

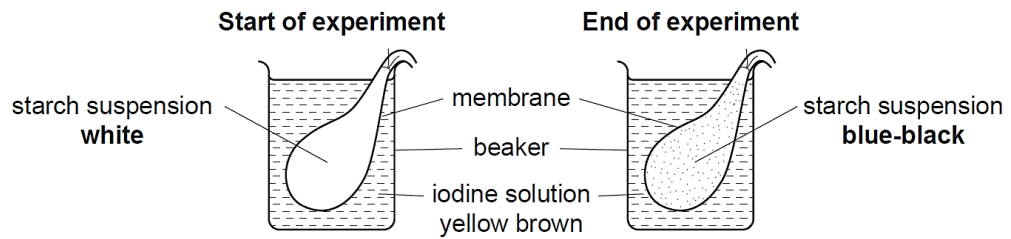
**GCSE Biology A (Gateway)**

**J247/03 B1-B3 and B7 Higher (Higher Tier)**

**Question Set 16**

- 1 (a) An experiment is set up to investigate how substances move into and out of cells.

Look at the results.



Explain the results of this experiment.

Use ideas about molecules in your answer.

[3]

(b)\*

Sodium ions help regulate the balance of water between the blood and body cells.

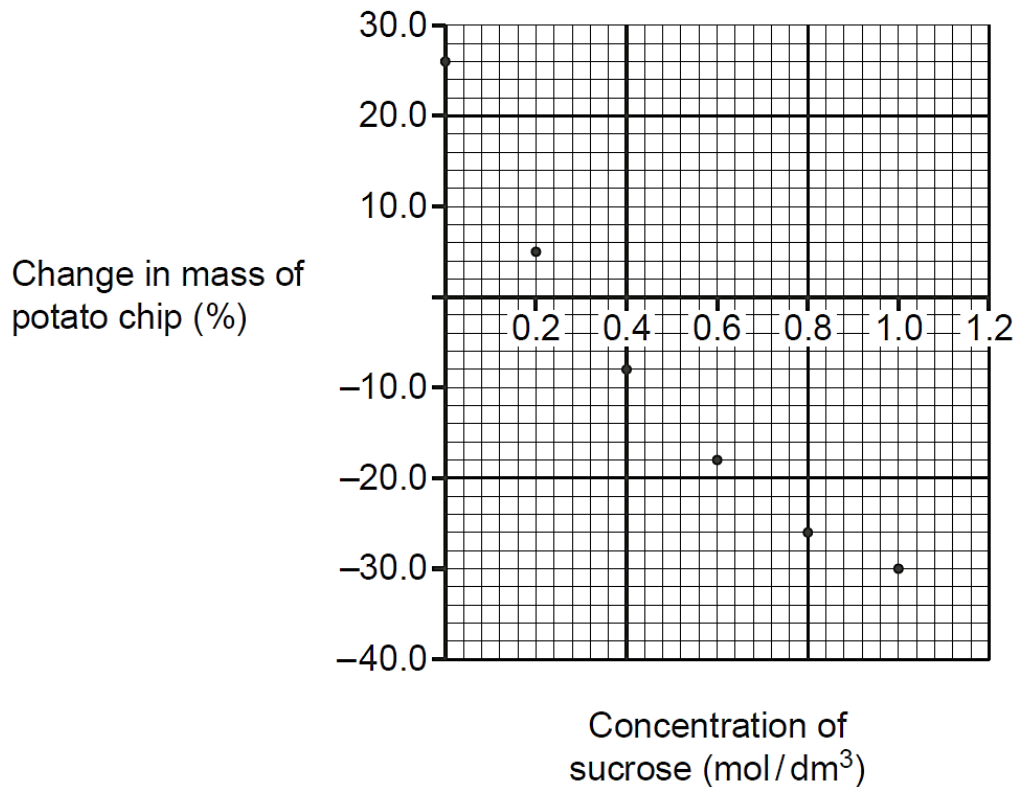
In some people the level of sodium ions in the blood can become very low. This can alter the balance of water between the blood and body cells. Doctors can prescribe drugs for patients who have this condition.

Explain how low sodium ion levels in the blood will affect the cells of the body and suggest why drugs that block the action of ADH can treat this condition.

[6]

(c) Plant cells are also affected by osmotic conditions.

Look at the graph. It shows the percentage change in mass of potato chips in different concentrations of sucrose.



(i) Draw a curve of best fit on the graph. [1]

(ii) Use the graph to estimate the concentration of sucrose that has the same water potential as the potato cells. [1]

(iii) In a different experiment, a sucrose concentration of 0.0 mol / dm<sup>3</sup> increases the mass of a carrot chip by 30%.

The carrot chip shows a 10% decrease in mass compared with its original mass for every 0.2 mol/dm<sup>3</sup> increase in sucrose concentration.

Calculate the x-axis intercept for the carrot chip.

x-axis intercept = .....mol/dm<sup>3</sup> of sucrose [1]

(d) Osmotic conditions can increase the size of plant tissue but stem cells are responsible for growth of new cells.

What name is given to plant tissue that contains stem cells?

[1]

**Total Marks for Question Set 16: 13**

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