

Name:Signature:.....

School.....Index No.....

P530/3
BIOLOGY
PRACTICAL

Paper 3
July/Aug. 2019

3¼ hours

BUSHENYI DISTRICT 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.*

All answers must be written in the space provided. Therefore no additional paper should 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 paper and ensure that you have all the apparatus, chemicals and specimens you may require.*

For Examiner's Use Only		
Question	Marks	Examiner's signature
1		
2		
3		

1. You are provided with specimen **R** which is freshly killed.

(a) Examine the specimen and by giving **two** reasons, state its class.

(03marks)

Class

Reasons

(b) Examine the following parts and explain how they are structurally adapted to the specimen's habitat.

(03marks)

(i) Hind feet

(ii) Trunk

(03marks)

(c) Dissect the specimen to display the blood vessels;

- (i) returning blood to the undisplaced from the structures on the left half of the trunk region responsible for the removal of unwanted materials and blood storage.
- (ii) draining the right hind limb via the liver.

Draw and label your dissection.

(22marks)

- (d) Cut along the angle of the jaw on either side of the mouth and remove the lower jaw. Carefully examine the structures on the inner surface of the upper jaw.

Draw and label.

(10marks)

2. You are provided with solutions **A**, **B** and **C**. Solutions **A** and **B** contain certain food substances. You are required to investigate the effect of solution **C** on solutions **A** and **B**.

- (a) Carry out the following tests to identify the food substances in the solutions **A** and **B**.

Record your test, observations and deductions in **Table 1**, below.

(15marks)

Table 1

Tests	Observations	Deductions
Benedict's test		
Hydrolysis test		

- (b) Obtain **four** test tubes and label them as **1, 2, 3** and **4**.

- To each of the tubes **1** and **2** add 2cm^3 of solution **A** while to test tubes **3** and **4** add 2cm^3 of solution **B**.
- To each of the test tubes **2** and **3** add 5 drops of dilute hydrochloric acid.
- To each of the test tubes **1, 2, 3** and **4** add 2cm^3 of solution **C**.

The summary of the contents of each test tube is shown in **Table 2**, below;

Table 2

Test tube	Contents
1	2cm ³ of A + 2cm ³ of C
2	2cm ³ of A + 5 drops of hydrochloric acid + 2cm ³ of C
3	2cm ³ of B + 5 drops of C
4	2cm ³ of B + 2cm ³ of C

Incubate the test tubes in a water bath maintained at 30 - 40°C for 40 minutes.

At the end of the incubation period, carry out a Benedict's on the contents of each of the test tubes.

Record your observations and deductions in **Table 3** below. (08marks)

Table 3

Test tube	Observations	Deductions
1		
2		
3		
4		

(c) Explain the differences in the observations if any, made in the following tests tubes:

(i) 1 and 2.

(02marks)

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.....

(ii) 3 and 4.

(02marks)

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(d) Suggest the nature of the active substance in this experiment.

(02marks)

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3. You are provided with specimens A_1 , A_2 , A_3 and A_4 which are parts of flowering plants. Using a hand lens where necessary, examine the specimens.

(a) By giving **two** reasons, state the type of plant organ to which the specimens belong.

(02marks)

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- (b) Give **two** structural descriptive features on each of the following parts of the specimens. (09marks)

Part	Specimens		
	A ₁	A ₂	A ₃
Petals			
Stigma			
Androecium			

- (c) By giving a reason in each case, suggest the likely type of pollination for each of the following specimens.

(i) A₁ (03marks)

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(ii) A₄ (03marks)

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(d) With regard to pollination state **one** advantage of the stigma of specimen

(i) A_1 over that of A_3 . (01mark)

(ii) A_4 over that of A_2 . (01mark)

(e) Remove the outer parts to expose the gynoecium of specimen A_4 .
Draw and label. (05marks)

(f) How is the androecium of the following specimens adapted to its functions?

(i) A_1 (01mark)

(ii) A_3

(01mark)

- (g) With regard to propagation state **one** ecological advantage of specimen A_1 over A_4 .

(01mark)

- (h) Using the features of the petals, stigma and androecium, construct a dichotomous key for the identification of specimens A_1 , A_2 , A_3 and A_4 .

(06marks)

Each candidate should be provided with;

A freshly killed toad, labelled **R**

20cm³ of 2% starch solution, labelled **A**

20cm³ of 2% sucrose solution labelled **B**

20cm³ of 5% yeast solutions, labelled **C**

Solutions **A**, **B** and **C** should **NOT** have traces of reducing sugars.

The yeast solution should be prepared at least 24 hours prior to the exam

Medium sized Irish potato, labelled **U**

Complete flower of Hibiscus, labelled **A₁**

Complete flower of cassia, labelled **A₂**

Complete flower of Banana, labelled **A₃**

Complete flower of morning glory, labeled **A₄**

Easy access to the following should be ensured

10cm³ measuring cylinder

Microscope

Reagents for food test

250cm³ plastic beaker

Hot water

Thermometer

Hydrogen peroxide

Dissecting board/dish

Dissecting set.