Candidate's Name:

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Signature: ……

P530/3
BIOLOGY
(Practical)
JULY/AUGUST, 2023
Paper 3
$3\frac{1}{4}$ Hours

MATIGO MOCK EXAMINATIONS BOARD

Uganda Advanced Certificate of Education

BIOLOGY
(PRACTICAL)
Paper 3
3 Hours 15 Minutes

INSTRUCTIONS TO CANDIDATES:

This paper consists of three questions.
Answer all the questions.
Write the answers in the spaces provided. No additional sheets of paper should be inserted in the booklet.
You are not allowed to start working within the first 15 minutes. You are advised to use this time to read through the paper and ensure that you have all the apparatus, chemicals and specimens you require.

For Examiner's Use Only		
Question	**Marks**	**Examiner's Signature**
1		
2		
3		
Total		

Turn Over

1. You are provided with specimen U which is freshly killed.

(a) Examine the antennae and describe how they are adapted to their function. (03 marks)

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(b) (i) Carefully cut off the whole left maxilla. Observer using a hand lens. Draw and label. (06 marks)

(ii) Give three adaptations of maxilla to its functions. (03 marks)

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(c) (i) Pin specimen U with the dorsal side upper most.
Dissect along the left lateral line of the abdomen.
Clear any unnecessary tissue to display structures on both cuticles.
Without displaying any other structures, Draw and label structure displayed in your dissections. (16 marks)

(ii) By further dissection, cut and remove the whole alimentary canal to clearly display the structures on the ventral cuticle. Draw and label the structures associated with ventral cuticle to the last abdominal segment. (12 marks)

2. You are provided with solutions W and Z which contain food substances. You are also provided with reagents; iodine solution, copper (ii) sulphate solution, dilute hydrochloric acid, dilute sodium hydroxide, and dilute ethanol.

(a) Using the reagents provided, carryout tests to establish the food substance present in solutions W and Z. Record your tests, observations and deduction in the table below.

Solution	Tests	Observation	Deduction
W			

Z			

(b) Put $2cm^3$ of each of Z and W into test tubes labeled Z and W respectively. Rinse your mouth with clean water. Make saliva amylase solution by spitting $2cm^3$ of saliva into a clean test tube and diluting it with an equal amount of distilled water. Mix the solution well and divide it into two parts. Take one part of saliva solution and add to the test tube containing W and the other part of saliva solution add to the test tube containing Z. Incubate both test tubes in water both maintained at $37° - 40℃$ for 15 minutes (meanwhile you may proceed with other work). After 15 minutes test for the food substance present in the two solutions W and Z using the provided reagents. Record your results in table below. (09 marks)

Table 2

Solution	Tests	Observations	Deduction
W	Iodine		
	Benedict's test		
	Biuret test		
Z	Iodine		

	Benedict's test		
	Biuret test		

(c) From your results in (a) what food substances are present in solutions Z and W
$(02\frac{1}{2} marks)$

Z: .....

W: .....

(d) From your tests in (b) explain the results of the solution in Z and W after incubation. $(03\frac{1}{2} marks)$

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(e) State **two** properties of enzymes exhibited in these tests. (02 marks)

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3. You are provided with specimens P, Q, R, S and T.
Examine the specimens using a hand lens or low power magnification of a microscope and answer the following questions.
(a) Give three structural differences and similarities between S and T.
(06 marks)

(i) Differences.

Specimen S	Specimen T

(ii) Similarities

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(b) Describe three named parts observed in the head region of **specimen T.**
(03 marks)

Structure	Descriptions
(i)	
(ii)	
(iii)	

(c) (i) State four adaptive structural features for survival of **specimen P** in its habitat.
(04 marks)

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(ii) Observe the last three segments at the end of the left hind limb of **Specimen T** draw from the inner view, but do not label. (07 marks)

(d) Using only the structures responsible for locomotion in the specimens, construct a dichotomous key to identify the specimens in the order **P**, **Q**, **R**, **S** and ending with **T**. NB (No marks will be awarded if the order is changed) (06 marks)

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END
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