

Name.....Signature.....

School.....

553/2

BIOLOGY

(Practical)

PAPER 2

March/April 2023

EASTERN WING EXAMINATION OBSERVORS

Uganda Certificate Of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 Hours

Instructions to Candidates:

- Attempt all the questions in this paper.
- Write your answers in the spaces provided.
- Drawings should be made in the spaces provided.
- Use sharp pencils only for your drawings.
- Work on additional sheet of paper will not be marked.

FOR EXAMINERS' USE ONLY

Questions	Marks	Initials
1		
2		
3		
Total		

- (a) You are provided with solutions L and M. Solution L is a food containing solution. Solution M contains an active substance.

Carry out the following tests on solution L to identify the food substances present.

Record your observations and deductions in the table below.

TEST	OBSERVATION	DEDUCTION
(i) To 1 cm ³ of solution L in a test tube, add 3 drops of iodine solution.		
(ii) To 1 cm ³ of solution L in a test tube, add 1 cm ³ of sodium hydroxide solution and then 3 drops of copper(II) sulphate solution.		

- (b) State the food substances present in solution L.

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- (c) Label two test tube as 1 and 2. Add the contents to the test tubes as shown in the table below.

TEST TUBE	CONTENTS
1	1 cm ³ of L + 1 cm ³ of M
2	1 cm ³ of L + 1 cm ³ of boiled and cooled M

Insert the test tubes in a water bath maintained between 35° C to 40°C for 20 minutes (You may proceed with another work in the meantime).

After 20 minutes of incubation, carryout the following tests. Record your observations and deductions in table 3 below.

TEST	OBSERVATION	DEDUCTION
(i) To 1 cm ³ of contents from test tube 1, in a test tube, add 3 drops of iodine solution.		
(ii) Repeat test (i) above using contents in test tube 2		
(iii) To 1 cm ³ of contents from test tube 1, add 1 cm ³ of sodium hydroxide solution followed by 3 drops of copper(II) sulphate solution.		
(iv) Repeat the procedure in (iii) using contents in test tube 2.		

(d) Explain your results in each test tube.

(i) Test tube 1.

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(ii) Test tube 2.

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(e) Giving one reason in each case, state the;

(i) nature of solution of solution M.

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(ii) identity of solution M.

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(f) State two aims of this experiment.

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(g) Suggest one factor investigated in this experiment.

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(h) State two properties of solution M as shown in this experiment.

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2. You are provided with specimens P, Q, R and S which are plant parts.

(a) (i) State the identify the specimens P, Q, R and S.

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(ii) Give two structural features to support your answer in (a) (i).

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(b) State one main function performed by the specimens on the plants they were obtained.

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(c) Describe three adaptations of these specimens to the function stated in (b) above.

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(d) Describe the petiole of each specimen.

Specimen P.

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- This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

- (f) Draw and label specimen Q. State your magnification.

- 3 (a) You are provided with specimens Y and Z which were obtained from the same animal.

- (i) Identify specimens Y and Z. Give three observable structural features to support your answer in each case.

Identity of Y.

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Structural features.

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Identity of Z.

.....

Structural features.

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- (ii) State the location of these specimens on the animal they were obtained.

Specimen Y

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Specimen Z

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- (b) Suggest one main function performed by specimen Y on the animal it was obtained.

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- (c) Describe three adaptations of the specimen to the function stated in (b).

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- (d) Pour 10 cm³ of distilled water in a petri dish. Dip the vane of specimen Y and remove it from water. Then remove and wipe away the water.

- (i) State your observation.

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- (ii) What is the relevance of this observation to the survival of the animal.

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- (e) State three structural features common to both specimens Y and Z.

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- (f) Mention three structural differences between specimens Y and Z.

Specimen Y	Specimen Z

- (g) Draw and label specimen Z. State your magnification.

END

Confidential

L- 10 cm³ of egg albumen and 2g of starch in 100 cm³ of distilled water.

M- 3g of pepsin enzyme dissolved in 100 cm³ of dilute hydrochloric acid solution.

P- Mature lantana camara leaf.

Q- Mature *Commelina benghalensis* leaf.

R- Mature coach grass leaf.

S- Mature Hibiscus leaf.

Y- Quill feather obtained from a hen/cock/turkey/duck.

Z- Contour feather obtained from a hen/cock/turkey/duck.

NB. Y and Z should be obtained from one bird.