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.*

Youare ***not*** *allowed to start working within the* ***first 15minutes****. 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		

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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

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Reasons

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

(03marks)

(i) Hind feet

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(ii) Trunk

(03marks)

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(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)*

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(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)*

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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**.

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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		

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(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 $\mathbf{A_1}$, $\mathbf{A_2}$, $\mathbf{A_3}$ and $\mathbf{A_4}$ 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) A_1 *(03marks)*

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(ii) A_4 *(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)*

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.....

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

.....

.....

(e) Remove the outer parts to expose the gynoecium of specimen A_4

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Each candidate should be provided with;

A freshly killed toad, labelled **R**

$20cm^3$ of 2% starch solution, labelled **A**

$20cm^3$ of 2% sucrose solution labelled **B**

$20cm^3$ 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 $\mathbf{A_1}$

Complete flower of cassia, labelled $\mathbf{A_2}$

Complete flower of Banana, labelled $\mathbf{A_3}$

Complete flower of morning glory, labeled $\mathbf{A_4}$

Easy access to the following should be ensured

- $10cm^3$ measuring cylinder
- Microscope
- Reagents for food test
- $250cm^3$ plastic beaker
- Hot water
- Thermometer
- Hydrogen peroxide
- Dissecting board/dish
- Dissecting set.

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