



EXAMINATIONS COUNCIL OF LESOTHO
Lesotho General Certificate of Secondary Education

CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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BIOLOGY

Paper 3

0180/03

October/November 2018

1 hour

Marks: 40

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of this page.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO NOT WRITE IN ANY BARCODES.

Answer **all** questions.
You may lose marks if you do not show your working or if you do not use appropriate units.
Electronic calculators may be used.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [] at the end of each question or part question.

For Examiner's Use	
1	
2	
3	
4	
Total	

This document consists of **10** printed pages and **2** blank pages.



- 1 Table 1.1 shows the heights of 31 tomato plants.

Table 1.1

Height/cm	Number of plants
30–33	2
34–37	5
38–41	4
42–45	1
46–49	0
50–53	0
54–57	2
58–61	8
62–65	7
66–69	2

- (a) Use information in Table 1.1 to:

- (i) Name the type of variation shown.

..... [1]

- (ii) State the number of tomato varieties represented.

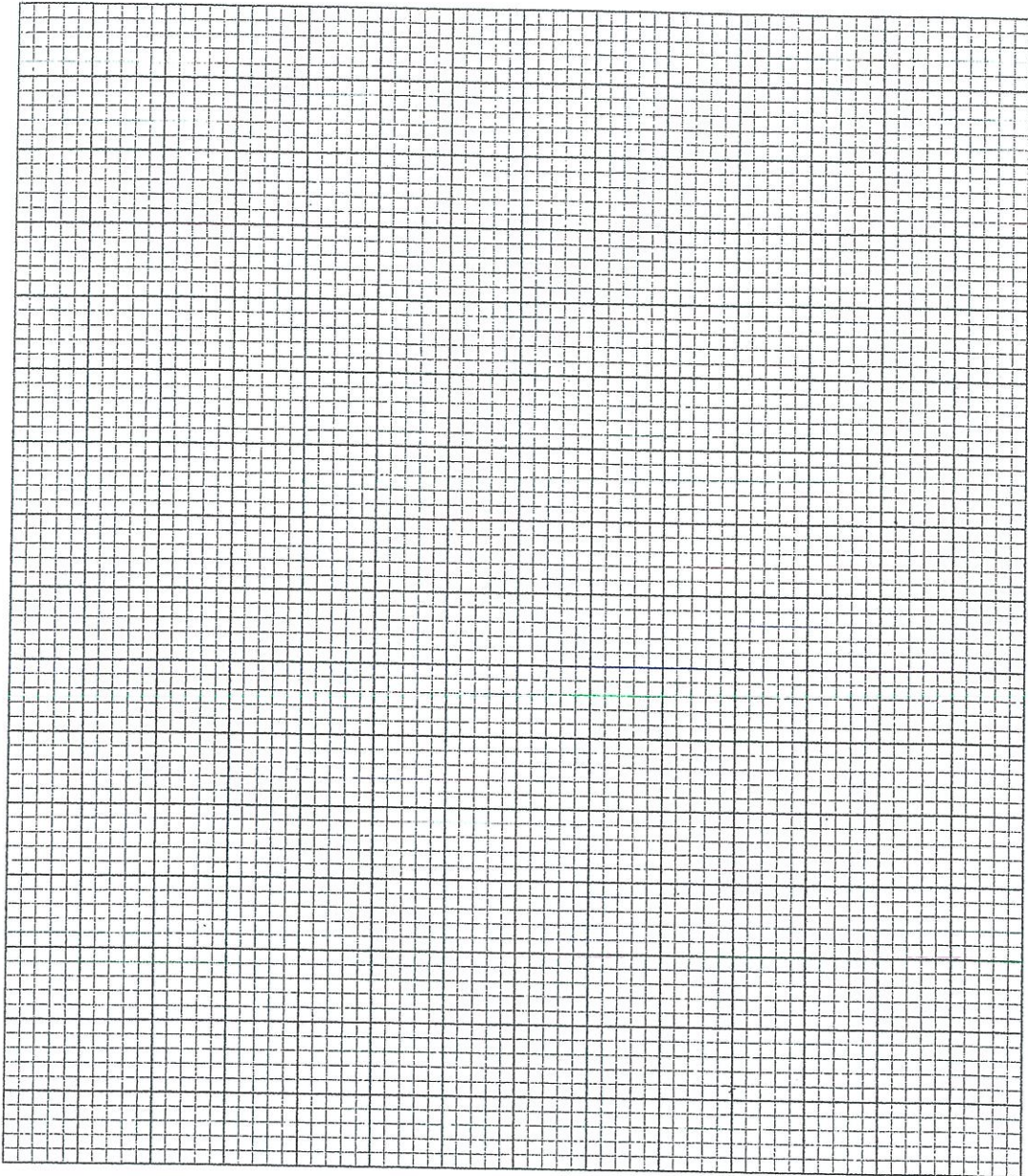
..... [1]

- (iii) State why each variety has a range of heights.

.....
 [1]



(b) Draw a histogram to represent the information shown in Table 1.1.



[3]



2 A student carried out an experiment to test for protein in groundnuts.

The groundnuts were crushed and poured into four test-tubes, each containing different liquids, as shown in Fig. 2.1.

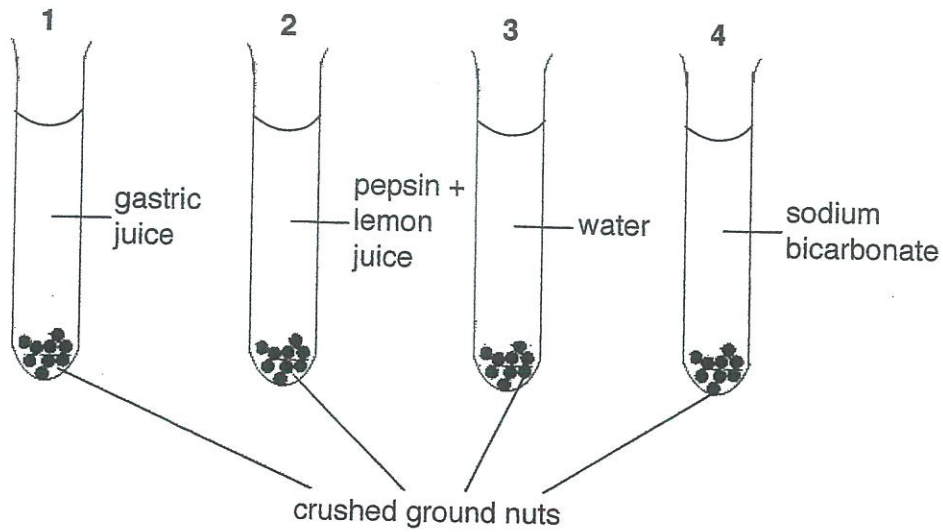


Fig. 2.1

Samples were taken at regular intervals and tested for protein. Results were recorded as shown in Table 2.1.

Table 2.1

Test-tube	Time/min			
	5	10	15	20
1	Purple	Light purple	Blue	Blue
2	Purple	Light purple	Light purple	Light purple
3	Purple	Purple	Purple	Purple
4	Purple	Purple	Purple	Purple

(a) (i) State **one** reason for crushing the ground nuts.

.....

..... [1]

(ii) Describe **and** explain the difference in results for test-tubes 1 and 4.

Test-tube 1

.....

.....

.....

Test-tube 4

.....

.....

..... [4]

(iii) Identify the test-tube that would show similar results to those of test-tube 1, if left for a longer period of time.

..... [1]

(b) Describe how the experiment could be improved.

.....

.....

.....

.....

.....

..... [3]

[Total: 9]



(ii) Draw a large diagram of structure **M**.

[2]

(iii) Measure the maximum length of structure **M** on Fig. 3.1.

Maximum length of **M** on Fig. 3.1 =

Measure the maximum length of your drawing of structure **M**.

Maximum length of **M** on drawing =

Calculate the magnification of your drawing of structure **M** relative to structure **M** on Fig. 3.1. Show your working.

..... [3]

[Total: 11]



4 Fig. 4.1 shows the apparatus a student used to investigate respiration in peas.

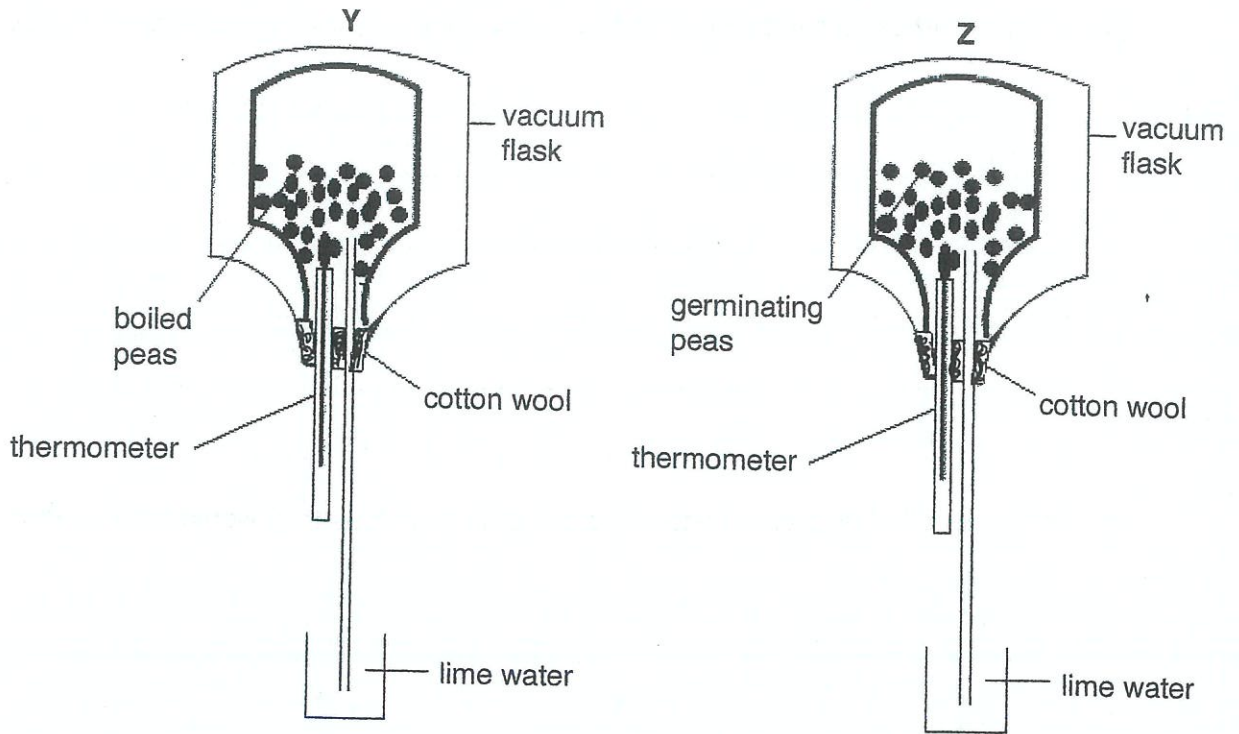


Fig. 4.1

(a) (i) State the purpose of flask Y in Fig. 4.1.

.....
..... [1]

(ii) Describe **and** explain the change that will be observed in the lime water below flask Z.

.....
.....
.....
.....
.....
..... [3]



(b) Predict **and** explain the results that would be shown by the thermometer in flask **Z**.

.....

.....

.....

.....

.....

..... [3]

(c) Draw a labelled diagram of one of the seeds in flask **Z** as they would appear after one week.

[2]

[Total: 9]







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