AQA GCSE Biology | 8461

SPECIFICATION POINT 4.2.1

# Principles of organisation

## Past-paper questions

| | |
|---|---|
| Tier | **Higher** |
| Question groups | **1** |
| Available paper years | **2016–2016** |

## Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

**Name:** _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

### 4.2.1 Principles of organisation

**Question 01**

June 2016 | BL3HP | Original Q1 | Legacy

**1** Cells, tissues and organs are adapted to take in different substances and get rid of different substances.

**Table 1** shows the concentration of four ions outside cells and inside cells.

**Table 1**

| Ion | Concentration outside cells in mmol per $dm^3$ | Concentration inside cells in mmol per $dm^3$ |
|---|---|---|
| Sodium | 140 | 9 |
| Potassium | 7 | 138 |
| Calcium | 2 | 27 |
| Chloride | 118 | 3 |

**1 (a)** Use information from **Table 1** to complete the following sentences.

**[2 marks]**

Sodium ions will move into cells by the process

of _____ .

Potassium ions will move into cells by the process

of _____ .

**1 (b)** Some students investigated the effect of the different concentrations of sugar in four drinks, **A**, **B**, **C** and **D**, on the movement of water across a partially permeable membrane.

The students:

- made four bags from artificial partially permeable membrane
- put equal volumes of 5% sugar solution in each bag
- weighed each bag containing the sugar solution
- placed one bag in each of the drinks, **A**, **B**, **C** and **D**
- after 20 minutes removed the bags containing the sugar solution and weighed them again.

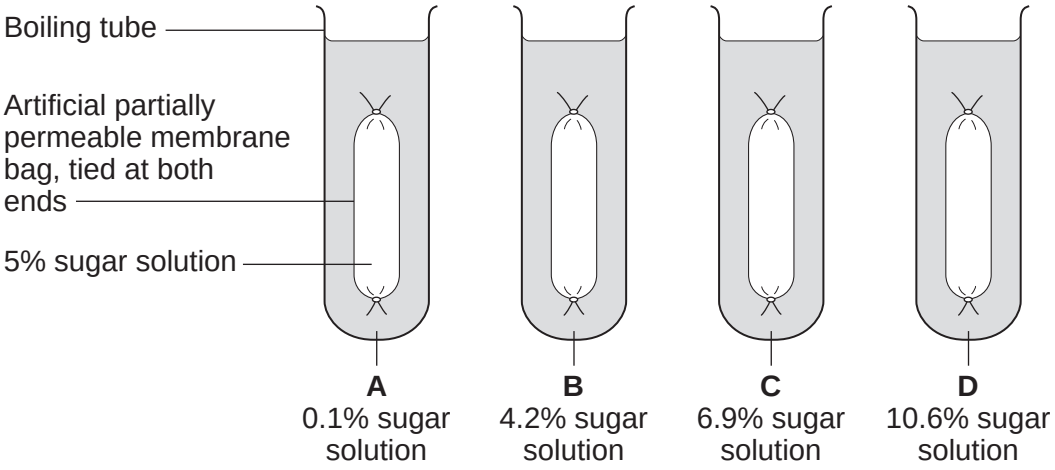
4.2.1 Principles of organisation

Question 01 · continued



**Figure 1** shows how they set up the investigation.

**Figure 1**




**1 (b) (i)** The bag in drink **A** got heavier after 20 minutes.

Explain why.

**[3 marks]**

**1 (b) (ii)** In which drink, **A**, **B**, **C** or **D**, would you expect the bag to show the smallest change in mass?

**[1 mark]**

Tick (✓) **one** box.

**A** ☐ **B** ☐ **C** ☐ **D** ☐

**1 (b) (iii)** Explain why you think the bag you chose in part **(b)(ii)** would show the smallest change.

**[2 marks]**

8