B1 L9 Osmosis: Exam questions worksheet

AQA GCSE Combined Science: Trilogy (8464) and Biology (8461)
Biology Paper 1 · Topic B1 Cell biology

Name _____ Class _____

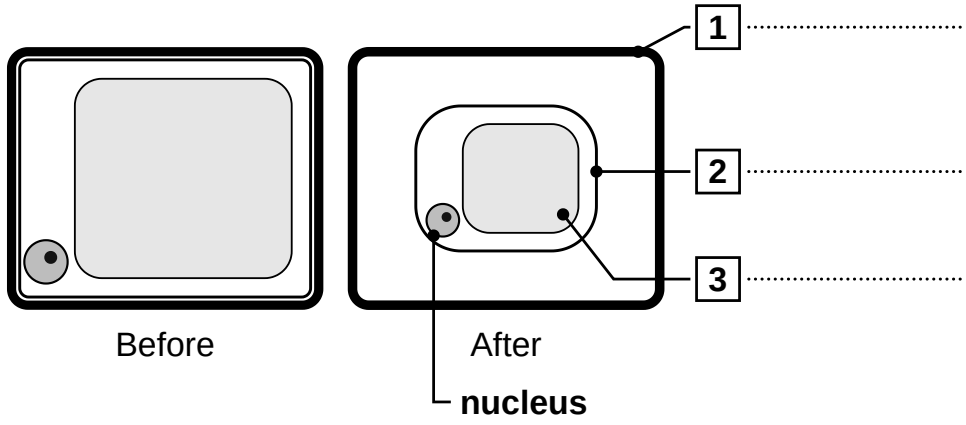
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Instructions
- Answer **all** questions in the spaces provided.
- Use black ink or black ball-point pen.
- The marks for each question are shown in brackets.
- In calculations, show clearly how you work out your answer.
- Time: about 25 minutes.

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0 1 **Figure 1** shows a plant cell before and after it was put in a concentrated salt solution.

Figure 1



0 1 . 1 **Complete Figure 1**. [3 marks]

Choose answers from the box.

cell membrane	cell wall	chloroplast
mitochondrion	permanent vacuole	

0 1 . 2 What has happened to the cell in **Figure 1**? [1 mark]

Tick (✓) **one** box.

- It has become turgid. ☐
- It has burst. ☐
- It has lost water by osmosis. ☐
- It has taken in salt by osmosis. ☐

Do not write outside the box

0 2 A student investigated how the concentration of sugar solution affects the mass of potato cylinders.

Table 1 shows the results.

Table 1

Concentration of sugar solution in mol/dm³	Starting mass in g	Final mass in g	Percentage change in mass
0.0	1.60	1.84	+15.0
0.2	1.50	1.56	**X**
0.4	1.80	1.71	−5.0
0.6	1.70	1.53	−10.0
0.8	1.60	1.36	−15.0

0 2 . 1 **Calculate** value **X**. [2 marks]

Use the equation:

percentage change in mass =
(final mass − starting mass) ÷ starting mass × 100

X = ... %

0 2 . 2 Why did the student calculate the percentage change in mass, and not just the change in mass? [1 mark]

.....

.....

0 2 . 3 **Give one** variable the student should control. [1 mark]

.....

0 2 . 4 Use **Table 1** to estimate the concentration of sugar solution at which there is no net movement of water. [1 mark]

..... mol/dm³

0 2 . 5 The student blotted each cylinder with a paper towel before finding its mass. [1 mark]

Give one reason why.

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0 3 Root hair cells take in water from the soil. [2 marks]

Explain how.

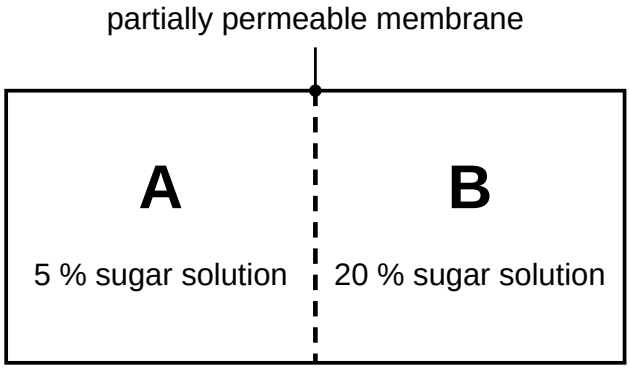
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0 4 **Figure 2** shows two sugar solutions, **A** and **B**, separated by a partially permeable membrane.

Figure 2



In which direction will there be a net movement of water? [2 marks]

Explain your answer.

.....

.....

.....

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Turn over for the next question

0 5 A student wants to find the concentration of sugar solution that causes no change in the mass of potato tissue. [6 marks]

Describe a method the student could use.

You should include how the student would make it a fair test and how they would use the results.

END OF QUESTIONS

There are no more questions in this paper. Original practice paper © sciencegcse.co.uk – free to use for non-commercial education. Not an AQA paper.

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