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# Examiners' Report / Principal Examiner Feedback

## November 2009

IGCSE

## IGCSE Biology (4325) Paper 03

## IGCSE Science (Double Award) (4437) Paper 07

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## General

The paper was felt to be of a similar standard to those set previously. The candidates' performance was felt to be lower than that of the previous series. The paper discriminated well, with a very wide range of marks seen. The full range of marks was seen for each part of each question.

## Comments on individual questions

### Question 1

This question was about food tests and precautions necessary when heating a solution.

(a) Candidates had to name solutions used when testing for starch and glucose. They were required to give the colour of the solution at the start and also at the end. Most candidates were able to name the solutions, although some did get them the wrong way round and others said wrongly Biuret for glucose. The colours for starch were fairly well known, but not those for glucose. Some candidates did not use the colours given in the list.

(b) Most candidates were able to give two precautions, the most common being wearing goggles and using tongs.

### Question 2

This question tested the candidates' knowledge and understanding of the structure and function of leaves.

(a) Candidates had to give the correct name for the pores in a leaf and then explain how the pores would change when the plant was exposed to bright light. Most could name the pores as stomata. Many gained at least two marks for the change in bright light, with opening to increase photosynthesis being the most common responses. Some mistakenly thought that the pores opened to take in light, rather than saying to take in carbon dioxide. Candidates were also able to gain marks for correct references to transpiration.

(b) Candidates were required to count the number of pores in each picture and describe the shape of the epidermis cells. Most were able to count the pores correctly and many did describe the shapes well – a wide range of descriptions was accepted.

(c) This part was based on the use of a potometer. Most candidates gained at least two marks for describing how the apparatus was used. Some lost a mark as they did not mark reference to an air bubble or they forgot to mention time. Many candidates were able to give one precaution to make sure the apparatus worked correctly, the most common answers being to make sure that it was watertight or that air did not get in. Many candidates described how the rate of water loss changes with higher wind speed, the most common answer being to use a fan. Some did not gain the second mark, as they did not make a comparison, e.g. vary the speed.

### Question 3

This question was centred around an experiment on respiration in bean seeds.

(a) This tested the candidates' knowledge of indicators to test for carbon dioxide. Most mentioned lime water turning milky. Others gave sodium bicarbonate turning yellow.

(b) Most candidates gained the two marks here – the two most common answers referring to the mass of peas and the volume of indicator.

(c) Most candidates gained full marks for their results table, although some lost a mark for not mentioning bubbles.

(d) Many candidates gained one mark for indicating that the number of bubbles was higher at 20 $^{o}$C than at 10 $^{o}$C. Few gained the additional mark for giving an explanation, e.g. more respiration.
(e) Many candidates gained two marks here, by suggesting the experiment would be more accurate if the volume of gas was measured in a measuring cylinder.
(f) This part proved to be a challenge for many candidates. Some were able to say that there would be more bubbles as the boiling tube expanded due to the increase in temperature. A few gained an additional mark, usually by making reference to increased pressure or kinetic energy.

**Question 4**
This question tested the candidates' understanding of planning and carrying out an experiment. It was based on how the movement of larvae might be affected by the carbon dioxide concentration.
Most candidates scored around 3 marks. Most candidates gained their marks by reference to the age/species of larvae and by considering keeping conditions such as temperature constant. The most common points missed were how movement would be recorded and confusion about the carbon dioxide produced by the larvae.

**Question 5**
This question centred round the digestion of starch.
(a) Candidates were required to describe the results on a graph. Most gained at least one mark for saying that the amount of starch decreased. Some did gain the second mark, by making reference to the fact that the amount of starch levelled off between 5 and 10 minutes.
(b) Most candidates made a good attempt at suggesting an explanation why the starch was digested less quickly at 10 minutes. Most made reference to the fact that there would be less starch left to be digested.
(c) Most candidates gained one mark for giving a variable that should have been kept constant. The most common answer was temperature. Many more went on to say that this would be done by using a water bath.

**Question 6**
This question was based on an investigation in to two species of plants growing in two different areas.
(a) Almost all candidates were able to complete the number of plant B in the table.
(b) Many candidates were able to calculate the mean number of plant B per quadrat. Most candidates gained at least two marks from plotting a bar chart to show the mean number of plants per quadrat growing in each area. Some did not label the axes clearly, especially the Y axis with the number of plants. A few did not plot the mean number, but the individual numbers instead.
(c) Almost all candidates were able to gain at least one mark and many gained two marks in describing the distribution of plants A and B in each area. Some managed to do this despite completing the graph incorrectly.

# BIOLOGY 4325, GRADE BOUNDARIES

Option 1: with Written Alternative to Coursework (Paper 3)

| | A* | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| Foundation Tier | | | | 58 | 46 | 34 | 23 | 12 |
| Higher Tier | 78 | 67 | 56 | 45 | 34 | 28 | | |

Option 2: with Coursework (Paper 04)

| | A* | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|---|
| Foundation Tier | | | | N/A | N/A | N/A | N/A | N/A |
| Higher Tier | 83 | 72 | 61 | 50 | 39 | 33 | | |

No candidates at foundation tier entered coursework so there are no grade boundaries for this category.

**Note:** Grade boundaries may vary from year to year and from subject to subject, depending on the demand of the question paper.

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