

Name.....Index No.....

Signature.....

*P530/3
Biology
Practical
3¼ Hours*

MOCK EXAMINATIONS 2019
UGANDA ADVANCED CERTIFICATE OF EDUCATION
BIOLOGY PRACTICAL
PAPER 3
TIME: 3 HOURS 15 MINUTES

Instructions to candidates:

- *This paper consists of three questions.*
- *Answer **all** questions.*
- *Answers must be written in the spaces provided.*
- *You are not allowed to start working within the **first 15 minutes**. You are required to use this time to read through the paper and ensure that you have all the requirements, chemicals and specimens.*

FOR EXAMINERS' USE ONLY		
QUESTION	MARKS	Examiner's Sign & No
1		
2		
3		
TOTAL		

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

(a) Relate the features of the following parts to significance for the organisms' survival in its habitat.

(i) Dorsal skin (2 marks)

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(ii) Foot of hind limb (2 marks)

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(b) Place the specimen ventral side up with head towards you. Using forceps, open the mouth fully to expose and examine structures within the buccal cavity responsible for feeding.

Draw and label (9 marks)

- (c) Dissect the specimen to expose vessels responsible for
- (i) taking blood to the left head and upper trunk regions from the heart.
 - (ii) Carrying blood from the thoracic region, urinary organs and structures responsible for chemical digestion back to the heart. With the heart turned up, draw and label the vessels. (27 marks)

2. You are provided with plant tissues B₁ and B₂ which have been treated differently and solutions Z and X.

(a) Cut tissues B₁ and B₂ into four equal cubes/ pieces. Obtain the same size of tissues from lung and thigh muscle of specimen K in question 1.

Label test tubes 1, 2, 3,4,5,6 and 7. Add contents to each of the test tubes as shown in table I and in each case record your comparative observations and deductions.

(10 marks)

Test tube	Contents	Observation	Deduction
1	2cm ³ of Z and cube of lung		
2	2cm ³ of Z and cube of muscle		

3	2cm ³ of Z and one cube of B ₁		
4	2cm ³ of Z and one cube of B ₂		
5	2cm ³ of Z and one crushed cube of B ₁		

(b) Explain your results for the following test tubes

(i) Test tube 1 and 2

(7 marks)

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(ii) Test tubes 3,4 and 5

(5 marks)

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(c) Suggest two conclusions that can be drawn from your results and give a reason (3 marks)

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(d) In test tubes 6 and 7 add into each 5cm³ of solution X. Dip two of the remaining cubes of B₁ into test tube 6 and two cubes of B₂ into test tube 7. Leave to stand for 30 minutes.

(i) Measure the final volume in test tubes 6 and 7. Explain the changes in volume (6 marks)

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(ii) Examine and state the physical state of tissue from test tube 6 (3 marks)

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3. You are provided with specimen P, Q, R and S.

(a) State the class taxonomic level of each with a reason (6 marks)

Specimen	Class	Reason
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P		
Q		
R		
S		

(b) Obtain a few units of specimen Q and mount in a drop of water on a slide. Observe under the medium power of microscope. State how the specimen is adapted to nutrition (2 marks)

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(c) Obtain a unit of P, mount it in a drop of water on a slide and observe under medium power of microscope. With regard to propagation, state the advantage of specimen P over Q (2 marks)

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(d) Using a hand lens, examine specimen R
(i) Draw and label the dependent unit of specimen S (4 marks)

(ii) How is the unit in (d) (i) above adapted for the specimen's survival in habitat? (2 marks)

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(e) (i) Obtain a thin transverse section from one of the units in specimen S close to the base. Place it on a slide and stain it with acidified phloroglucenal stain. Observe under low power of microscope. Draw and label (7 marks)

(ii) Identify the stained tissue red and giving a reason, state its significance to life of organism from where it was obtained (3 marks)

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END