

Candidate's Name:

Signature:

Random No.					Personal No.		

P530/2
BIOLOGY
PRACTICAL
Paper 2
2026
3¼ hours



UGANDA NATIONAL EXAMINATIONS BOARD
Uganda Advanced Certificate of Education
BIOLOGY PRACTICAL
3 hours 15 minutes

For Scorers' Use Only

INSTRUCTION TO CANDIDATES:

*This examination paper consists of **two** items. Respond to **both** items.*

Write all responses in the spaces provided.

*Use sharp **pencils** for drawings. Coloured pencils should **not** be used.*

Show all your working for any calculation.

No extra paper is allowed. Any work written on additional sheets will **not** be scored.

Item No.	Code	Weighted Score	Scorers' Initials
1			
2			
Total			

Item 1

A researcher at a Ugandan university investigated the factors influencing the survival of rats in grassland and newly metamorphosed common toads that dispersed from an adjacent wetland into the same grassland habitat over a four-months period. During the investigation, the researcher observed that the survival rate of common toads was drastically lower than that of the rats.

The researcher hypothesized that the observed difference in survival rates of the two animals was partly associated with differences in the relative length of their digestive organs and dietary differences.

Field observations showed that both animals fed largely on invertebrates found in the grassland. However, the rats also fed on wild starch-rich tubers similar to specimen **C** whereas the adult common toads remained entirely carnivorous. The tubers similar to specimen **C** contain specialised food-storage structures that can be identified microscopically after staining with a suitable reagent. These observations indicate adaptations to survival.

To further investigate these adaptations, the researcher obtained data from a freshly killed common toad, he recorded it in **table 1** and he intended to collect corresponding data from a freshly killed rat (specimen **E**). However, the investigation was never completed.

Table 1 Showing length of digestive organs of a toad and a rat.

Part of digestive system	Toad	Rat
Stomach (<i>length in mm</i>)	48	
Ileum (<i>length in mm</i>)	150	
Hind gut (<i>length in mm</i>) (<i>measured from end of small intestine</i>)	58	

The researcher also made drawings of the measured structures for a toad. To complete the investigation, there is need to compare data for the two animals together with drawings for the rat. You are therefore required to complete the investigation by obtaining data from specimen **E** together with making drawings.

You are provided with a freshly killed rat labelled **E**,

Task:

(a) Obtain data from specimen **E** and complete **table 1**.

(Your responses should include a procedure for carrying out the dissection)

Procedure

Handwriting practice lines for the procedure section.

Drawing

SAMPLE PAPER

- b) Provide microscopically obtained evidence to support of the nutritional advantage of this food source the rats have over toads in the grassland.

Drawing

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Joan is piloting a project in which she intends to generate and use the gas for study in a school laboratory. She produces the gas by the catalytic breakdown of solution **P** under constant temperature. She was advised to use an enzyme which is obtained from plant extracts.

However, she first needs to find out whether the extracts on market labelled as **A** and **B** could produce more gas per unit time than her local **extract C**.

You are provided with a sample of solutions **P**, enzyme activators **X** & **Y**, enzyme extracts **A** and **B** then specimen **C** from which Joan prepared her enzyme extract **C**. Joan needs guidance on how to select the appropriate materials for her gas production.

a) Design and carry out an investigation then use your findings to give appropriate advise to Joan in form of a report.

SAVED

Handwriting practice lines consisting of 25 horizontal lines.

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Handwriting practice lines consisting of 25 horizontal lines.

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