Candidate's Name: .....

School: .....

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Sign: .....

Centre No.					Personal No.		
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553/2
BIOLOGY
PRACTICAL
Paper 2
July/August 2023
2 hours

HOIMA DIOCESE EXAMINATIONS BOARD

UCE Mock Examination, 2023

BIOLOGY (PRACTICAL)

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of **three** *questions.*
Answer **all** *questions.*
Drawings should be made in 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.

For Examiners' Use Only		
QUESTION	**MARKS**	**EXAMINER'S SIGNATURE AND NUMBER**
1.		
2.		
3.		
TOTAL		

1. You are provided with solution ***X*** which contains a food nutrient and chemical reagent ***Z***. Label test tubes ***A*** to ***E***. Label another test tube ***Z***.

(a) Using a measuring cylinder measure the following quantities of solution ***X*** into test tubes labeled ***A*** to ***E***.

Table 1

Test tube	***A***	***B***	***C***	***D***	***E***
Volume of ***X*** (cm^3)	1	2	3	4	5

(i) Increase the total volume of solutions in the test tubes ***A***, ***B***, ***C***, ***D*** and ***E*** to uniform volume of **5 cm^3** by adding distilled water.

(ii) Record the volume of distilled water added to each test tube in **Table 2** below.
(02½ marks)

Table 2

Test tube	***A***	***B***	***C***	***D***	***E***
Volume of water (cm^3)					

(iii) Measure **1 cm^3** of solution ***Z*** into test tube ***Z***. Using a dropper, add the solution from test tube ***A*** dropwise to solution ***Z*** in test tube ***Z*** while shaking the test tube. Count the number of drops required to decolourise solution ***Z*** and record your results in **Table 3** below. Pour the mixture in test tube ***Z*** and wash it thoroughly.

Repeat the procedure above using solution from test tubes ***B***, ***C***, ***D*** and ***E***.
(02 ½ marks)

Table 3

Test tube	***A***	***B***	***C***	***D***	***E***
Number of drops required to decolorize solution ***Z***					

(b) On the grid below, represent the relationship between the number of drops added (from **Table 3**) and volume of ***X*** (from **Table 1**).
(06 marks)

(c) Explain the effect of addition of water. *(02 marks*

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(d) Giving a reason, suggest the identity of: *(04 marks)*

(i) Food nutrient in solution ***X***.
Identity

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Reason

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(ii) Solution ***Z***.
Identity

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Reason

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(e) In which of the test tubes ***A*** to ***E*** do we find the solution that would be best useful to someone with bleeding gums? Give a reason for your answer. *(02 marks)*

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(f) What conclusion can be made from the results in (a) above? *(01 mark)*

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2. You are provided with specimen ***G***. Examine it carefully and answer the following questions.

(a) Giving two reasons in each case, state the **phylum** and the **class** of the specimen. *(05 marks)*

(i) Phylum:

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Reasons

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(ii) Class

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Reasons

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(b) Hold the specimen with **one** lateral side uppermost. Slowly and carefully, slide one finger from the head to the tail. State what is observed and give the significance of the above observation to the specimen. (*02 marks*)

Observation.

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Significance of the above observation.

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(c) Remove one scale from the lateral side. Try to tear it. (*02 marks*)

(i) State what is observed.

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(ii) State the significance of the above observation to the specimen.

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(d) State **three** adaptations of specimen ***G*** for survival in its habitat. *(03 marks)*

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(e) Describe the **position** and **structure** of the dorsal fin of specimen ***G***. *(03 marks)*

Position

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Structure

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(f) Cut off the trunk and head of specimen *G*. Draw and label the remaining part. *(05 marks)*

3. (a) Examine the shoot of specimen ***K*** and:

(i) Describe the leaves. *(04 marks)*

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(ii) State the class of specimen ***K***. Give one reason for your answer. *(02 marks)*

Class

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Reason

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(iii) Explain how the leaves adapt specimen ***K*** for survival in its habitat. *(03 marks)*

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(b) Examine the root system of specimen ***K***.

(i) Count and record the number of secondary roots (lateral roots) and the number of tertiary roots on the longest secondary root in **Table 4** below. *(02 marks)*

Turn Over

Table 4

Number of secondary roots (lateral roots)	
Number of tertiary roots.	

(ii) Basing on your results in **Table 4**, explain how the roots of specimen ***K*** adapt it for survival in the terrestrial environment. *(03 marks)*

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(c) Now pluck off one mature leaf from specimen ***K*** ensuring that none of its parts remains attached on the stem. Cut of the lamina of the leaf. Draw and label the underside of the remaining part. *(06 marks)*

END