

P530/3

Practical

Paper 3

February/march. 2024

3 hours

BIOLOGY DEPARTMENT

Uganda Advanced Certificate of Education (Pre-registration)

BIOLOGY

(Practical)

Paper 3

3 hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of **THREE** questions. Answer all the questions.

Write the answers in the spaces provided. Additional sheets of paper **MUST NOT** be inserted in this booklet..

You are **NOT** allowed to start working within the first 15 minutes. You are advised to use this time to read through the question paper and ensure that you have all the apparatus, chemicals and specimens you may require.

1. You are provided with specimen K which has been freshly killed.

- (a) Cut off the wings, limbs and antennae at their base.

Turn the specimen such that the ventral side faces the dissection board/ the wax of the dissecting dish. Draw fully (**Do not label**). (7 marks)

- (b) Now turn the specimen such that the dorsal side faces the dissection board/ wax of the dissecting dish. Observe the posterior end of the abdomen.

Giving reasons, suggest the significance of the characteristic features observed there

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.....

.....

- c) Pin the specimen and dissect to release the dorsal cuticle. Pin this cuticle to the left side of the specimen. Clear off any fat and any unnecessary tissue to display:

- (i) All the parts of the alimentary canal and displaced to the side of your choice.
(ii) The structures associated with the inner surface of the abdominal cuticles

Draw and label the structures displayed in (i) and (ii) on the same diagram (20 marks)

2. Solutions A and B are both mixtures of common carbohydrates.

(a) Using the chemicals and reagents provided, carry out tests to determine the composition of solution A and B.

i) Record your tests, observations and conclusions in the table 1 below:

TEST	OBSERVATION	CONCLUSION
REDUCING SUGAR	A	
	B	
STARCH	A	

	B	
NON REDUCING SUGARS	A	
	B	

(17 marks)

ii) Comment on the abundance of the common nutrient in solutions A and B.

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iii) Explain the difference (if any) in observations for reducing sugar and Non reducing sugar where solution A was used (1 mark)

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(b)Set up tubes 1-4 below to determine the solution containing an enzyme between solutions C and D: Incubate the contents of tubes 1- 4 in water bath maintained at 35-40⁰C for 30 minutes. After this time, carry out Benedict's test on contents of each tube.

Summary of the contents

Tube	Contents
1	2cm ³ of A + 1cm ³ of C
2	2cm ³ of A + 1cm ³ of D
3	2cm ³ of B + 1cm ³ of C
4	2cm ³ of B + 1cm ³ of D

Record your observations and conclusions in Table 2 below:-

For Biology Youtube channel lessons, check on; **NUWARINDA OSBERT UG**

TEST TUBE	OBSERVATION	CONCLUSION
1		
2.		
3.		
4		

(13 $\frac{1}{2}$ marks)

- (i) Compare and explain the results for
test tube pairs: 1 and 3 (03 $\frac{1}{2}$ marks)

Test tubes 2 and 4 (01 $\frac{1}{2}$ marks)

(ii) Name of active substance: (01 mark)

3. You are provided with specimens X and Y which is a plants. Examine the specimen with a hand lens

a) Giving a reason for your observations

i)Classify the specimens into the following taxa

phylum of X.....

reason

phylum of Y.....

reason.....

ii) What is the mode of nutrition of the specimens provided. Give a reason for your answer

mode.....

reason.....

b) Describe

i)the location of named structures used for reproduction in each specimen (06 marks)

For specimen X

for specimen Y

ii) what is the advantage of the location of reproductive parts as described in specimen X and Y above (02 marks)

c) remove the leaf of specimen X, draw and label its underside (06 marks)

K- cockroach

B sucrose solution

C analyse,/invertase/diastase

A- starch solution

X fern

Y moss