NAME:.....PERSONAL NO:.....

553/2

BIOLOGY

PRACTICAL

PAPER 2

2 HOURS

Uganda Certificate of Education

SHAPTA JOINT ASSESSMENT BOARD 2023

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 pencil for your drawings
- Coloured pencils or crayons should not be used.
- No additional sheets of writing paper inserted in the booklet.
- Work on additional sheets will not be marked.

1. You are provided with solution **X** which is a food nutrient solution.
   a) Carry out the following tests to establish the food nutrients in solution **X**. Record your observations and deductions in table 1.

Table 1

TESTS	OBSERVATIONS	DEDUCTIONS
To 1 cm^3 of solution **X** add 2 drops of iodine solution.		
To 1 cm^3 of solution **X**, add 1cm^3 of Benedict's solution and boil.		

   b) Tightly tie one end of each visking tube provided using the thread. Mix 2 cm^3 of solution **X** and 2 cm^3 of solution **Y** and put the mixture in one visking tube. (The visking tube may be wetted to make opening easy).

      Firmly tie the free end of the visking tube and wash the outside with water. Suspend the visking tube in the boiling tube which is quarter filled with distilled water as shown below.

      Repeat the process using 2 cm^3 of solution **X** only.

Leave the experiment to stand for 30 minutes. After 30 minutes, carry out tests on the distilled water from the boiling tubes. Record your observations and deductions in table 11.

Table 11

Tests	Observations	Deductions
To 1 cm^3 of distilled water from boiling tube 1, add 2 drops of iodine solution.		
To 1 cm^3 of distilled water from boiling tube 1, add 1 cm^3 of Benedict's solution and boil.		
To 1 cm^3 of distilled water from boiling tube 2, add 2 drops of iodine solution.		
To 1 cm^3 of distilled water from boiling tube 2, add 1 cm^3 of Benedict's solution and boil.		

c) Explain,
The effect of solution **Y** on **X**.

_____

_____

_____

The results of both experiments

_____

_____

_____

d) From the results, what is the conclusion of the experiment.

_____

_____

_____

e) i) State the process that led to the results obtained in table 11.

_____

ii) Suggest two importance of this process in;
Human body

_____

_____

_____

_____

Plants

_____

_____

_____

_____

2. You are provided with specimens **A**, **B** and **C** which are plant parts. Cut specimen **A** and **C** into two equal parts longitudinally.
   a) What plant part are the specimens? Give two reasons for your answer.
      Plant part

      _____

      Reasons:

      _____

      _____

      _____

      _____

b) Describe the pericarp and seed(s) of specimen **A**, **B** and **C**.

Specimen	Pericarps	Seed(s)
(i) **A**		
(ii)**B**		
(iii)**C**		

c) Describe the arrangement of seed(s) in specimen **A**, **B** and **C**.

(i) Specimen **A**

_____

_____

_____

(ii) Specimen **B**

_____

_____

_____

(iii) Specimen **C**

_____

_____

_____

d) State the agent of dispersal and features that enable each specimen to be dispersed by the agent.

Specimen	Agent of dispersal	Features
A		
B		
C		

e) Draw and label one half of specimen **A**, state your magnification.

3. You are provided with specimen **D** and **E** which are animal parts but from different animals.
   a) Giving a reason, state the class of the animals from which specimen **D** and **E** were taken.

Specimen **D**
Class: _____

Reason:

_____

_____

Specimen **E**

Class: _____

Reason:

_____

_____

b) Describe the structure of each specimen.
Specimen **D**

_____

_____

_____

Specimen **E**

_____

_____

_____

c) i) State one common function preformed by specimen **D** and **E**.

_____

_____

_____

ii) How is each specimen adapted to perform the function stated in (c)(i) above?

Specimen **D**

_____

_____

_____

Specimen **E**

_____

_____

_____

iii) State any other two functions performed by specimen **D** and **E.**

_____

_____

_____

iv) Draw and label specimen **D.**

END