

Candidate Name

Centre Number

Candidate Number



**ZIMBABWE SCHOOL EXAMINATIONS COUNCIL**  
General Certificate of Education Ordinary Level

**BIOLOGY**

**4025/3**

PAPER 3 Practical test

**JUNE 2019 SESSION**

1 hour 30 minutes

Candidates answer on the question paper

Additional materials:

As listed in Instructions to Supervisors

Electronic calculator

Pencil (B or HB is recommended)

Soft clean eraser

Ruler (cm/mm)

Time 1 hour 30 minutes

**INSTRUCTIONS TO CANDIDATES**

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided on the question paper.

Use a sharp pencil for your drawings.

Coloured pencils and crayons should **not** be used.

**INFORMATION FOR CANDIDATES**

The number of marks is given in brackets [ ] at the end of each question or part question.

**FOR EXAMINER'S USE**

**1**

**2**

**TOTAL**

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- 1 (a) You are required to make a model of the human arm to demonstrate the role of muscles and bones in bending and straightening the arm.  
You are provided with manila, a scissors, some string, paper glue and a mounted needle.
- (i) Using the manila to represent bones and the string to represent muscles, make the model of the arm.  
Paste the model in the bent position in the space provided

[4]

- (ii) Label, on the model, the parts of the arm represented by each component.

[4]

- (iii) Explain how the model does **not** correctly represent the arm.

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..... [3]

- (b) You are required to investigate how tooth decay occurs and how it can be prevented.  
You are provided with two egg shells, dilute hydrochloric acid and hydrochloric acid-toothpaste mixture.

**NB: Hydrochloric acid is corrosive, avoid skin contact.**

Proceed as follows:

Put an egg shell into beaker **A**.

Add hydrochloric acid to cover the egg shell.

Put the other egg shell into beaker **B**.

Add hydrochloric acid-toothpaste mixture to cover the egg shell.

Leave the set up for five minutes.

- (i) After five minutes, observe and record any changes in the egg shells from beakers **A** and **B**.

**A** .....

**B** .....

[4]

- (ii) Explain any differences observed between the egg shell from beaker **A** and the egg shell from beaker **B**.

..... [2]

- (iii) Draw a conclusion from the observations made.

..... [2]

- (iv) Suggest a substitute for toothpaste.

..... [1]

- 2 (a) You are required to investigate the distribution of stomata on leaves. You are provided with hot water and two fresh leaves, **A** and **B**.

Dip leaf **A** into hot water in a beaker.

Observe the upper and lower surface of the leaf while it is still dipped in water.

- (i) Record and explain the observations made for the upper surface and lower surface of the leaf.

*observation* .....

*explanation* .....

[2]

- (ii) Explain the significance of the observation in (a)(i) to a plant.

..... [2]

- (b) (i) Draw a labelled diagram of leaf **B**.

(ii) Measure and record the length of leaf **B** and the drawing of leaf **B**.

mm [1]

length of leaf **B**

length of drawing

mm [1]

(iii) Calculate the magnification of the drawing.

magnification ..... [2]

(iv) Design an experiment to test a leaf for starch.

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..... [5]

(v) Suggest any **one** precaution taken when carrying out the experiment in (b) (iv).

..... [1]