Name:……. Centre/Index No:……/……

Signature:……..

P530/3

BIOLOGY

PRACTICAL

JULY, 2019

3¼ Hours

Uganda Advanced Certificate of Education

RESOURCEFUL MOCK EXAMINATION 2019

BIOLOGY PRACTICAL

Paper 3

Time: 3¼ Hours

INSTRUCTION

- *This paper consists of three questions.*
- *Answer **ALL** questions.*
- *Write your answers in the spaces provided. Additional sheets of paper must not 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	**Mark**	**Examiner's initial**
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 organism's 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 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 **B_1** and **B_2** which have been treated differently and solutions **Z** and **X**.

a. Cut tissues **B_1** and **B_2** into four equal cube 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 1 and in each case record your comparative observations and deductions. *(14 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 $5cm^3$ of solution **X**. Dip two of the remaining cubes of $\mathbf{B_1}$ into test tube 6 and two cubes of $\mathbf{B_2}$ 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** which are plant organs.

a. Describe the floret arrangement in

i. Specimen **Q** *(2 marks)*

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ii. Specimen **R** *(2 marks)*

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b. Describe the structure of comparative features of bracts in floret of **P**. *(3 marks)*

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c. How are the following features adapted for pollination?

i. Stamen of floret in **P** *(2 marks)*

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ii. Observable gynoecium feature of **S**. *(2 marks)*

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d. Carefully obtain one inner floret from specimen **Q** observe using a hand lens, draw and label. *(6 marks)*

e. Construct a dichotomous key for the identification of specimen **P**, **Q**, **R** and **S** using only essential reproductive structural features. *(3 marks)*

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--(THE END)--

S.6 BIO RESOURCEFUL 2 CONFIDENTIAL

Requirements

- **Toad labelled K**
- **1cm^3 of fresh Irish potato cube labelled B_1**
- **1cm^3 of slightly boiled Irish potato and cooled labelled B_2**
- **15cm^3 of 5% hydrogen peroxide labelled Z**
- **15cm^3 of 1M sucrose solution labelled X**
- **Male maize inflorescence branch with hanging anthers labelled P**
- ***Biden pilosa* inflorescence labelled Q**
- **Bougainvillea inflorescence labelled R**
- ***Panicum maximum* inflorescence branch with floret stigma exposed labelled S**
- **7 test tubes**
- **2 slides**
- **Labels**
- **10cm^3 measuring cylinder**
- **Razor blade**
- **Small mortar and pestle**