the insects. (08 scores)

**END**