Candidate's Name: .....

Signature: .....

Random No.						Personal No.		

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

553/2
BIOLOGY
PRACTICAL
Paper 2
Oct./Nov. 2023
2 hours

UGANDA NATIONAL EXAMINATIONS BOARD

Uganda Certificate of Education

BIOLOGY PRACTICAL

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

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

Answer **all** *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 specimen **A**, hydrogen peroxide solution, sodium hydroxide solution and dilute hydrochloric acid.

(a) Using a cork borer provided, make a potato cylinder from specimen **A**.

Cut from the potato cylinder, five shorter cylinders each with a length of 0.5 cm as shown in figure **1**.

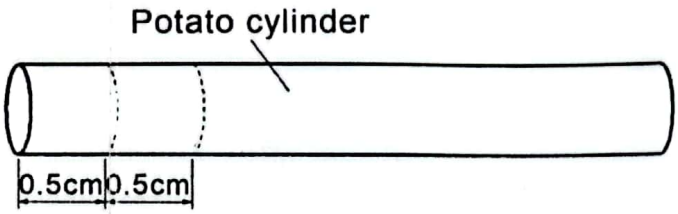

Fig. 1

Put one piece of the 0.5 cm potato cylinders in a boiling tube and label the boiling tube **A1**.

Put the remaining four pieces of potato cylinders in another boiling tube and label the boiling tube **A2**.

Add 5 cm^3 of hydrogen peroxide solution to each of the boiling tubes **A1** and **A2**, one at a time.

Observe the two boiling tubes for at least **2 minutes**.

(i) Record your observations in table **1**.

Table 1 *(02 marks)*

Boiling Tube	Contents	Observations
A1	One piece of potato cylinder + 5 cm^3 of hydrogen peroxide solution.	
A2	Four pieces of potato cylinders + 5 cm^3 of hydrogen peroxide solution.	

(ii) Explain the observations in boiling tubes **A1** and **A2**.

(04 marks)

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(b) Label **three** test tubes **1**, **2** and **3**.

Using the cork borer, make **three** other potato cylinders each measuring 2 cm long from specimen **A**.

Put **one** potato cylinder in each of the test tubes **1**, **2** and **3**. Carry out the tests in table **2** and record your observations and deductions in the table.

Table 2 *(06 marks)*

Test	Observations	Deductions
(i) To test tube **1** add 2 cm^3 of distilled water, boil for **two** minutes, cool the mixture and add 2 cm^3 of hydrogen peroxide solution. Observe for at least 2 minutes.		
(ii) To test tube **2** add 2 cm^3 of sodium hydroxide solution, then add 2 cm^3 of hydrogen peroxide solution and observe for at least 2 minutes.		
(iii) To test tube **3** add 2 cm^3 of dilute hydrochloric acid, then add 2 cm^3 of hydrogen peroxide solution and observe for at least 2 minutes.		

(iv) Explain the observations in the three test tubes. (*06 marks*)

Test tube 1

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Test tube 2

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Test tube 3

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(v) State **two** properties of enzymes that were investigated in the experiment. (*02 marks*)

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2. You are provided with specimens **X**, **Y** and **Z** which are fruits. Cut specimen **Z** transversely and split specimen **Y** longitudinally. Observe the specimens carefully using a hand lens where necessary and answer the questions that follow.

(a) Giving a reason in each case, identify the type of fruit to which each of the specimens **X**, **Y** and **Z** belongs. (*06 marks*)

Specimen **X**

Type of fruit: .....

Reason .....

.....

Specimen **Y**

Type of fruit: .....

Reason .....

.....

Specimen **Z**

Type of fruit: .....

Reason .....

.....

(b) (i) What is the mode of dispersal of specimen **Z**? (*01 marks*)

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.....

(ii) State the adaptations of specimen **Z** to its mode of dispersal. (*02 marks*)

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(iii) Using observable features, describe how each of the specimens **X** and **Y** is dispersed. (*04 marks*)

Specimen **X** .....

.....

.....

Specimen **Y** .....

.....

.....

(c) Give **two** ways in which fruit dispersal is important to a plant. (*02 marks*)

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.....

(d) Draw and label the transverse section of specimen **Z**. State the magnification of your drawing. (*05 marks*)

3. You are provided with specimen **K** which is an animal. Observe the specimen, using a hand lens where necessary, and answer the questions that follow.

(a) State the phylum and class of the specimen. Give **one** reason in each case. *(03 marks)*

Phylum of specimen **K** .....

Reason .....

.....

Class of specimen **K** .....

Reason .....

.....

(b) Describe how the wings are adapted to their function.

(i) Outer wing. *(02 marks)*

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.....

(ii) Inner wing. *(02 marks)*

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(c) Other than walking, state **two** other functions of the hind legs of specimen **K**. *(02 marks)*

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(d) (i) How is specimen **K** adapted to live successfully in its habitat? *(03 marks)*

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(ii) Give **two** ways in which specimen **K** is important in its environment. *(02 marks)*

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(c) Detach **one** hind leg of specimen **K**, draw and label the hind leg. State the magnification of your drawing. *(06 marks)*

END