EXAMINATIONS COUNCIL OF SWAZILAND
Swaziland General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

BIOLOGY **6884/03**

Paper 3 Practical Test **October/November 2018**

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 all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams, graphs or rough working.
Do **not** use staples, paper clips, glue or correction fluid.
Do **not** write on the 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 **7** printed pages and **1** blank page.

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[Turn over

1 (a) The enzyme phenolase causes the flesh of apples to turn brown when exposed to the air.

You are provided with an apple and beakers with the following liquids:

A – cold water

B – hot water

(i) Measure and record the temperature of the water in the beakers labelled **A** and **B**.

temperature of cold water in **A** .....

temperature of hot water in **B**..... [1]

(ii) Cut the apple longitudinally, using the scalpel or knife provided into four equal pieces.

- Using the pair of forceps or tongs provided, take one piece of apple, and put it in beaker **A** for about 30 seconds.
- Remove and place it in the petri dish labelled **A**.
- Take a second piece and put it in beaker **B** for 30 seconds. Remove it and place it in the petri dish labelled **B**.
- Take a third piece and place it in the petri dish labelled **C**.
- Keep the fourth piece for Question **1 (b)**.
- Leave the pieces **A, B** and **C** for 10 minutes and then observe any colour change in all the pieces of apple.

Draw a suitable table to record your observations in the space provided below.

[5]

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(iii) State a reason for leaving the investigation for 10 minutes before the observations are recorded.

.....

..... [1]

(iv) Explain the effect of dipping the apple in hot water.

.....

.....

..... [2]

(v) Explain the purpose of including apple piece **C** in this investigation.

.....

.....

..... [2]

(vi) Explain why it is important to control the pH in this experiment.

.....

.....

..... [2]

(vii) Describe how the investigation can be modified to compare the rate of browning in two different fruits.

.....

.....

.....

.....

..... [3]

(b) Benedict's solution changes to brick red or orange when mixed with a substance that contains reducing sugars.

You are provided with two boiling tubes, **E** and **F**, each containing Benedict's solution.

- Take the fourth piece of apple and cut it into two cubes of about 1 cm x 1 cm x 1 cm each.
- Take one cube and put it into boiling tube **E**.
- Take the other cube and chop it into very small pieces using the scalpel.
- Place the chopped apple into boiling tube **F**.

(i) Place the boiling tubes in the hot water bath at the same time and record the time taken for each sample to turn brick red or orange.

boiling tube **E** .....seconds

boiling tube **F**..... seconds [1]

(ii) Explain the effects of chopping the cube in **F** on the rate of reaction.

.....

.....

.....

..... [3]

[Total: 20]

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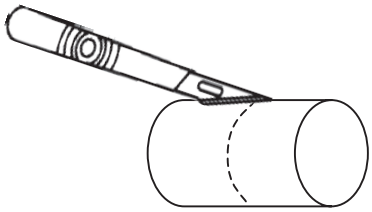
2 (a) You are provided with a piece of cucumber and some salt.

- Cut the piece of cucumber into two equal parts as shown in Fig. 2.1, using the scalpel provided and place them in the petri dishes labelled **G** and **H**.



cut along dotted line

Fig. 2.1

- Blot-dry the cut surfaces of both slices of the cucumber using the paper towels provided.
- Sprinkle all the salt on the freshly cut surface of slice **G**.
- Leave both specimens for 10 minutes and proceed to Question **2 (b)**.

(i) After 10 minutes, observe the surfaces of **G** and **H** and record your observations.

slice **G** .....

slice **H** ..... [2]

(ii) Explain the effect of putting salt on the cucumber.

.....

.....

.....

.....

..... [4]

(iii) Suggest what will happen to the size of slice **G** if it is left for a long time with the salt.

.....

..... [1]

(iv) State **two** ways in which the reliability of the investigation can be improved.

1 .....

.....

2 .....

..... [2]

(v) Draw a diagram of the cut surface of **H**, labelling the part which developed from ovules.

[3]

(b) In an investigation, 70 mm lengths of carrot, celery, cucumber and potato are all immersed in distilled water for 20 minutes.

Table 2.1 shows the results.

Table 2.1

	initial length/mm	final length/mm	change in length/mm
cucumber	70	72	2
celery	70	**(i)**	3
potato	70	75	5
carrot	70	71	1

(i) Calculate the final length for the celery.

..... [1]

(ii) Explain why the change is greatest in the potato.

.....

.....

..... [2]

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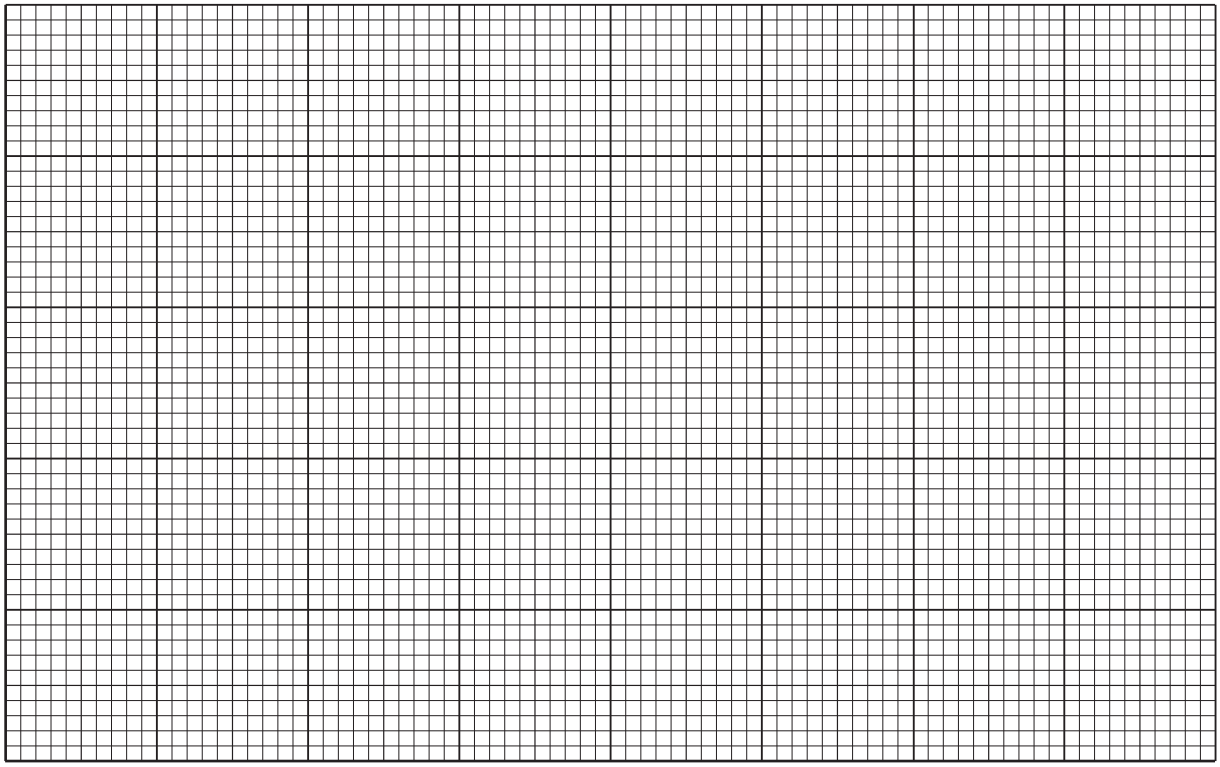
(iii) Plot, on the grid a bar chart of the change in length for each sample in Table 2.1.



[4]

(iv) Predict the final length of the cucumber if it had been boiled in water before being immersed in the distilled water.

..... [1]

[Total: 20]

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