Candidate's Name: ……..

School: …… Signature: ……..

553/2

BIOLOGY

(Practical)

Paper 2

Oct. / Nov. 2020

2 hours

RESOURCE EXAMINATIONS SET NUMBER ONE

Uganda Certificate of Education

BIOLOGY

(PRACTICAL)

Paper 2

2 hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of **three** *questions. Answer* **all** *questions,*

Drawings should be made in the spaces provided

Use **sharp pencils** *for your drawings.*

Coloured pencils or crayons should not be used.

No *additional sheets of writings are to be inserted in this booklet.*

Work on additional sheets will **not** *be marked.*

For Examiners Use Only		
Question	**Marks**	**Examiners signature & No.**
1		
2		
3		
Total		

1. You are provided with specimen **M** and solution **X.**

(a) Carry out the following tests to establish the food nutrients in **X**. (*04 marks*)

Tests	**Observations**	**Deductions**
(i) To $1cm^3$ of **X** in a test tube, add 2 drops of iodine solution.		
(ii) To $1cm^3$ of **X** in a test tube add $1cm^3$ of Benedict's solution and boil.		

(b) Label 3 test tubes as **A1**, **B1** and **C1**. Pour $5cm^3$ of distilled water in test tube **A1**, and $5cm^3$ of solution **X** in each of the test tubes **B1** and **C1**.

Using a cork borer, cut out three cylinders from specimen **M**, each measuring 3cm long. Put one cylinder in each of the test tubes **A1** and **C1**. Cut up the third cylinder into 5 smaller pieces then add them to test tube **B1**. Leave the set- up for 15 minutes.

Label three other test tubes as **A2**, **B2** and **C2** and add $4cm^3$ of distilled water to each of them. After 15 minutes, Remove the strip in **A1**, dip it in distilled water and immediately remove it and transfer it to test tubes **A2**. Remove the strips in **B1**, dip them in distilled water and immediately remove them and transfer them to test tubes **B2**. Remove the strip in **C1**, dip it in distilled water and immediately remove it and transfer it to test tubes **C2**. Leave the set up for 15 minutes.

After 15 minutes, remove the cylinders from the test tubes leaving the solutions. Carry out tests in table 2 on solution in test tubes **A2**, **B2** and **C2**.

(***07 marks***)

Table 2

Tests	Observation	Deduction
(i) Take $1cm^3$ of the solution from test tube **A2** and put it into another test tube, add $1cm^3$ of Benedict's solution and boil.		
(ii) Repeat test (i) using the solution in test tube **B2**.		
(iii) Repeat test (i) using the solution in test tube **C2**.		

(c) Name the biological process investigated in (b). (*01 mark*)

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(d) Explain the results in test (ii) and (iii).

Test (ii) (*03 marks*)

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Test (iii) (*02 marks*)

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(e) Explain the purpose of

(i) Cutting up one cylinder of **M** into smaller pieces before adding to test tube **B1**. (*02 marks*)

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(ii) Dipping the pieces of **M** from test tubes **A1**, **B1** and **C1** into distilled water before transferring them to test tubes **A2**, **B2** and **C2** respectively. (*02 marks*)

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2. Specimen **F** is a flower. Examine the specimen using a hand lens.

(a) (i) State the mode of pollination of the specimen. (*01 mark*)

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(ii)Give **four** reasons to support your answer in **(a)(i)** above. (*04 marks*)

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(b) Describe the structure of each of the folloing parts of specimen F stating their numbers in each case.

(a) Petals (*03 marks*)

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(ii)Stamens (*03 marks*)

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(iii)Carpels (*03 marks*)

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(c) Remove all the sepals and petals from specimen **F**. Draw and label the remaining parts of the specimen. (*06 marks*)

3. You are provided with specimens **X, Y** and **Z** which are from the same animal.

(a) Examine the specimens and state four structural features which are common to all.

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(b) Identify the specimens giving to reasons in each case. (*06 marks*)

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(c) Using observable features, give **four** functions of the specimens to the animal. (*04 marks*)

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(d) Examine the posterior view of specimen **Y**. Draw and label in the space provided. (*06 marks*)

END

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Specimen M is mature Irish potato tuber.

Solution X is 2% Glucose solution.

Specimen F, is Crotalaria bean flower.

Specimen X, is cervical vertebra bone.

Specimen Y, is Thoracic vertebra bone.

Specimen Z, is Lumbar vertebra bone.

(X, Y and Z are all from the same dog)

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