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0610/05

October/November 2008

1 hour

Additional Materials: As listed in the Confidential Instructions.

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 a pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.
DO NOT WRITE IN ANY BARCODES.

Answer **both** questions.

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	

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

Read the whole question before starting work.

- 1** You are provided with an active yeast culture in a test-tube with a delivery tube attached.

You are also provided with a test-tube containing hydrogencarbonate indicator which should be a red solution.

If the indicator is NOT red in colour, raise your hand to attract the Supervisor's attention.

- Place the open end of the delivery tube into the hydrogencarbonate indicator, as shown in Fig. 1.1.

Hydrogencarbonate indicator changes colour according to pH. In alkaline solutions the indicator becomes purple and in acidic solutions the indicator becomes yellow.

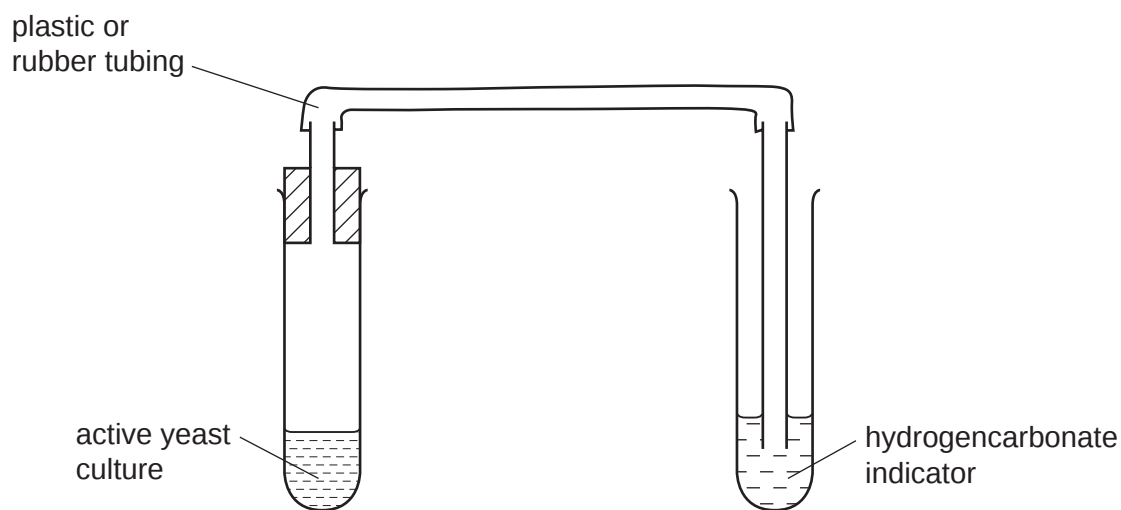


Fig. 1.1

- (a)** Describe the appearance of the yeast culture.

.....
 [1]

- Gently shake the tube with the active yeast culture to mix the contents and observe at intervals of approximately 2 minutes for a total of 10 minutes.
- You may proceed with other parts of this question and Question 2 during this time.

- (b) (i)** Observe and record any changes which occur in the test-tubes.

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..... [2]

- (ii)** Explain the changes you have recorded in **(b)(i)**.

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..... [2]

- (c)** Describe how you would collect and measure the volume of gas given off per minute by 20 cm³ of the active yeast culture.

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..... [5]

(d) Fig. 1.2 shows a yeast cell reproducing asexually.

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Fig. 1.2

(i) Make a labelled drawing of the yeast cell.

[3]

- (ii) Measure the diameter of the yeast cell in Fig. 1.2 between points **X** and **Y**.

diameter of cell [distance between **X** and **Y**]

Calculate the magnification of your drawing.

Show your working

magnification

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[3]

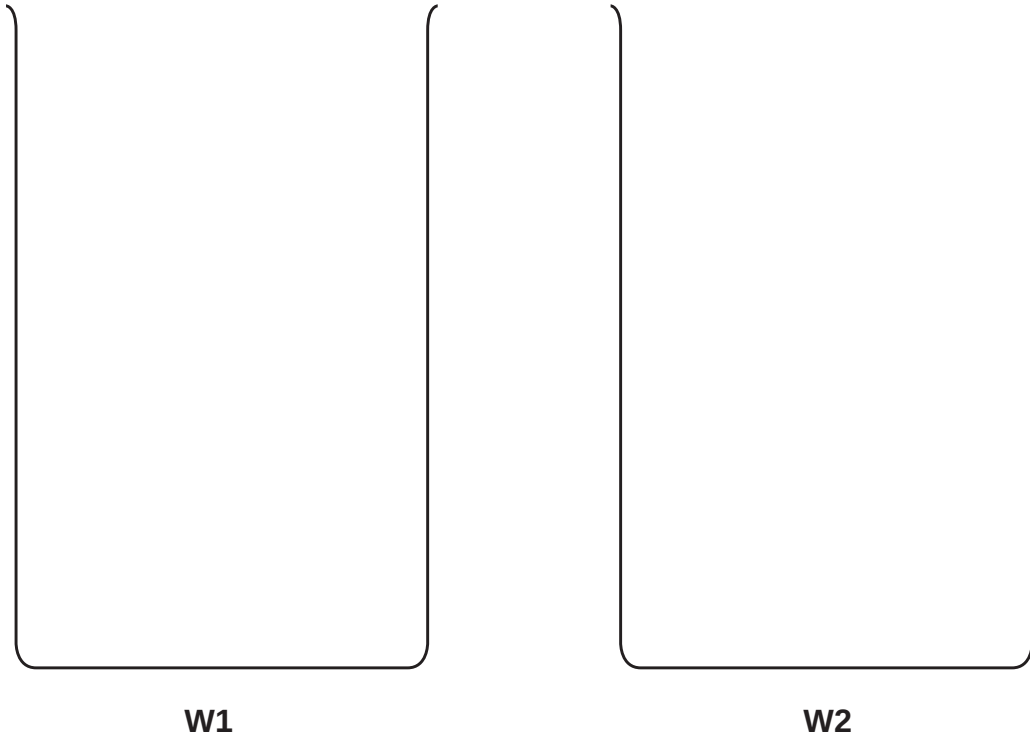
[Total: 16]

- 2 Two uncooked hen's eggs of similar size were submerged in acid to dissolve the shell. The contents of the eggs are left intact, enclosed by the egg membrane.

You are provided with one de-shelled egg that has been placed in distilled water for 2 days, labelled **W1**.

The other egg has been placed in salt water for 2 days, labelled **W2**.

- (a) (i) Draw the contents of the two containers, **W1** and **W2**, in the outlines shown below.



[2]

Observe the two eggs carefully.

- (ii) Complete Table 2.1 to compare the two eggs.

Table 2.1

	W1	W2
size of the egg		
position of the egg in the liquid		
appearance of the surface membrane		

[3]

- (iii) Use the glass rod to gently press the surface of each egg and record your findings.

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..... [2]

- (iv) Suggest an explanation for these differences.

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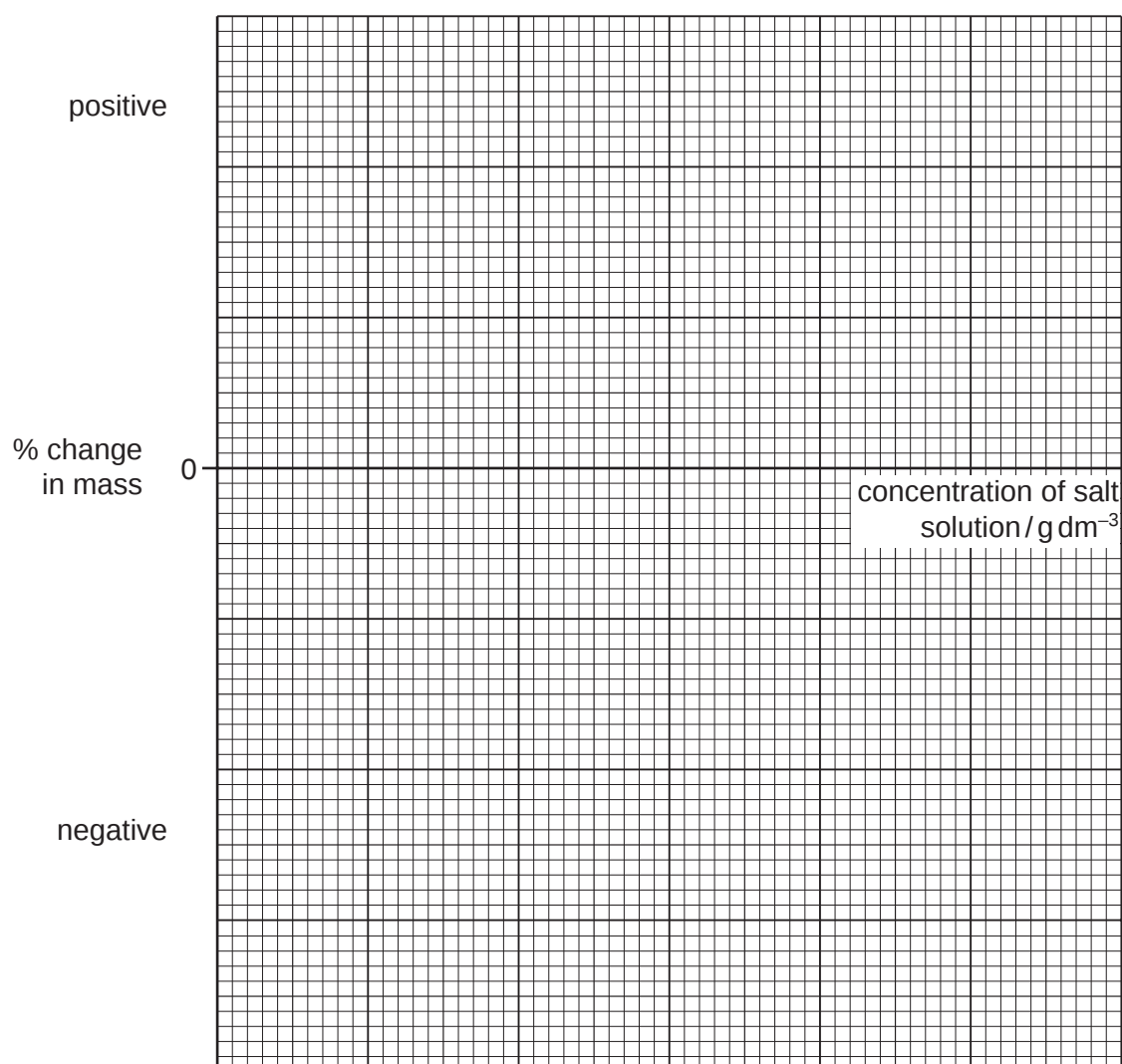
- (b) A student carried out a similar experiment and varied the concentration of salt in different solutions.

Table 2.2 shows the changes in mass of eggs after 2 days.

Table 2.2

Concentration of salt solution / g dm ⁻³	% change in mass
0.0	+7.3
1.0	+3.2
2.0	+0.8
3.0	-2.5
4.0	-6.4
5.0	-10.8

- (i) Draw a graph of this data on the axes shown.



[3]

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- (ii) Determine the concentration of salt solution where there is no change in mass.

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

- (iii) Explain why there is no change in mass at this concentration of salt solution.

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

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- (c) (i) Describe how you would carry out a biuret (food) test to show whether protein is present in the 'white' of an egg.

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..... [2]

- (ii) You are provided with two tubes labelled **C** and **D**. Both tubes contain a sample of egg white.

Carry out the test you have described in (c)(i) on these samples.

Record your results in Table 2.3.

Table 2.3

	C	D
appearance of reagent before testing		
colour after testing		

[2]

- (iii) Suggest what you might conclude from these results.

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..... [1]

[Total: 24]

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