BOTSWANA EXAMINATIONS COUNCIL
Botswana Senior Secondary Education

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER		

BIOLOGY **1428/05**

Paper 5 Alternative to Provider Based Assessment **For Examination from 2025**

SPECIMEN PAPER

1 hour 30 minutes

Candidates answer on the Question Paper

Additional Materials: No additional materials required.

INSTRUCTIONS

- Answer **all** questions.
- Write your candidate name, Centre number and candidate number in the spaces provided at the top of this page.
- Write in dark blue or black pen.
- Write your answer to each question in the spaces provided.
- You may use an HB pencil for any diagrams, graphs or rough working.
- Do **not** use staples, paper clips, highlighters, glue or correction fluid.
- DO **NOT** WRITE IN ANY BARCODES.
- Electronic calculators may be used.

INFORMATION

- The total marks for this paper is **40**.
- 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 **6** printed pages and **2** blank pages.

For Examiner's Use

1 Plan an investigation on the effect of light intensity on the rate of photosynthesis.

The plan should include:
- The title
- The hypothesis
- Methodology: materials, procedure, variables, **two** precautions.

(a) Title

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.....[1]

(b) Hypothesis

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.....[1]

(c) Methodology:

(i) materials

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.....[3]

(ii) procedure

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[4]

(iii) variables

dependent variable	independent variable	control variable
1 ……..	1……	1……..……
……..	……..	……

[3]

(iv) precautions

1 .....

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2 .....

……

[2]

For Examiner's Use

(b) Explain why the rate of photosynthesis increases with light intensity up to a certain point, and what factors might limit the rate of photosynthesis beyond that point.

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. .....[6]

[Total: 20]

For Examiner's Use

2 A scientist measured the concentration of vitamin C in five different fruits. The concentration of vitamin C was measured in one fruit of each type.

The data obtained is shown in Table 2.1.

Table 2.1

fruit	**concentration of vitamin C / mg per 100 g**
kiwifruit	90
guava	230
orange	50
strawberries	60
bell pepper	115

(a) **(i)** Identify the fruit in Table 2.1 with the lowest concentration of vitamin C.

…… [1]

(ii) Calculate the mass of vitamin C in 500 g of guava.

Show your working.

mass of vitamin C …… [3]

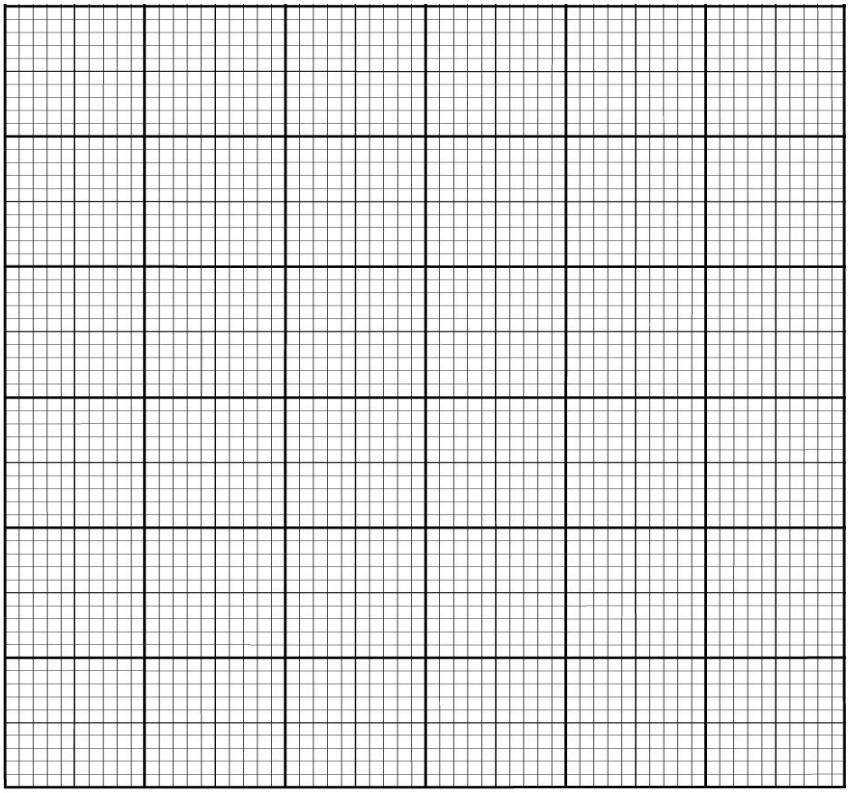
(iii) Children between 9-13 years of age are advised to have 45 mg of vitamin C in their diet per day.

Calculate the mass of strawberries that would provide 45 mg of vitamin C.

Show your working.

mass of strawberries ……g [2]

(b) **(i)** Plot a bar chart of the data shown in Table 2.1 on the grid provided.



[4]

(ii) Compare the mass of vitamin C in guava to that in bell peppers.

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…….[2]

(iv) Suggest **two** possible limitations when conducting this investigation.

1 …….....

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2 …….....

…….……..……

[2]

(v) Suggest **two** ways of improving the results in this investigation.

1 …….....

…..... …….

2 ……

…….

[2]

(c) State a conclusion supported by the results in Table 2.1 with reference to a real-life situation.

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. .....[2]

(d) Name **one** source of vitamin C other than fruit.

..... [1]

(e) Name the reagent used to test for the presence of vitamin C.

..... [1]

[Total: 20]

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