EXAMINATIONS COUNCIL OF ESWATINI
Eswatini General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

BIOLOGY **6884/03**

Paper 3 Practical Test **October/November 2020**

1 hour 15 minutes

Candidates answer on the Question Paper.

Additional Materials: As listed in Confidential Instructions.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on the spaces provided.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough work.
Do **not** use staples, paper clips, glue or correction fluid.
Do **not** write on any barcode.

Answer **all** questions.

You may use an electronic calculator.
You may lose marks if you do not show your working or if you do not use appropriate units.

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

For Examiner's Use	
1	
2	
Total	

This document consists of **5** printed pages and **3** blank pages.

[Turn over

1 (a) Iodine solution is used to test for the presence of starch.

You are provided with starch solution made by adding water to starch powder.

You are also provided with an amylase solution.

(i) Pour 5 cm^3 of the starch solution in each of the test-tubes labelled **A**, **B** and **C** provided.

(ii) Add 6 drops of iodine solution to each test-tube **A**, **B** and **C**.

Record your observations.

..... [1]

(iii) Add 1 cm^3 of amylase solution to each test-tube **D**, **E** and **F**.

(iv) Put test-tubes **A** and **D** into the ice cold water (0 °C to 10 °C).

Put test-tubes **B** and **E** into the warm water (35 °C to 40 °C).

Put test-tubes **C** and **F** into the hot water (80 °C to 90 °C).

Leave the test-tubes in their water baths for 5 minutes.

(v) After 5 minutes check the temperature of each water bath and make sure that it is still within the stated temperature range.

(vi) Add the contents of test-tube **D** to **A**, those of **E** to **B** and those of **F** to **C**.

(vii) Record your observations at 2 minute intervals in Table 1.1 for 10 minutes.

Table 1.1

time/min	observations		
	ice water (0 °C – 10 °C)	warm water (35 °C – 40 °C)	hot water (80 °C – 90 °C)
2			
4			
6			
8			
10			

[5]

(b) Suggest an advantage of using the starch as a powder when preparing the starch solution.

.....

..... [2]

(c) Explain your observations for each water bath between 8 and 10 minutes.

ice cold water

.....

.....

warm water

.....

.....

hot water

.....

..... [3]

(d) State a reason for leaving the test-tubes for 5 minutes in the different water baths.

.....

..... [1]

(e) Name **one** independent variable in this investigation.

..... [1]

(f) State **two** measures that have been taken to make this experiment a fair test.

1.....

2..... [2]

(g) Describe how the reliability of the results can be improved.

.....

.....

..... [3]

(h) Describe how you could modify the investigation to find out the optimum pH for the enzyme activity.

.....

.....

.....

.....

..... [4]

[Total: 22]

2 **(a)** You are provided with 5 dicotyledonous leaves labelled **G** to **L**.

(i) Use the following dichotomous key to identify and name the leaves **G** to **L**.

1 **(a)** leaf lobed ..... go to 2

(b) leaf not lobed ..... go to 3

2 **(a)** leaf hairy ..... *Solanum lycopersicum*

(b) leaf smooth ..... *Brassica olearecae*

3 **(a)** leaf narrow with jagged margins ..... *Prunus persica*

(b) leaf broad with smooth margins ..... go to 4

4 **(a)** leaf stalk long ..... *Persea americana*

(b) leaf stalk short ..... *Psidium guajava*

G .....

H .....

J .....

K .....

L ..... [5]

(ii) State **two** visible features that identify the leaves as dicotyledons.

1 .....

2 ..... [2]

(iii) Draw leaf **K** and label a vascular bundle.

[3]

(iv) Measure the length of leaf **K** and the length of your drawing.

length of leaf **K** .....

length of your drawing ..... [1]

Indicate on your drawing where you have taken the measurement.

Calculate the magnification of your drawing.

..... [2]

(b) (i) Compare the lower and upper surface of leaf **K**.

1 .....

.....

2 .....

..... [2]

(ii) Explain **one** of the observed differences between the surfaces of the leaf as stated in **(b)(i)**.

.....

..... [1]

(iii) Ask for warm water from your invigilator.

Hold leaf **K** with a pair of forceps and completely immerse it in warm water in the beaker provided for about 1 minute. Observe both surfaces of the leaf.

Record and explain your observation.

observation: .....

.....

.....

explanation: .....

.....

.....

.....

..... [2]

[Total: 18]

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