NAME.....SIGNATURE.....

P530/3

BIOLOGY

PAPER 3

AUGUST 2023

3¼HRS

MIDFIELD SECONDARY SCHOOL

Uganda Advanced Certificate of Education

BIOLOGY PRACTICAL S 5

PAPER 3

3HOURS 15MINUTES

INSTRUCTIONS TO CANDIDATES

- This paper consists of three questions
- Answer all questions
- Answers must be written in the space provided only:

FOR EXAMINER'S USE ONLY		
Question	**Marks**	**Examiner's signature**
No.1		
No.2		
No.3		
Total		

1. You are provided with specimen **D ,** which is a freshly killed animal. Examine it carefully.

(a) Classify the specimen into the following groups. *(1½marks)*

(i) Kingdom**……**

(ii) Phylum **……**

(iii) Class**……..……**

(b) Observe the Head of the specimen and state how it is adapted to its habitat. *(3½marks)*

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(c) Pin the animal on a dissecting board; ventral side upper most. Dissect carefully and pin the skin back to reveal the underlying body well.

(i) Describe the attachment of the skin to the body wall *(01mark)*

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(ii) Describe the structure and appearance of the skin *(02marks)*

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(iii) What is the significance of the structure and appearance of the skin as you have observed. *(03marks)*

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(d) (i) Observe the right hind limb, draw and label the observable thigh muscles together with the remaining part of limb which should not be labeled. *(06marks)*

ii) How significant is the structure of the hind to locomotion. *(03marks)*

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iii) How is the skin adapted to gaseous? *(03 marks)*

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e) Continue to dissect the specimen to display

(i) the blood vessels that drain blood from alimentary canal and its associated organs back to the heart; with the alimentary canal displaced to your right; and the heart turned upwards and pinned through the ventricle.

(ii) the blood vessels in the thoracic region that drain blood from the right fore limb, right head region and skin.

Draw and label your dissection showing (i) and (ii) on the diagram. *(25marks)*

2. You are provided with solution **K**

a) Carry out tests in the table below to identify the nature of solution K

(04marks)

Test	**Observation**	**Deduction**
(i). To $1cm^3$ of solution K, add 3 drops of iodine solution.		
(ii). To $1cm^3$ of solution K, add $1cm^3$ of Benedict's solution and boil.		

b) Rinse your mouth with clean water and obtain $5cm^3$ of saliva. Put $1cm^3$ of saliva in a test tube and boil for 1 minute. Label four test tubes 1, 2, 3 and 4 respectively and add contents to each as shown in the table below.

(16marks)

Test tube	Contents
1	$1cm^3$ of solution K + $1cm^3$ of saliva + $2cm^2$ of water
2	$1cm^3$ of solution K + 5 drops of dilute sodium hydroxide + $1cm^3$ of saliva
3	$1cm^3$ of solution K + 5 drops of dilute Hydrochloric acid + $1cm^3$ of saliva
4	$1cm^3$ of solution K + 5 drops of dilute sodium hydroxide + $1cm^3$ of boiled saliva

Incubate the test tubes in a water bath maintained at $35\text{-}40^0C$ for 10 minutes. Carry out the following tests on each test tube and record your results in the table below:

Test	Observation	Deduction
i. To $1cm^3$ of a test solution, add 3 drops of iodine solution.	1	
	2	
	3	
	4	
ii. To $1cm^3$ of test solution, add $1cm^3$ of Benedict's solution and boil.	1	

	2	
	3	
	4	

a. Comment on the nature of solution K. *(01mark)*

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b. Explain the observations in the following test tubes.
Test tube 1 *(03marks)*

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Test tube 2 *(02marks)*

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Test tube 3 *(02marks)*

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Test tube 4 *(03marks)*

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c) Identify the active substance in saliva and state three of its properties that have been investigated in this experiment. *(04marks)*

(i) Identity:

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(ii) Properties:

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3. You are provided with specimen **M** which is an animal

(a) Giving two reasons in each case, state the phylum and class of specimen M *(04marks)*

Phylum……

Reasons

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Class……

Reasons.

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(b) How is specimen M adapted for Moving in narrow spaces/ crevices? *(02marks)*

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(c) State the difference between the outer wing and inner wing of specimen M *(03marks)*

Fore wing/ outer wing	**Inner wing/ hind wing**

(d) State the sex of specimen M, giving two reasons for your answer. *(02marks)*

Sex……

Reasons

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4. State the economic importance of specimen M *(02marks)*

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5. By observing the lower abdomen of specimen M, draw the lower abdomen and label. *(06marks)*

END