

FORM TP 02025055



TEST CODE 01207032

MAY/JUNE 2025

CARIBBEAN EXAMINATIONS COUNCIL

CARIBBEAN SECONDARY EDUCATION CERTIFICATE®
EXAMINATION

BIOLOGY

Paper 032 – General Proficiency

Alternative to School-Based Assessment

2 hours 10 minutes

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of THREE questions. Answer ALL questions.
2. Write your answers in the spaces provided in this booklet.
3. Do NOT write in the margins.
4. You are advised to take some time to read through the paper and plan your answers.
5. If you need to rewrite any answer and there is not enough space to do so on the original page, you must use the extra lined page(s) provided at the back of this booklet. **Remember to draw a line through your original answer.**
6. **If you use the extra page(s), you MUST write the question number clearly in the box provided at the top of the extra page(s) and, where relevant, include the question part beside the answer.**

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

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0 1 2 0 7 0 3 2 0 3



Answer ALL questions.

1. You are provided with the following equipment and materials.

Equipment and Materials

- Specimen of a leaf
- A scalpel or small knife
- Hand lens
- 1 large Petri dish
- Paper towels

Read the following instructions carefully before you begin.

(a) Procedure

- (i) Make a large, labelled drawing of the leaf specimen in the space provided on page 5. State the magnification of your drawing and give your drawing a suitable title.

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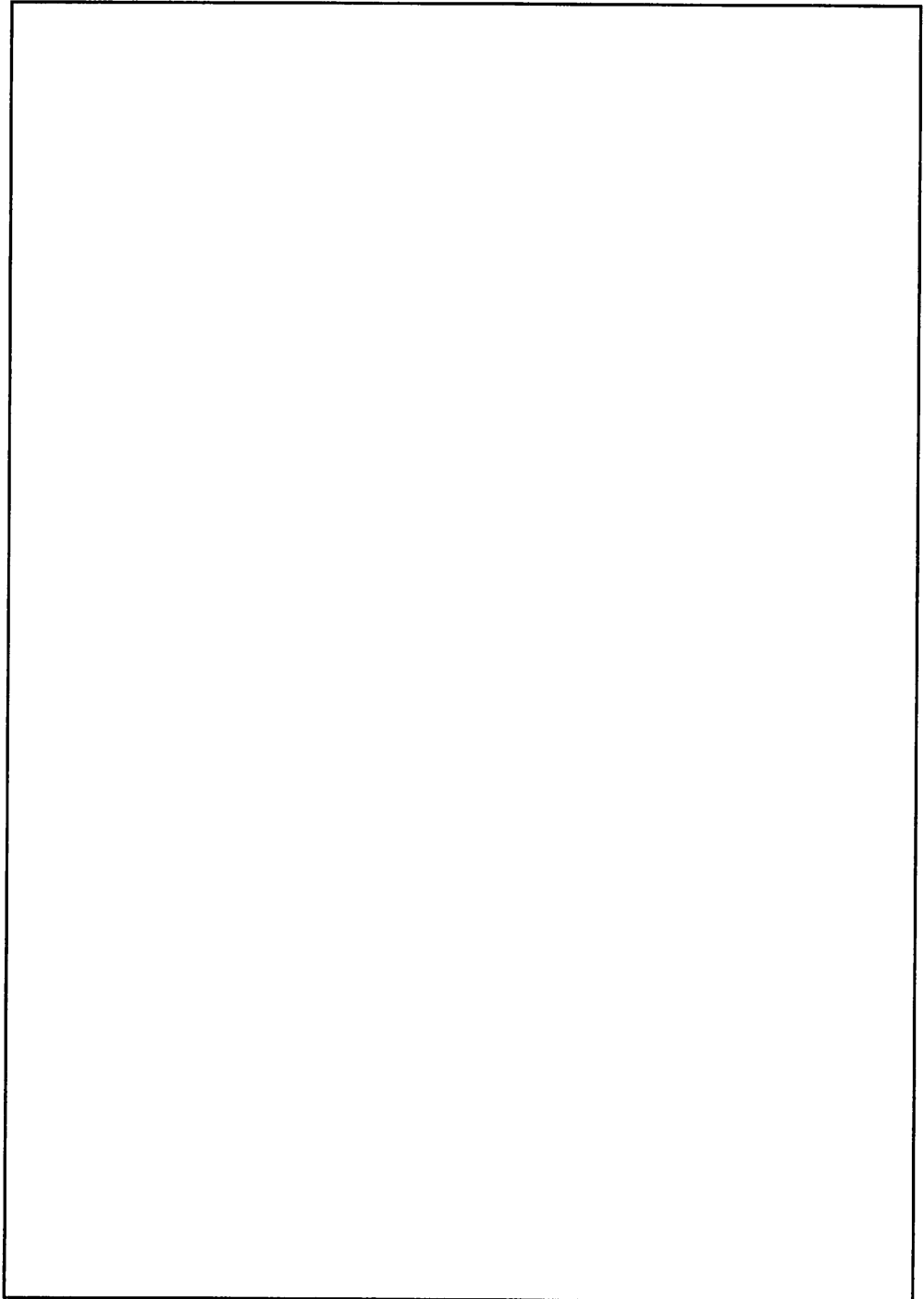


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(10 marks)



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(ii) Show how you calculated the magnification for the drawing of the leaf specimen.

(1 mark)

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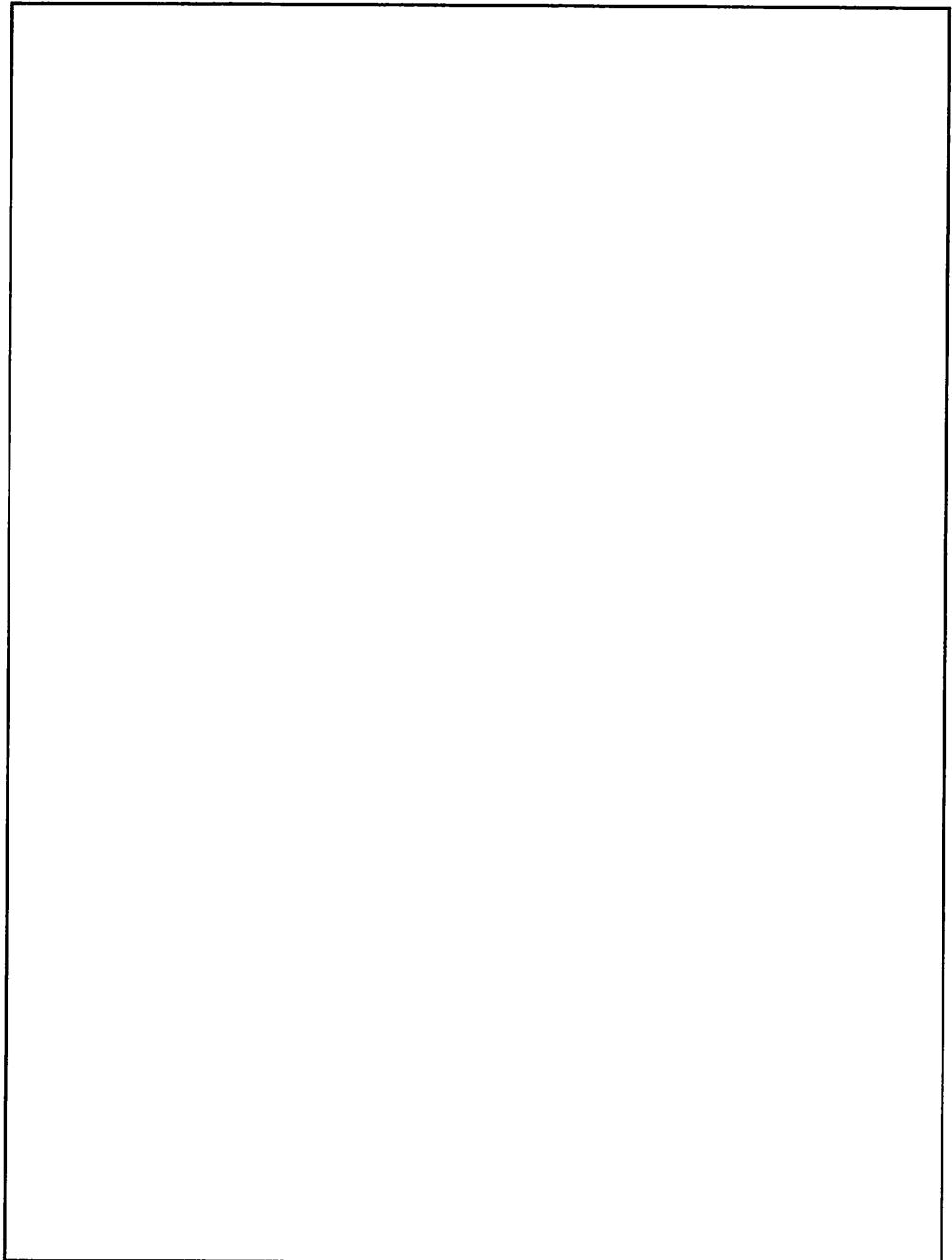
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- (iii) Using the scalpel or knife, cut a cross section of the leaf specimen. Examine the cut surface (cross section) using the hand lens, then make a labelled drawing of the cross section.



(3 marks)

- (iv) Draw a straight line labelled *X* _____ *Y*, on the drawing you completed on page 5, to show where you made the cut on the leaf specimen to prepare the cross section.

(1 mark)

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(c) Figure 1 is a diagram of a longitudinal section of an onion bulb.

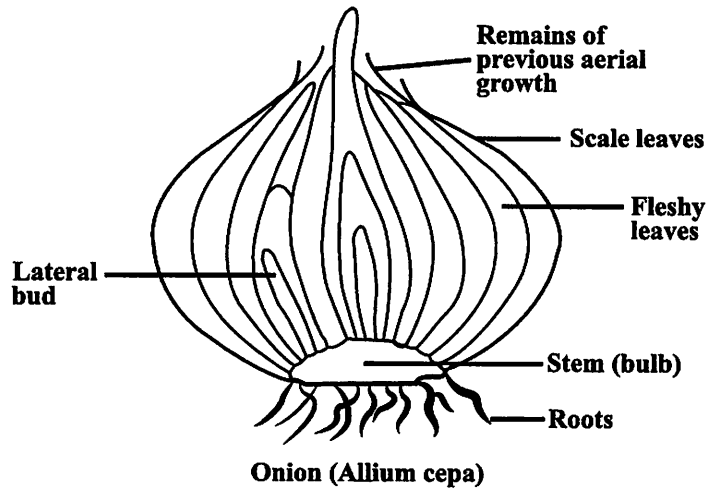


Figure 1. Longitudinal section of an onion bulb

Outline TWO ways in which the swollen leaf bases in the onion are significant for the plant.

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(2 marks)

Total 21 marks



(ii) State THREE precautions which should be taken when conducting the experiment.

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(3 marks)

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(b) Table 1 below shows the results of an experiment conducted to test the response of the human pupil to different light intensities.

(i) State a suitable title for the table.

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(1 mark)

(ii) Complete Table 1 by inserting the average size of the pupil for each light intensity.

TABLE 1

Light Intensity (lux)	Pupil Diameter (mm) Test 1	Pupil Diameter (mm) Test 2	Pupil Diameter (mm) Test 3	Average Pupil Size (mm)
4	5.35	5.45	5.40	
40	5.30	5.25	5.39	
400	4.20	4.40	4.75	
600	3.50	3.55	3.70	

[4 marks]

(iii) State ONE conclusion which could be drawn from the data in Table 1.

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(1 mark)

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- (iv) Participants in the experiment expressed that at low light intensities they were unable to see colours while at higher light intensities the ability to see colours returned. Explain, with reference to the named structures of the eye how this is possible.

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(4 marks)

Total 19 marks

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(iv) State a suitable conclusion for the experiment.

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(1 mark)

(b) The students decided to repeat the experiment but this time they used water of various temperatures. They used three different beakers with water as outlined below.

Beaker 1: Cold water

Beaker 2: Water at room temperature

Beaker 3: Hot water

(i) Outline how the observations for Beakers 1, 2 and 3 will differ.

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(2 marks)

(ii) Explain the difference in the observations outlined in (b) (i).

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(2 marks)

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- (c) The Biology class conducted another experiment involving students in the class. The heights of all students were taken and then recorded. The results from the experiment are shown in Table 2 below.

TABLE 2: HEIGHTS OF STUDENTS IN A BIOLOGY CLASS

Height Group (cm)	Number of Students
135–139	2
140–144	3
145–149	6
150–154	8
155–159	7
160–164	3

- (i) State a suitable hypothesis for the experiment.

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(2 marks)

- (ii) On the grid provided on page 17, plot a histogram, with height on the x -axis, to show the results in Table 2.

(5 marks)

- (iii) State the type of variation shown by the results in Table 2.

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(1 mark)

- (iv) Explain ONE factor that may have led to the type of variation stated in (c) (iii) for this student population.

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(2 marks)

Total 20 marks

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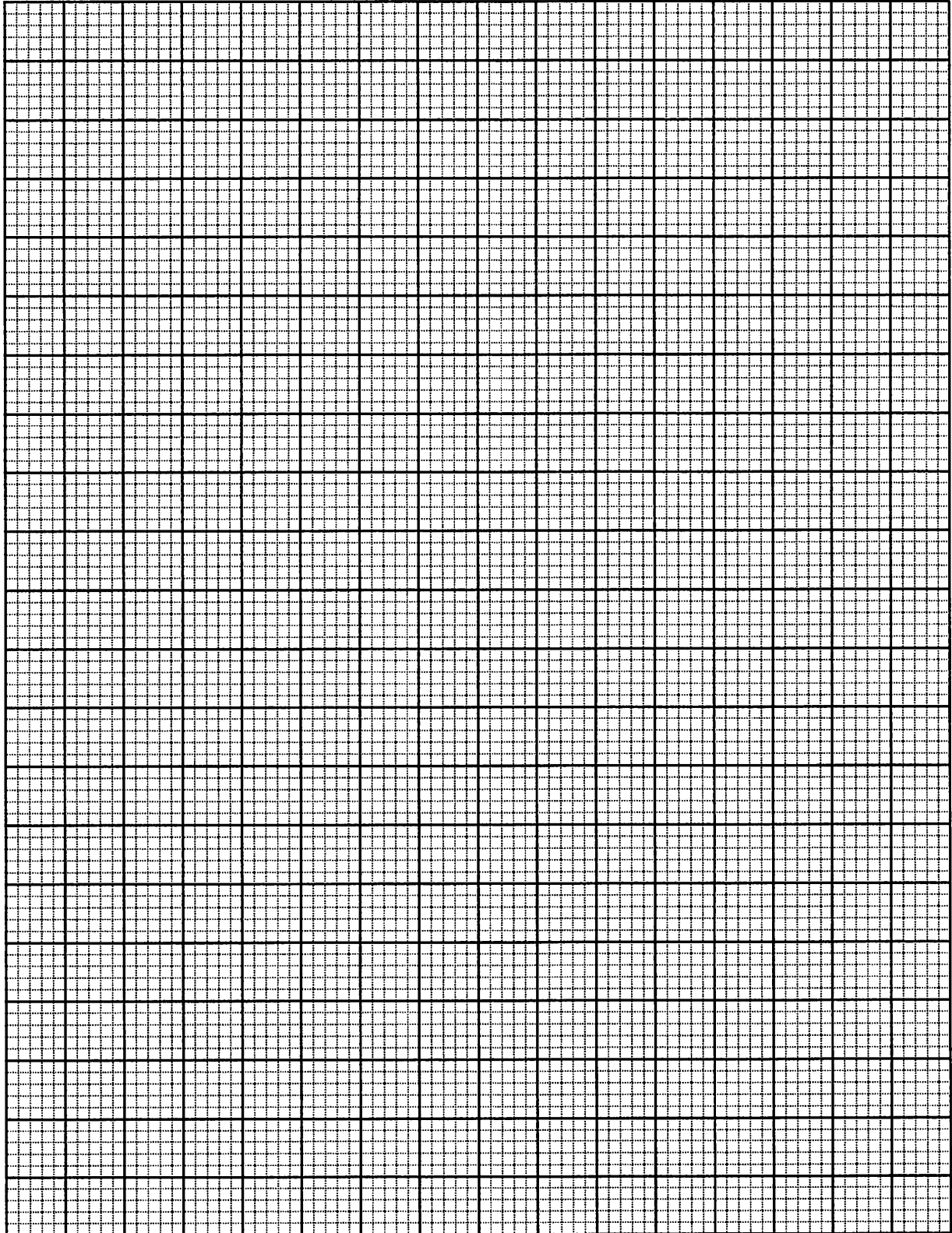
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END OF TEST

IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.

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