AQA GCSE Biology | 8461

SPECIFICATION POINT 4.6.3.2

Speciation (biology only)

Mark schemes and examiner comments

Tier	**Foundation**
Question groups	**6**
Available paper years	**2009–2024**

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.

4.6.3.2 Speciation (biology only)

Answer 01 · Mark scheme June 2009 | BLY1BP | Original Q3 | Legacy

Three	**A** evolution	**4**
	B mutation	**2**
	C selection	**3**
	D variation	**1**

Answer 02 · Mark scheme March 2010 | BLY1BP | Original Q6 | Legacy

Six	**4**	**1**	**1**	**1**

Answer 03 · Mark scheme March 2011 | BLY1BP | Original Q4 | Legacy

Four	**A**	the organism is now a better competitor	**2**
	B	the mutated gene is passed on to offspring	**3**
	C	a gene mutates	**1**
	D	a new species is produced	**4**

Answer 04 · Mark scheme June 2011 | BLY1BP | Original Q8 | Legacy

Eight	**3**	**1**	**3**	**4**

4.6.3.2 Speciation (biology only)

Answer 05 · Mark scheme

June 2013 | BL2FP | Original Q2 | Legacy

Question 2

question	answers	extra information	mark
2(a)(i)	(remains of) an organism / a bone / a shell / hard part of an organism / part of organism that does not decay / impression of an organism / footprint / burrow / rootlet trace further detail – eg in rock / ice/ amber / mineralisation **or** from a long time ago / many years ago	 if number, > 1000 years ignore hundreds	1 1
2(a)(ii)	older fossils are simple(r) **or** fossils show change / adaptation with time	must make ref to change and time allow deeper fossils are simple(r)	1
2(b)(i)	18 to 30	allow 30 to 18 allow 12 ignore units	1
2(b)(ii)	small sample	allow only 49 shells / not representative / not enough evidence allow not all fossils found	1
2(c)	example of a physical factor such as flooding, volcanic activity (allow volcanoes) asteroid collisions, drought, ice age / temperature change **or** example of a biological factor such as predators / disease / competition / lack of food or mates / cyclical nature of speciation / isolation / lack of habitat or habitat change	allow natural disaster / climate change / weather change / catastrophic event / environmental change ignore human factors eg hunting / pollution	1
Total			**6**

4.6.3.2 Speciation (biology only)

Answer 06 · Mark scheme

June 2024 | 8461/2F | Original Q9

Question 9

Question	Answers	Extra information	Mark	AO / Spec Ref.
09.1	a change in: • DNA • base code **or** nucleotide sequence • base (in DNA) • gene / allele • part of a chromosome • number of chromosomes • genetic code / material	ignore genetic information / variation ignore reference to amino acids or proteins	1	AO1 4.6.2.1

Question	Answers	Extra information	Mark	AO / Spec Ref.
09.2	any **three** from: • variation (between members of a species) • better adapted survive • (better adapted or survivors) reproduce • pass on (favourable) allele(s) / gene(s) / mutation(s)	allow in terms of an example ignore mutation allow survival of the fittest allow converse ignore passing on genetic material **or** chromosomes **or** characteristic	3	AO1 4.6.2.1 4.6.2.2 4.6.3.1

Question	Answers	Extra information	Mark	AO / Spec Ref.
09.3	Alfred Wallace and Charles Darwin		1	AO1 4.6.2.2 4.6.3.1 4.6.3.2

4.6.3.2 Speciation (biology only)

Answer 06 · Mark scheme

June 2024 | 8461/2F | Original Q9

Question	Answers	Extra information	Mark	AO / Spec Ref.
09.4	hoverfly looks like a wasp	allow pattern of the markings is similar (on the hoverfly and wasp) ignore predator / animal thinks the hoverfly is a wasp	1	AO3 4.6.3.2 4.7.1.1 4.7.1.4
	predator / animal avoids **wasps** so it does not get stung		1	
	(so) predator / animal does not attack / eat hoverfly	allow correctly named predator ignore bite / harm	1	

Total Question 9	8

4.6.3.2 Speciation (biology only)

Answer 06 · Examiner comments

June 2024 | 8461/2F | Original Q9

Question 9 (standard demand)

09.1 Students struggled to articulate their answer to this question with 20% of students defining a mutation correctly. Many students knew that it was something to do with 'a change', but this was anything from a cell or a particular characteristic of a phenotype to a whole species changing.

09.2 Fewer than 5% of students were able to give a full description of natural selection to gain full marks. 20% of students did not attempt the question at all, and a further 50% of students failed to gain any marks. Very few students talked about variation for the first mark. Survival of the fittest was not well described but some picked up the mark by using the phrase. The third bullet point was most often awarded for the implication that those that survived went on to breed, and this may have been by mentioning 'offspring' in marking point 4. Vague references to 'traits' or 'characteristics' being passed on were not creditworthy in bullet point four. Students who were able to give an example of natural selection had better structures to their answers, with giraffe necks being the most common example given.

09.3 Just over 50% of students were able to identify Alfred Wallace and Alexander Fleming as the scientists that suggested the theory of evolution by natural selection.

09.4 Over 50% of students managed to gain a mark in this question, most commonly for stating 'the hoverfly looks like the wasp'. Marking point 2 was rarely awarded as students failed to explicitly refer to the wasp. Some incorrect answers referred to the hoverfly's colours enabling it to camouflage which did not gain credit. Overall, the main reason marks were not awarded was because of vagueness, or poor articulation of ideas.

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