Cell Transport

Total Marks: 16

Q1.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Figure 3 shows some onion cells that have been soaked in a concentrated salt solution.

(Source: © Rattiya Thongdumhyu/Shutterstock)

Figure 3

(i) The cells in Figure 3 have been stained.

Give **one** reason why the cells have been stained.

.....

(1)

(ii) Which is the name of the structure labelled V?

(1)

- ☒ **A** chloroplast
- ☒ **B** vacuole
- ☒ **C** nucleus
- ☒ **D** cell wall

(iii) The salt solution outside the cell has a higher concentration than the solution inside the cell.

Explain why the cytoplasm shrinks away from the sides of the cell when the cells are in salt solution.

(2)

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Q2.

A student investigated the percentage change in mass of potato cylinders placed in sucrose solutions of different concentrations.

Figure 5 shows the results of the student's investigation.

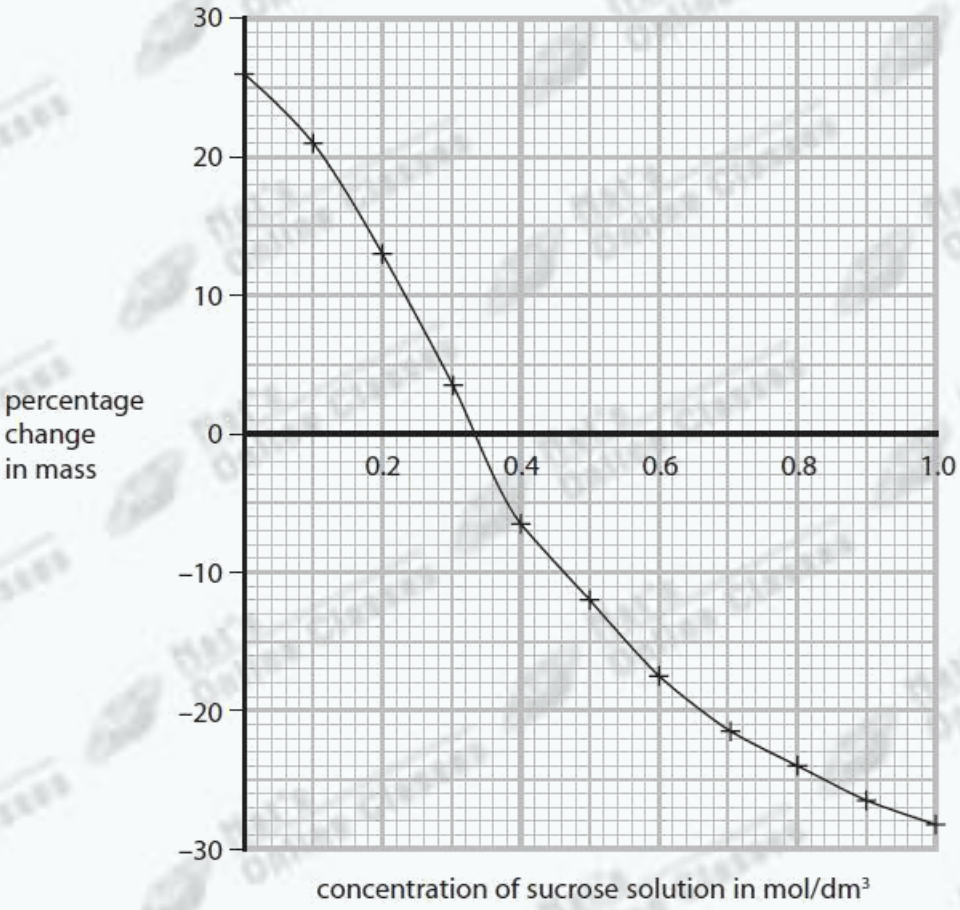

Figure 5

State **two** conclusions that can be made from these results.

(2)

1 .....

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2 .....

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Q3.

Alcohol is broken down by liver cells.

Which process moves alcohol from the blood into the liver cells?

(1)

- ☒ **A** diffusion
- ☒ **B** respiration
- ☒ **C** osmosis
- ☒ **D** transpiration

Q4.

A student placed three different sized cubes of agar jelly into separate beakers containing the same concentration of hydrochloric acid.

The cubes contained a pink indicator.

This indicator becomes clear when in contact with an acid.

Figure 7 shows the results of the investigation after the cubes had been in the acid for 120 seconds.

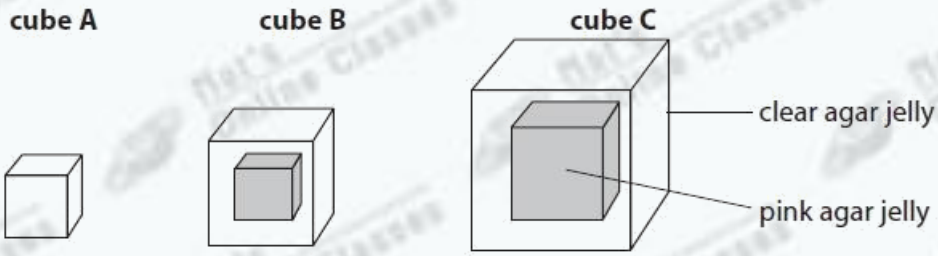

Figure 7

(i) The distance from the outside of cube B to the pink area was 3 mm. Calculate the distance diffused by hydrochloric acid in **one** second.

(2)

..... mm

(ii) The student wanted to confirm their results.

Give **one** improvement the student should make to this investigation to confirm their results.

(1)

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Q5.

A student wanted to investigate the movement of water into and out of cells in potatoes.

The student had the equipment shown in Figure 8.

Figure 8

The test tubes in the rack contain different concentrations of sodium chloride solution.
The solutions were 0.1 M, 0.2 M, 0.3 M, 0.4 M and 0.5 M sodium chloride solution.
The test tube in the beaker contains distilled water.
There are three potato chips in each of the six test tubes.

(i) State why the test tube in the beaker only contains distilled water and three potato chips.

(1)

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(ii) State **two** variables that need to be controlled in this investigation.

(2)

1 .....

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2 .....

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(iii) Explain why the chips in the 0.5 M sodium chloride solution lost mass.

(3)

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