Candidate's Name: .....

Signature: .....

Random No.						Personal No.		

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

553/2
BIOLOGY
Paper 2
(Practical)
Oct./Nov. 2024
2 hours

UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

BIOLOGY

Paper 2
(Practical)

2 hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of **three** *questions.*

Answer **all** *the questions.*

Drawings should be made in the spaces provided. Use **sharp pencils** *for your drawings.*

Coloured pencils or crayons should **not** *be used.*

No *additional sheets of writing paper are to be inserted in this booklet. Work on additional sheets will* **not** *be marked.*

For Examiners' Use Only		
Question	**Marks**	**Examiner's Signature & No.**
1		
2		
3		
Total		

Turn Over

1. You are provided with a plant extract **A**. You are required to determine the nature of the extract.

(a) Label **four** test tubes as **1**, **2**, **3** and **4**.

Using a measuring cylinder, measure and pour **1 cm^3** of hydrogen peroxide into each of the labelled test tubes.

Carry out the tests in table **1**. Record your observations and deductions.

(08 marks)

Table 1

	Tests	Observations	Deductions
(i)	To test tube **1**, add 1 cm^3 of distilled water followed by 1 cm^3 of extract **A**. (*Observe for* **1** *minute*).		
(ii)	To test tube **2**, add 1 cm^3 of dilute NaOH followed by 1 cm^3 of extract **A**. (*Observe for* **1** *minute*.)		
(iii)	To test tube **3**, add 1 cm^3 of dilute HCl followed by 1 cm^3 of extract **A**. (*Observe for* **1** *minute*.)		
(iv)	Boil 2 cm^3 of extract **A**, cool it. To test tube **4**, add 1 cm^3 of the boiled extract of **A** followed by 1 cm^3 of distilled water. (*Observe for* **1** *minute*.)		

(b) Explain your observations in test tubes **1**, **2**, **3** and **4**.

Test tube **1** *(02 marks)*

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.....

.....

.....

.....

Test tube **2** *(02 marks)*

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Test tube **3** *(02 marks)*

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.....

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Test tube **4** *(02 marks)*

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(c) From your observations, state what was being investigated in the experiment in 1(a). (*01 mark*)

.....

.....

.....

(d) What general conclusion can you make from the experiment in 1(a)? (*01 mark*)

.....

.....

.....

(e) Identify the active substance being investigated. Give a reason for your answer. (*02 marks*)

Active substance: .....

Reason:.....

.....

.....

2. You are provided with specimens **D** and **E** which are stems.

Examine the specimens carefully and answer the following questions:

(a) Identify the type of stem in each specimen. Give **three** reasons in each case.

Specimen **D** ..... (*03 marks*)

Reasons:

(i) .....

.....

(ii) .....

.....

(iii) .....

.....

Specimen **E**: ..... *(03 marks)*

Reasons:

(i) .....

.....

(ii) .....

.....

(iii) .....

.....

(b) State **four** structural differences between specimens **D** and **E**.*(04 marks)*

(i) .....

.....

(ii) .....

.....

(iii) .....

.....

(iv) .....

.....

(c) State **four** advantages of the method of reproduction carried out by specimen **D**. *(04 marks)*

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(d) Make a well-labelled drawing of specimen **D**. State the magnification of your drawing. (*06 marks*)

3. You are provided with specimens **V** and **W** which are animals. Examine them carefully and answer the questions that follow.

(a) State the phylum and class to which both specimens **V** and **W** belong. Give **two** reasons in each case.

Phylum:..... (*03 marks*)

Reasons:

(i) .....

.....

(ii) .....

.....

Class:..... *(03 marks)*

Reasons:

(i) .....

.....

(ii) .....

.....

(b) (i) Suggest the habitat in which each of the specimens **V** and **W** lives. *(02 marks)*

Specimen **V** .....

.....

Specimen **W** .....

.....

(ii) How is each of the specimens **V** and **W** adapted to the habitat stated in (b)(i)? *(02 marks)*

Specimen **V** .....

.....

Specimen **W** .....

.....

(c) State **four** structural differences between the fore limbs and hind limbs of Specimen **V**. *(04 marks)*

(i) .....

.....

(ii) .....

.....

(iii) .....

.....

(iv) .....

.....

(d) Draw and label the dorsal view of specimen **W**. State the magnification of your drawing. (*06 marks*)

END

Each candidate should be provided with:

10 cm^3 of extract **A**.
(**A** *is made by crushing 300 g of peeled Irish potatoes, mix with distilled water, decant and make it to 1litre with distilled water.*)

8 cm^3 of 6 % hydrogen peroxide.

A whole mature coach grass, labelled **D**.

A medium sized Irish potato tuber, labelled **E**.

A mature cockroach, labelled **V**.

A housefly, labelled **W**.

A worker termite, labelled **X**.

6 test tubes.

1 boiling tube.

1 measuring cylinder (10 cm^3).

Hand lens.

Stop clock.

Labels.

Access to:

Source of heat.

Reagents for carrying out food tests.

Distilled water.