AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.7.3.1

Biodiversity

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**3**
Available paper years	**2019–2021**

Using this booklet

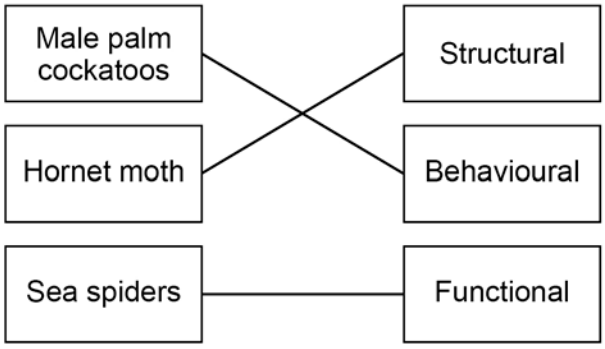
1. Booklet answer numbers match the question booklet.
2. Use the original question number within marking tables.
3. Examiner comments are included where available.

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.

4.7.3.1 Biodiversity

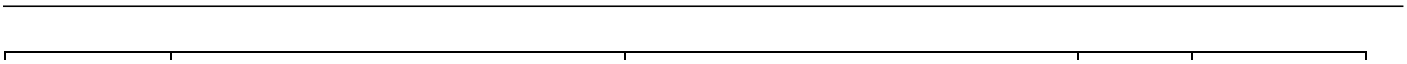
Answer 01 · Mark scheme

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	 additional lines from a box on the left negates the mark for that box 3 lines correct for **2** marks 1 **or** 2 lines correct for **1** mark		2	AO2 4.7.1.4
03.2	brightly coloured flowers large quantities of pollen		1 1	AO2 4.6.2.2 4.7.1.1 4.7.1.4
03.3	biodiversity		1	AO1 4.7.3.1
03.4	any **one** from: • to grow crops • to raise cows • to build	allow farming / biofuels or named crop allow houses **or** building materials allow mining allow paper / fuel	1	AO1 4.7.3.4
03.5	any **one** from: • (new) disease • (new) herbivore • climate change **or** global warming **or** ice age • volcano / earthquake / tsunami / meteor • lack of pollinators • (new) competitor	ignore (new) predator allow drought / flooding allow plant collectors	1	AO1 4.6.3.3
03.6	DNA	allow deoxyribonucleic acid	1	AO1 4.6.1.3
03.7	genome		1	AO1 4.6.1.3
Total			**9**	

4.7.3.1 Biodiversity

Answer 01 · Mark scheme

June 2019 | 8464/B/2F | Original Q3



4.7.3.1 Biodiversity

Answer 02 · Mark scheme November 2020 | 8464/B/2F | Original Q5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	plant hedgerows around his fields plant many different crops in his fields		1 1	AO3 4.7.3.6
05.2	any **one** from: • repeat in each area • do more quadrats (to take more readings) • count the number of individuals of each species • remove leaf litter and search in tray • do a timed search of the leaf litter • do on the same day or time of day		1	AO3 4.7.2.1 RPA 7
05.3	the trees provide habitat(s) or shelter so (more) food / camouflage / shade available	allow described allow places to hide or cooler or wetter environment	1 1	AO2 4.7.2.1 RPA 7
05.4	ring drawn around 20		1	AO3 4.7.2.1 RPA 7
05.5	(removing trees) decreases the number of invertebrate species		1	AO3 4.7.2.1 RPA 7

4.7.3.1 Biodiversity

Answer 02 · Mark scheme

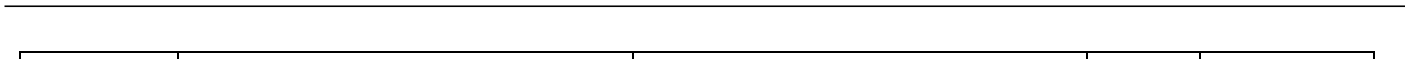
November 2020 | 8464/B/2F | Original Q5

05.6	(less trees means) more light (and) more water / minerals in soil (so) reduced competition **OR** (less trees means) more light (1) (so) (more) photosynthesis (1) (so) (more) glucose (for growth) (1)		1 1 1	AO2 4.7.1.2 4.4.1.1 4.4.1.3
Total			**10**	

4.7.3.1 Biodiversity

Answer 02 · Mark scheme

November 2020 | 8464/B/2F | Original Q5



4.7.3.1 Biodiversity

Answer 03 · Mark scheme

November 2021 | 8464/B/2F | Original Q7

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.1	increases (from 2005) to 690 million **or** increases to 2008	allow peak in 2008 allow peak at 690 million	1	AO2 4.7.3.1 4.7.3.6
	decreases (from 2008) to 630 million		1	
		if no other mark awarded, allow overall increase from 470 million **or** overall increase to 630 million **or** (overall) increase of 160 million **or** increases to 690 and decreases to 630 (without units) for **1** mark		
07.2	$\frac{690(\text{million}) - 460(\text{million})}{690(\text{million})} \times 100$	allow $\frac{230(\text{million})}{690(\text{million})} \times 100$	1	AO2 4.7.3.1 4.7.3.6
	33.3 (%)	ignore number of decimal places allow calculated value from incorrect graph readings	1	
	33 (%)	allow calculated answer correctly given to 2 significant figures	1	
07.3	compost	allow improving soil (texture / drainage / quality) ignore farming unqualified ignore as fertiliser	1	AO1 4.7.3.3
	burning **or** as a fuel		1	

4.7.3.1 Biodiversity

Answer 03 · Mark scheme

07.4	any **two** from: • reduce pollution • plant trees • breeding programmes (for endangered species) • rewilding / regeneration of habitats / hedgerows / meadows • (reintroducing) wider field margins • plant a variety of crops • reduce use of pesticide / herbicide / insecticide	ignore references to carbon dioxide, greenhouse gases or global warming allow reduce named example of pollution, eg smoke **or** acidic gases **or** sewage **or** fertiliser allow reduce toxic waste dumping allow afforestation allow reforestation ignore reduce / stop deforestation allow planting wild flower seeds allow reduce monoculture ignore recycling ignore protect / conserve habitat(s) / areas	2	AO1 4.7.3.1 4.7.3.2 4.7.3.4 4.7.3.6
Total			**9**	

4.7.3.1 Biodiversity

Answer 03 · Examiner comments

November 2021 | 8464/B/2F | Original Q7

Question 7 (standard demand)

Generally, students could interpret the graph and describe the trends between 2008 and 2011 in terms of years, such as 'it increases to 2008' however, fewer could correctly extract relevant data, such as the money spent in millions of pounds in 2008 or 2011. References to trends beyond 2011 were ignored. Some students tried to give economic or 'levels of concern' reasons for the trends which did not answer the question. When 'describe' is used as a command word the answer does not require an explanation.

In **07.2** students were asked to calculate the percentage change, and given the equation. Some students did not appear to read the appropriate figures from the graph. The most common error was not giving the answer to two significant figures. This is prompted in the question and on the answer line. There were indications that some students are confused between decimal places and significant figures.

Knowledge about uses of peat was very limited, with most students not being able to give one use of peat taken from peat bogs. The most common correct answer related to peat in compost. Misconceptions of the term biodiversity were frequently seen in **07.4**, with answers referring to diversity in the human population or vague answers relating to recycling or climate change that would not directly increase biodiversity. Suggestions that would maintain, or decrease the rate of biodiversity decline, such as 'stop hunting' may maintain, but not increase biodiversity, and therefore were considered to be insufficient at this level.

Concluding remarks

It was clear that in the unusual teaching circumstances leading up to this exam, it had not been possible for more some topics and practical work to be covered in the typical way. It was a small and seemingly atypical cohort of students who have chosen to take the autumn series of examinations. Gaps in both knowledge and skills were evident.

4.7.3.1 Biodiversity

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results Statistics page of the AQA Website.