

Name..... Centre /Index No

School Signature

P530/3
BIOLOGY
(Practical)
PAPER 3
July/August 2018
3¹/₄ hours



WAKISSHA JOINT MOCK EXAMINATIONS

Uganda Advanced Certificate of Education

BIOLOGY PRACTICAL

Paper 3

3 hours 15 minutes

INSTRUCTIONS TO CANDIDATES:

- *This paper consists of **three** questions.*
- *Answer **all** questions.*
- *Answers must be written in the spaces provided.*
- *Additional sheets of paper must **not** be inserted in this booklet.*

FOR EXAMINER'S USE ONLY		
Question	Marks	Examiner's signature
1		
2		
3		
Total		

Question 1: 72 minutes (40 marks)

You are provided with a freshly killed specimen labelled A.

- a) Observe the features on head region of the specimen.
- i) Giving two reasons from your observations, state the class to which the specimen belongs. (01½ marks)
- Class: _____
- Reasons;
1. _____

2. _____

- ii) Explain how the structures used to classify specimen A in (a) (i) above contribute to survival of the organism in its habitat. (02 marks)
- _____

- b) Observe the left hind foot of the specimen from ventral view. Draw and label. (07½ marks)

- c) Pin the specimen with the dorsal side lying on the board.
- i) Dissect to reveal contents in the abdomen. Then cut and remove the digestive system so that the blood vessels returning blood from the remaining structures in the left half of the abdomen can be seen.
(NB: Do not dispose off the digestive system you will need it for question 2)
Draw and label. (13 marks)
- ii) By further dissection, cut and remove the rib cage and the thymus gland.
Draw and label the visible thoracic structures in their locations. (16½ marks)

Question 2: 60 minutes (30 marks)

You are provided with extracts M and N prepared from same plant parts, but grown for different durations.

- a) Stir the extracts and spread a little of the solid residue at the base of each extract on the glass slides provided. Examine the extract and residue.

Record your observations on the appearance and nature of residue in Table 1 below.

(4 marks)

	Appearance of extracts	Nature of residue
M		
N		

- b) i) Carry out the tests in Table 2 below and record your tests, observations and deductions;

(13 marks)

Tests	Observations	Deductions
Benedict's tests	M -	
	N -	
Biuret test	M -	
	N -	

- ii) Giving reasons from observations in Tables 1 and 2, suggest which extract was prepared from plant material that had germinated for most days. (03 marks)

- c) From your dissection in Question 1, cut a piece of liver measuring 0.5cm x 0.5cm x 0.5cm. Grind the cube of liver into a fine paste and add 10cm³ of distilled water to obtain extract A.
- i) To 2cm³ of extract A in a 10ml measuring cylinder, add 2cm³ of solution K provided. Immediately start the stop clock and record the total volume of the contents of the measuring cylinder at intervals indicated in Table 3 below.
- ii) Repeat the above procedure using 2cm³ of each extract M and N with the same volume of solution K. (06 marks)

Time in seconds	VOLUME OF CONTENTS OF MEASURING CYLINDER		
	2cm ³ A+2cm ³ K	2cm ³ M+2cm ³ K	2cm ³ N + 2cm ³ K
0	4.0cm ³	4.0cm ³	4.0cm ³
20			
40			
60			
80			

- iii) Explain the trends obtained in Table 3 above. (04 marks)

Turn Over

Questions 3: 60 minutes (30 marks)

You are provided with specimen R which is a plant part.

- a) Cut three thin transverse sections from the stem part of specimen R. Select the best section and mount on a glass slide in two drops of acidified Phloroglucinol stain taking care not to touch the stain. Leave to stand for 3 minutes.

Observe the section under low power objective lense of a microscope taking note of the pattern of distribution of the stained tissue. Draw a tissue plan of the section and label.
(10 marks)

- b) Giving two reasons from your observations in (a) above;

- i) Classify specimen R. (03 marks)

Taxon; _____

Reasons;-

1. _____

2. _____

- ii) Name the main stained tissue _____ (03 marks)

Reasons;-

1. _____

2. _____

- c) Using medium power, observe a few typical cells from four clearly visible tissue zones.
- i) Describe the structure of typical cells observed from the four named tissue zones. (06 marks)
1. _____

2. _____

3. _____

4. _____

- ii) Relate the structure of cells from any two named tissue zones in (c) (i) above to the role of the cells in specimen R. (02 marks)
1. _____

2. _____

- d) Cut another thin transverse section from part of specimen R to which the leaf stalk is attached to the stem. Mount the section in two drops of acidified Phloroglucinol stain and observe after 3 minutes using low power objective lense.
- i) Draw the section to show distribution of the stained tissue. Don't label, except the stained tissue. (04 marks)

- ii) Account for the difference (if any) in the distribution of the stained tissue in the drawing above and that in (a). (02 marks)

END