AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.1.3.2

Osmosis

Mark schemes and examiner comments

Tier	**Higher**
Question groups	**2**
Available paper years	**2020–2024**

Using this booklet

1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

Name: _____ **Date:** _____

Where a precise marking extract is unavailable, the full source document is included in an appendix. Any missing mark scheme is explicitly identified.

4.1.3.2 Osmosis

Answer 01 · Mark scheme

November 2020 | 8464/B/1H | Original Q1

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.1	concentration of the sugar solution		1	AO1 4.1.3.2 RPA 2
01.2	gained <u>water</u> (water moves) by osmosis **or** (because) concentration of water outside the potato is greater than inside the cells / potato	 allow converse statements (because) concentration (of sugar solution) inside the potato is greater than outside the potato / cells	1 1	AO2 AO1 4.1.3.2 RPA 2
01.3	all points correctly plotted line of best fit drawn as a curve through all the points	allow ± ½ a square ignore extrapolation of curve	1 1	AO2 4.1.3.2 RPA 2
01.4	correct reading from their graph	allow ± ½ a square allow answer in range 0.23 to 0.24 (mol/dm^3) if no line drawn	1	AO3 4.1.3.2 RPA 2

4.1.3.2 Osmosis

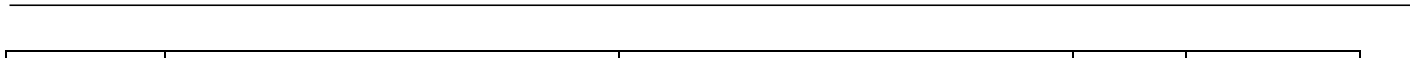
Answer 01 · Mark scheme

01.5	$\frac{0.25 \times 100}{7.96}$ = 3.14(070352) 3.14 (%)	allow $\frac{(8.21-7.96) \times 100}{7.96}$ allow correct rounding to 3 sig figs of an incorrectly calculated percentage change	1 1 1	AO2 4.1.3.2 RPA 2
Total			**9**	

4.1.3.2 Osmosis

Answer 01 · Mark scheme

November 2020 | 8464/B/1H | Original Q1



4.1.3.2 Osmosis

Answer 02 · Mark scheme

June 2024 | 8464/B/1H | Original Q2

Question 2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1	concentration of salt solution		1	AO2 4.1.3.2 RPA2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.2	(water / solution on the tube / tubing) would affect / increase the mass	allow the results would not be valid	1	AO2 4.1.3.2 RPA2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.3	$\frac{0.96}{15.54} \times 100$ 6.17 (760618…) (%) 6.2 (%)	 allow answer written in **Table 1** allow correct conversion to one decimal place from students' incorrect percentage change calculation using figures from 0.0 Concentration of salt solution in mol/dm^3	1 1 1	AO2 4.1.3.2 RPA2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.4	all 4 points plotted correctly line of best fit	allow a tolerance of ± ½ a small square allow **1** mark for 3 points plotted correctly ignore attempt to plot a point for 0 mol/dm^3 ignore extrapolation	2 1	AO2 AO3 4.1.3.2 RPA2

4.1.3.2 Osmosis

Answer 02 · Mark scheme

June 2024 | 8464/B/1H | Original Q2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.5	value from student's line of best fit	allow a tolerance of ± ½ a small square if no line of best fit drawn allow **1** mark for an answer in the range 0.64 to 0.66	1	AO3 4.1.3.2 RPA2

Total Question 2	**9**

Answer 02 · Examiner comments

June 2024 | 8464/B/1H | Original Q2

Question 2 (standard demand)

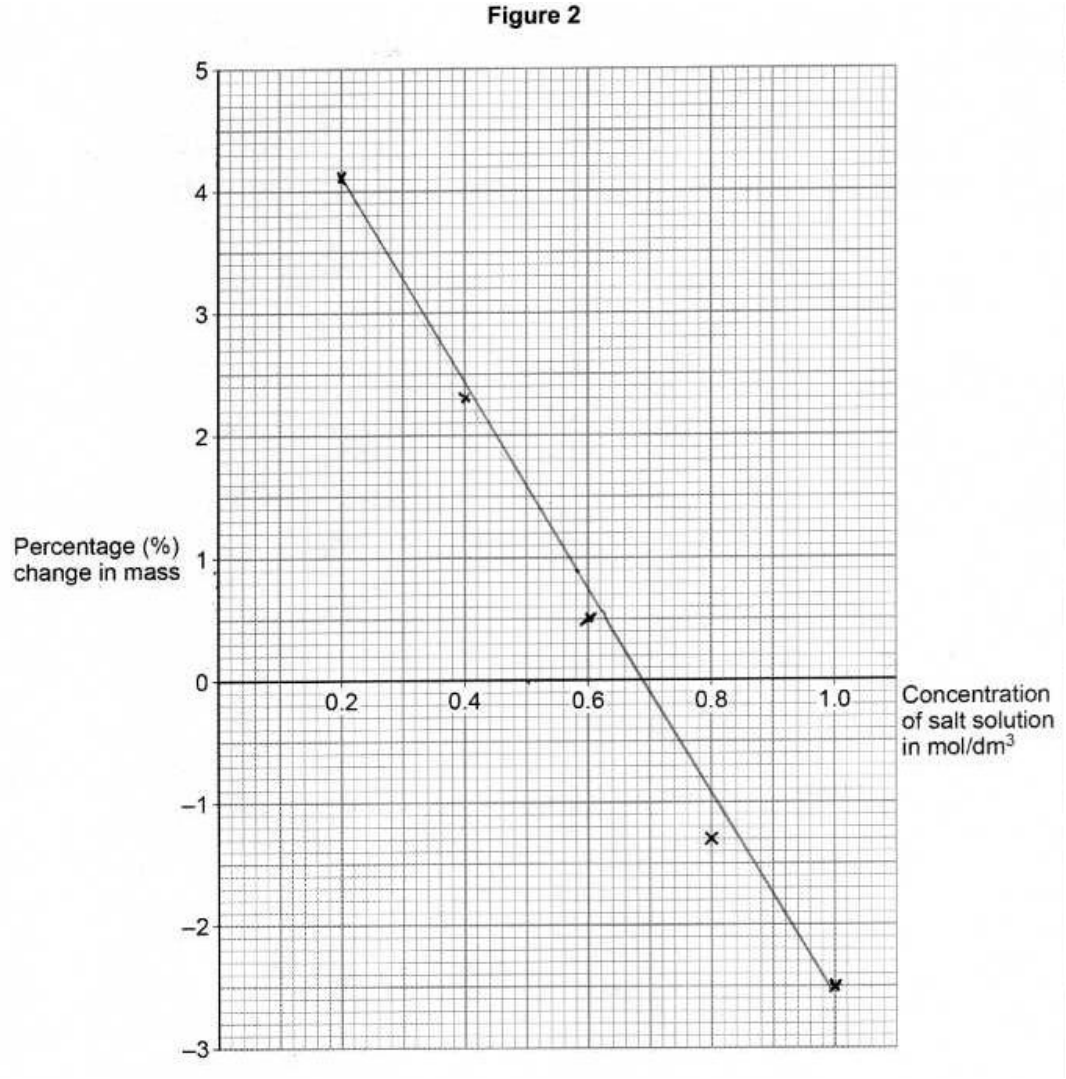
02.1 80% of students correctly identified the independent variable.

02.2 Many students talked about accuracy but were unable to say that the extra mass of excess water would affect the end mass. Simply stating 'to remove the excess water' was not quite enough to gain credit.

02.3 Nearly three-quarters of students gained full credit for calculating the percentage change in mass.

02.4 Nearly all students attempted the graph, with very few plotting incorrect points. Lines of best fit were well attempted, with 50% of students gaining 3 marks. Where students made a mistake, it was usually in placing the line too high, with all points falling below the line. 40% of students gained 2 marks.

Figure 2



In this response all the points are plotted correctly but the line of best fit is not acceptable as all the points are below the line.

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4.1.3.2 Osmosis

Answer 02 · Examiner comments June 2024 | 8464/B/1H | Original Q2

02.5 Most students attempted this question, and a high number (44%) were able to read correctly from the graph. Some misread the scale on the *x*-axis, incorrectly reading each small box as 0.1 mol/dm^3.