Cambridge IGCSE

**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

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**BIOLOGY** **0610/52**

Paper 5 Practical Test **February/March 2015**

**1 hour 15 minutes**

Candidates answer on the Question Paper.

Additional Materials: As listed in the 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 or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

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

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 | |
| Total | |

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **9** printed pages and **3** blank pages.

**Read through all the questions on this paper carefully before starting work.**

**1** Yeast is a single-celled organism that is used in bread-making and brewing.

You will investigate the process of respiration using an active yeast culture.

The active yeast culture has been prepared in a glucose solution and has been kept in a warm environment. The glucose was dissolved in cooled, boiled water (boiling removed the gases from the water) before the yeast was added.

- Put on the eye protection provided.
- Stir the contents of the container labelled **yeast culture**.
- Using the syringe, measure 10 $cm^3$ of yeast culture and place into each of the test-tubes, labelled **A** and **B**.
- Place test-tubes **A** and **B** in the beaker of warm water. They **must** remain in the warm water throughout this investigation.
- Using the dropping pipette, carefully introduce drops of oil down the inside of test-tube **B** onto the surface of the yeast culture, until a complete layer, covering the surface, is formed.
- Remove the film that is covering the test-tubes containing the hydrogencarbonate indicator solution.
- Set up the apparatus provided as shown in Fig. 1.1. Make sure that the open end of the delivery tube is below the surface of the hydrogencarbonate solution.

CARE IS NEEDED WHEN INSERTING THE BUNG INTO TEST-TUBES **A** AND **B**.

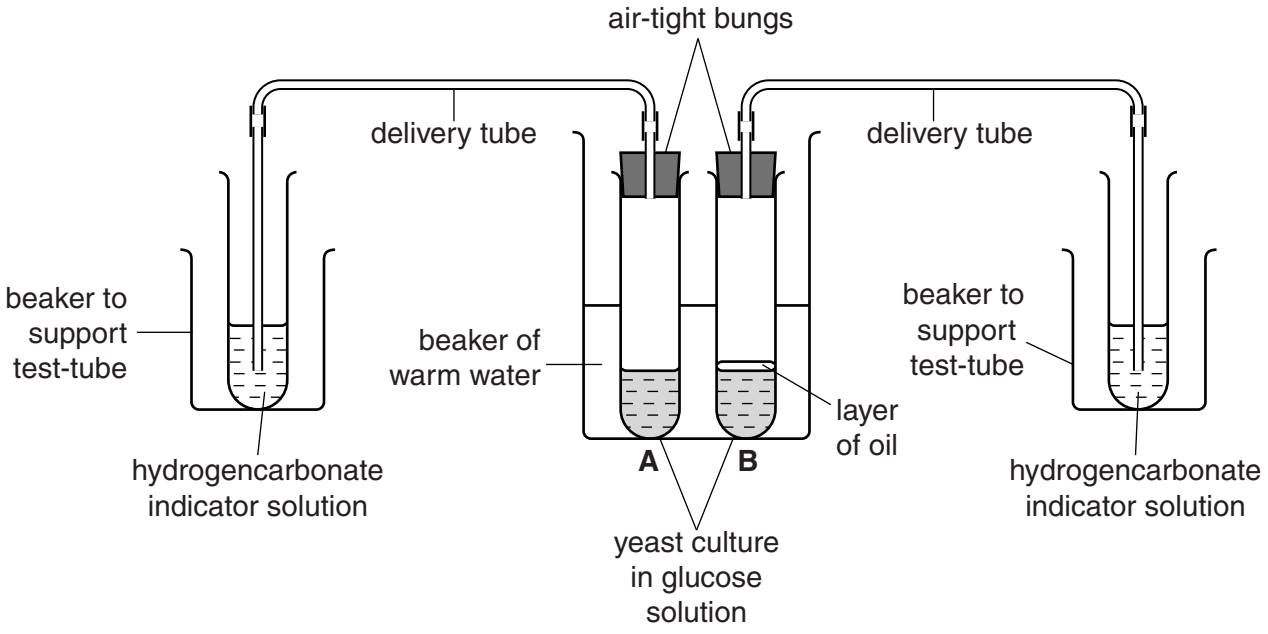


**Fig. 1.1**

**(a) (i)** Describe the colour of the hydrogencarbonate indicator solution and what you observe in the yeast cultures.

hydrogencarbonate indicator solution .....

.....

yeast cultures .....

..... [2]

Every five minutes for ten minutes (0, 5 and 10 minutes), you are going to observe and record the number of bubbles released from test-tubes **A** and **B** into the hydrogencarbonate indicator solution in one minute **and** the colour of the hydrogencarbonate indicator solution

**(ii)** Prepare a table to record these results and observations.

[3]

**(iii)** Now, count the number of bubbles and observe the colour.

Record these results and observations in your table. These are the results for 0 minutes.

Repeat this after 5 and 10 minutes.

[3]

**(iv)** Compare the appearance of the yeast cultures in test-tubes **A** and **B**.

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..... [1]

**(v)** Describe **and** explain the results and observations shown in your table.

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.....[4]

**(b)** Explain why:

**(i)** the yeast culture was stirred at the beginning of the investigation

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..... [1]

**(ii)** the oil was introduced into test-tube **B**

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..... [1]

**(iii)** the test-tubes containing the yeast culture were kept in a container of warm water.

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..... [1]

**(c)** Suggest **two** sources of error in this investigation. For each source of error, suggest an improvement to reduce this source of error.

source of error .....

.....

improvement .....

.....

source of error .....

.....

improvement .....

.....[4]

**(d)** Fig. 1.2 shows yeast as seen using a microscope.

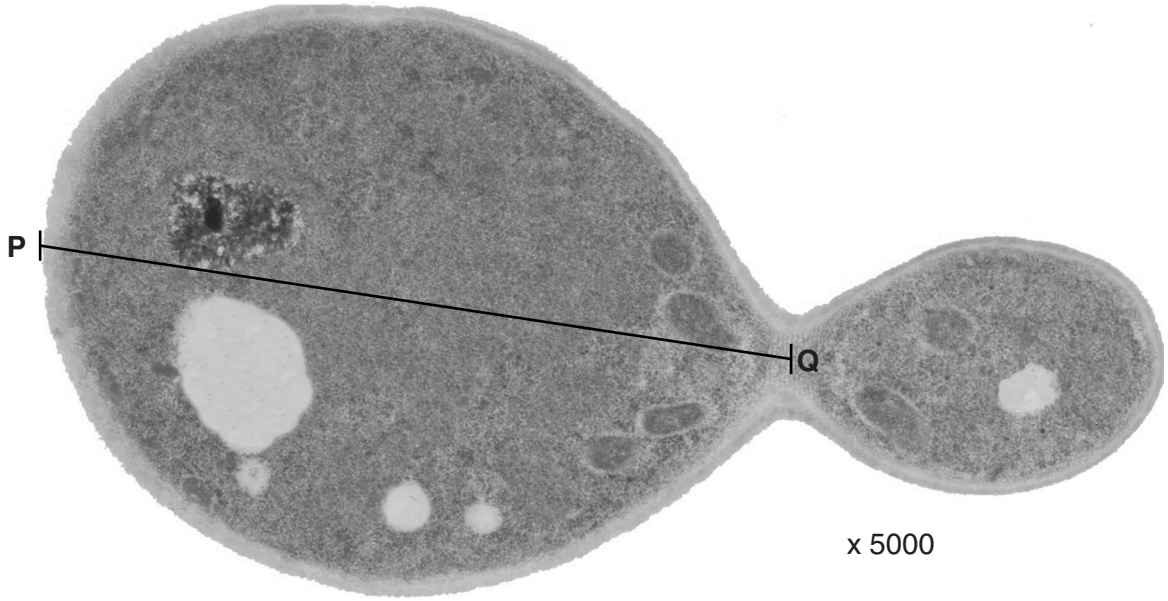


**Fig. 1.2**

**(i)** Describe what is occurring in Fig. 1.2.

..... [1]

**(ii)** You are going to calculate the actual length of a yeast cell shown in Fig. 1.2.

Measure the length of line **PQ**.

length of line **PQ** ..... mm

Calculate the actual length of the cell.

Show your working.

actual length of cell ..... mm [3]

**[Total: 24]**

**2** You are provided with half of a fresh strawberry fruit. This is a false fruit as the edible part has developed from a swollen receptacle.

- Remove the plastic film.
- Use the hand lens to observe the fruit.

**(a) (i)** Make a large, labelled drawing of this fruit to show the cut surface. Turn the fruit over and make a second large, labelled drawing to show the outer surface. The second drawing should show the arrangement of the seeds.

cut surface outer surface

[5]

**(ii)** Suggest how the fruit may be dispersed to spread the seeds to new areas.

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..... [2]

**(b) (i)** Describe how you would safely test this fruit to show the presence of reducing sugar.

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..... [4]

**(ii)** Describe how you would test this fruit to show the presence of protein.

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..... [2]

You will now carry out these tests.

- Put on the eye protection provided.
- Cut the fruit into small pieces and use approximately half for each test.
- Raise your hand if you need a supply of hot water.

**(iii)** Record your observations and conclusions in Table 2.1.

**Table 2.1.**

| | reducing sugar | protein |
|---|---|---|
| observation | | |
| conclusion | | |

[3]

**[Total: 16]**

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