Name:..... Stream:.....

553/2
BIOLOGY
PRACTICAL
PAPER 2
2 hours
Mar./Apr. 2023

Uganda Certificate of Education

BIOLOGY PRACTICAL

MOT I EXAMINATIONS, 2023

PAPER 2

2 HOURS

Instructions to candidates:

- *Answer **all** questions.*
- *Drawings **must be** made in the spaces provided.*
- *Use **sharp pencils** for your drawings.*

For Examiner's use only.

Question	**Marks**	**Examiner's signature**
1		
2		
3		
Total		

1.

(a) You are provided with solution **L** which contains food nutrients. Carryout the following tests to identify the food nutrients in solution **L.** Record your tests observations and deductions in table 1 below. (08 marks)

Table 1

	TESTS	**OBSERVATIONS**	**DEDUCTIONS**
(i)	Iodine test		
(ii)	Benedict's test		
(iii)	Biuret's test		

(b) Obtain 2 visiking tubes and in each visking tube add $5cm^3$ of solution L after tieing one end.

- Tie the visking tube tightly to prevent any solution from flowing out.
- Label beakers A and B.
- Put $40cm^3$ of distilled water in beaker A and warm water (at 55°C) into beaker B. (55°C is the initial temperature of warm water put in beaker B)
- Put one visking tube in beaker A and another visking tube in beaker B at the same time.
- Leave the setup for 10 minutes.
- After 10 minutes, remove the visking tubes.
- Carryout tests on water from beaker A and B separately and record your observations and deductions in the table 2 below. (05 marks)

Table 2

	Tests	**Observations**	**Deductions**
(i)	To $1cm^3$ of water from beaker A, add $1cm^3$ of Benedicts solution and boil.		
(ii)	Repeat test in (i) above using water from beaker B.		

(c)

(i) Name the substance being lost from visking tube to water in beaker. (01 mark)

……

……

(ii) Suggest the process by which the substance in (c)(i) above moved from visking tube to water. (01 mark)

……

……

(iii) State two factors being investigated in the experiment in (b) above. (02 marks)

……

……

(d) Explain your results in table 2 above. (03 marks)

……

……

……

……

……

……

……

2. You are provided with specimen **W**, **X, Y** and **Z** which are plants. Observe them carefully using a hand lens where necessary and answer the following questions.
   (a) State the phylum to which specimen X, Y and Z belong and give one reason for your answer. (04 $\frac{1}{2}$marks)

Specimen	Phylum	Reason
X		
Y		
Z		

   (b) Observe the underside of the leaf of specimen **X** identify any two features on the leaf and state function of each feature. (02 marks)

Feature	Function

(c)
   (i) State three observable differences between specimen W and Y. (03 marks)

W	Y

(ii) How is specimen W adapted to its habitat? (03 marks)

……

……

……

……

……

……

(d) Remove one mature plant from specimen Z. Make a well labelled drawing of the specimen. ($04\frac{1}{2}$ marks)

(e) Draw a dichotomous key to identify the specimens. (03 marks)

……

……

……

……

……

……

……

……

……

3. You are provided with specimens **R, S**, **T** and **U** which belong to the same kingdom.

(a)

(i) With reasons, identify the phylum to which specimen R, T, U and S belong.

Phylum (01 mark)

……

……

Reasons (03 marks)

……

……

……

……

(ii) State two observable features common to specimen R, S, T and U. Use a hand lens where necessary. (02 marks)

……

……

……

(iii) Describe the legs of specimen T and their attachment to the body.

Description (01 mark)

……

……

Attachment (01 mark)

……

……

(b) In the table below, write the structural characteristics of the head region of specimen R, S and U. ($04\frac{1}{2}$ marks)

Specimen	**Characteristics**
R	
S	
U	

(c)

(i) State the function of specimen S in its habitat and one adaptation for its function. (02 marks)

Function

……

……

Adaptation

……

……

(ii) Identify the sex of specimen R. ($0\frac{1}{2}$ mark)

……

……

(d) Draw the last two abdominal segments of specimen R clearly showing all features from the ventral view. State your magnification. (05 marks)

END