AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.1.3.3

Active transport

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**1**
Available paper years	**2021–2021**

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.

4.1.3.3 Active transport

Answer 01 · Mark scheme

November 2021 | 8464/B/1F | Original Q4

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.1	root	do **not** accept root hair (cells)	1	AO1 4.2.1 4.2.3.2
04.2	by active transport		1	AO2 4.1.3.3
04.3	translocation		1	AO1 4.2.3.2
04.4	any **one** from: • respiration • (used) to produce starch • (used) to produce fat / oil • (used) to produce cellulose • (used) to produce amino acids / protein	allow to release energy do **not** accept to produce / make / create energy allow for growth	1	AO1 4.2.3.2 4.4.1.3
04.5	guard cell		1	AO1 4.2.3.1 4.2.3.2

4.1.3.3 Active transport

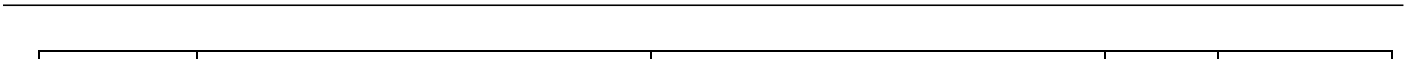
Answer 01 · Mark scheme

November 2021 | 8464/B/1F | Original Q4

04.6	to allow carbon dioxide in		1	AO2 4.2.3.1 4.2.3.2
04.7	$\frac{9}{0.25}$ 36	 do **not** accept if a unit is given allow correct calculation using $\frac{9}{25}$	1 1	AO2 4.2.3.2
04.8	$\frac{37 + 36 + 30 + 32 + 35}{5}$ 34	allow $\frac{170}{5}$	1 1	AO2 4.2.3.2
04.9	there are fewer stomata on the upper surface of the leaves (conditions on upper surface will:) any **one** from: • be warmer • be drier • be more exposed to wind • have more light (so) less water will be lost	allow converse statements a comparative term is required	1 1 1	AO3 AO2 AO2 4.2.3.2
Total			**13**	

4.1.3.3 Active transport

Answer 01 · Mark scheme November 2021 | 8464/B/1F | Original Q4



Answer 01 · Examiner comments November 2021 | 8464/B/1F | Original Q4

Question 4 (low & standard demand)

This question was about plant transport systems. Half of the students said that water is absorbed from the soil through the root, with stem being a common incorrect response. The name of an organ was asked for, so naming root hair cells was incorrect. Almost half of the students knew that nitrate ions are absorbed from the soil by active transport, with the remaining students being equally split between diffusion and osmosis. Over half knew that translocation is the process which moves sugars through the phloem. A similar proportion of students correctly named the guard cells and knew that the stomata open during the day to allow carbon dioxide to enter the leaf.

The two calculation questions were done reasonably well. When calculating the number of stomata per mm^2 no tolerance was allowed on counting the number of stomata in Figure 5. A common error was to divide 9 by 0.25^2 which was incorrect. Students who showed their working and divided 9 by 25 giving an answer of 0.36 scored 1 mark. Students who added a unit to a correct answer only scored 1 mark. Almost three quarters of students correctly calculated the mean number of stomata on the lower surface of the leaf, but some gave the median value of 35 instead. Almost half the students scored 1 mark in **04.9** for saying there are fewer stomata on the upper surface of leaves, but very few could explain why. Many thought the stomata were to allow water to enter the leaf.