OCR GCSE 21ST CENTURY BIOLOGY B · J257

BIOLOGY



MARK SCHEME

B6.3 HOW DOES OUR UNDERSTANDING OF BIOLOGY HELP US CLASSIFY THE DIVERSITY OF ORGANISMS ON EARTH? (FOUNDATION)

SCORE	PERCENTAGE
/14	%

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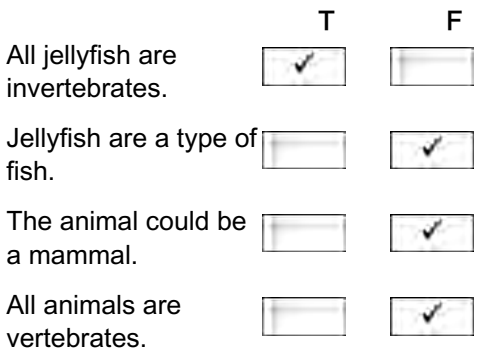
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Question			Answer/Indicative content	Marks	Guidance
1	a		a group of organisms that can breed (1) to produce fertile offspring (1)	2	**Examiner's Comments** Some candidates had clearly learnt the definition of a species and as such gained both marks for this question. Those candidates gaining only one mark often lost a mark for failing to identify that the offspring would be fertile. Many candidates resorted to intuitive notions of a species, such as 'a type of animal/plant', which have 'lots of similarities and are classified together'.
	b			2	**Ignore** any row in which there is more than one tick Four correct = 2 marks Two or three correct = 1 mark One correct = 0 marks **Examiner's Comments** This question was answered well. The majority of candidates scored one mark for this question through the identification that 'all jellyfish were invertebrates' and that they are not a type of fish or that 'not all animals were vertebrates'. The most common error noted was that candidates thought that the newly discovered animal could be a mammal.
			Total	**4**	

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Question			Answer/Indicative content	Marks	Guidance
2	a		**Level 3 (5–6 marks)** Gives a description of evolution AND speciation using key terms. Quality of written communication does not impede communication of the science at this level. **Level 2 (3–4 marks)** Gives a description of evolution OR speciation using key terms. Quality of written communication partially impedes communication of the science at this level. **Level 1 (1–2 marks)** Makes a simple statement about evolution OR speciation Quality of written communication impedes communication of the science at this level. **Level 0 (0 marks)** Insufficient or irrelevant science. Answer not worthy of credit.	6	This question is targeted at grades up to C Indicative scientific points on Evolution may include • Natural selection • variation • mutation • competition • selective survival / survival of best adapted / survival of fittest • reproduction • pass on characteristic / genes Indicative scientific points on Speciation may include • population gets **split** into two groups (eg new mountain range or new river etc) • reproductive isolation • different / changed environments • **split** populations become different • different species can not interbreed (eg due to mating seasons / courtship / genetic incompatibility) Use the L1, L2, L3 annotations in Scoris; do not use ticks. Examiner's Comments This question was common with the higher tier paper. Candidates were asked to explain how evolution produces new species. Many of the candidates who gained marks on this question did so for answers relating to natural selection.

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Question			Answer/Indicative content	Marks	Guidance
	b		not breed with other beetles; to produce fertile offspring; **check** DNA; look for similarities / compare with others (in **DNA**)	2	**ignore** reference to comparing characteristics **NB** DNA is unknown = 2 marks **Examiner's Comments** This question asked the candidates to explain how they would prove that an unusual beetle was a new species. Very few candidates gained marks on this, only a few suggested checking the DNA.
	c		**make sense of the enormous diversity of organisms on Earth.** ✓ increase biodiversity. improve sustainability. reduce the number of disease causing predators. show the evolutionary relationships between organisms. ✓	2	if more than two boxes are ticked, deduct one mark for each additional tick **Examiner's Comments** In this question, candidates were asked to indicate the two best responses regarding classification. This was a well answered final question.
			Total	10	

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