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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.....
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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**.

.....
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..... [2]

(iii) Draw a conclusion from the observations made.

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..... [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**.

[6]

(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]