GCSE Science A Biology 1

Higher Tier

Biology 1H

SPECIMEN MARK SCHEME

Version 1.0

Quality of Written Communication and levels marking

In Question 5 candidates are required to produce extended written material in English, and will be assessed on the quality of their written communication as well as the standard of the scientific response.

Candidates will be required to:

- use good English
- organise information clearly
- use specialist vocabulary where appropriate.

The following general criteria should be used to assign marks to a level:

Level 1: basic

- Knowledge of basic information
- Simple understanding
- The answer is poorly organised, with almost no specialist terms and their use demonstrating a general lack of understanding of their meaning, little or no detail
- The spelling, punctuation and grammar are very weak.

Level 2: clear

- Knowledge of accurate information
- Clear understanding
- The answer has some structure and organisation, use of specialist terms has been attempted but not always accurately, some detail is given
- There is reasonable accuracy in spelling, punctuation and grammar, although there may still be some errors.

Level 3: detailed

- Knowledge of accurate information appropriately contextualised
- Detailed understanding, supported by relevant evidence and examples
- Answer is coherent and in an organised, logical sequence, containing a wide range of appropriate or relevant specialist terms used accurately.
- The answer shows almost faultless spelling, punctuation and grammar.

In order to attain a mark within a certain level, **both** the science **and** the QWC must be of a standard appropriate to that level.

COMPONENT NUMBER: BL1HP

COMPONENT NAME: GCSE Science A Biology 1H

STATUS: Specimen V1.0

question	answers	extra information	mark
1(a)	ovary		1
1(b)	womb / uterus		1
1(c)	fertility		1
Total			**3**

question	answers	extra information	mark
2	gravity **caused** redistribution of auxin / hormone to <u>lower side</u> of stem these hormones stimulate growth of cells on the <u>lower side</u> of the stem only so the stem grows upwards	accept gravitropism / geotropism	1 1 1 1
Total			**4**

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STATUS: Specimen V1.0

question	answers	extra information	mark
3(a)	most leaves lie close / flat on the ground	reason must be linked to adaptation given	1
	therefore the leaves are less likely to be eaten / mown		1
	or		
	thick root (1)		
	therefore the plant is less likely to be pulled out by grazers (1)		
3(b)	long stems		1
	therefore the plant is a better competitor for light **or** therefore the plant grows higher than other plants to gain light		1
	or		
	wide spread roots (1)		
	therefore the plant is a better competitor for water **or** therefore the plant is able to collect water from a larger area (1)		
Total			**4**

COMPONENT NUMBER: BL1HP

COMPONENT NAME: GCSE Science A Biology 1H

STATUS: Specimen V1.0

question	answers	extra information	mark
4(a)	live inside cells		1
	inactive		1
	antibodies		1
4(b)	the percentage of children vaccinated fell to zero in 1995		1
	but the number of children developing autism rose and fell during the period when % vaccinations was falling		1
	number of children developing autism peaked after MMR vaccination had ceased		1
	which suggests that something other than MMR vaccination was causing autism		1
Total			**7**

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STATUS: Specimen V1.0

5			
Marks awarded for this answer will be determined by the Quality of Written Communication (QWC) as well as the standard of the scientific response. Examiners should also refer to the information on page 2.			
0 marks	**Level 1 (1-2 marks)**	**Level 2 (3-4 marks)**	**Level 3 (5-6 marks)**
No relevant content.	There is a brief explanation of at least two ways in which the energy captured by the heather is transferred, which has little clarity and detail. Credit may be awarded either for references to general ways in which organisms transfer energy or to ways in which specific organisms in the food web transfer energy.	There is some explanation of a range of the ways in which the energy captured by the heather is transferred. Credit may be awarded either for references to general ways in which organisms transfer energy or to ways in which specific organisms in the food web transfer energy.	There is a clear, balanced and detailed explanation of a large variety of ways in which energy captured by the heather is transferred Credit may be awarded either for references to general ways in which organisms transfer energy or to ways in which specific organisms in the food web transfer energy.

examples of biology points made in the response

- respiration releases energy (allow this point even if given for named organism) NB: to gain full marks, candidates must gain this mark.
- some energy lost in animals / named animal's waste materials
- some energy used in maintenance / repair (allow this point if given for named organism)
- some energy used for movement (allow this point if given for named animal)
- energy lost as heat to surroundings (allow this point if given for named organism)
- some organisms die (rather than being eaten) (allow this point if given for named organism)
- reference to detritivores / microbes

Total			**6**

COMPONENT NUMBER: BL1HP

COMPONENT NAME: GCSE Science A Biology 1H

STATUS: Specimen V1.0

question	answers	extra information	mark
6(a)	idea that bacteria mutate **or** that there is variation in bacteria		1
	leading to bacteria /resistant cells that survive antibiotic		1
	these bacteria (resistant cells) go on to breed	do **not** allow bacteria get used to antibiotics **or** idea that antibiotics change the bacteria **or** bacteria become immune **or** references to adaptation or evolution	1
6(b)	the treated animals do not use energy overcoming illness		1
	an economic reason, eg treated animals do not infect other animals / farm workers		1
Total			**5**

COMPONENT NUMBER: BL1HP

COMPONENT NAME: GCSE Science A Biology 1H

STATUS: Specimen V1.0

question	answers	extra information	mark
7(a)	because there is insufficient data for line graph		1
7(b)	injection with no testosterone		1
7(c)	the performance of testosterone group improved more than that of placebo group quantitative figure given, eg about 4 times greater		1 1
7(d)	(no) there was a significant improvement after 6 weeks	 allow significant improvement after 3 weeks	 1
Total			**5**

COMPONENT NUMBER: BL1HP

COMPONENT NAME: GCSE Science A Biology 1H

STATUS: Specimen V1.0

question	answers	extra information	mark
8(a)	stimulus / heat detected by temperature receptors in skin		1
	impulses travel along sensory neurone to spinal cord / CNS		1
	chemical transmission across synapse		1
	via relay neurone		1
	impulses to muscle / effector via motor neurone		1
	muscle / effector contracts, moving the hand away		1
8(b)(i)	0.02 s	correct answer gains **2** marks if answer incorrect, evidence of 1.5 / 75 gains one mark	2
8(b)(ii)	impulse slowed down because of time taken for diffusion of the chemical across the synapse		1
Total			**9**

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STATUS: Specimen V1.0

question	answers	extra information	mark
9(a)	there was no mixing of genes / genetic material because the nucleus was removed from the egg cell before fusion		1 1
9(b)(i)	male **and** white-faced	**both** required	1
9(b)(ii)	because the genetic material / genes comes from the white-faced male only		1 1
Total			**5**

COMPONENT NUMBER: BL1HP

COMPONENT NAME: GCSE Science A Biology 1H

STATUS: Specimen V1.0

question	answers	extra information	mark
10(a)	organisms within species may show variation **because** mutation(s) occur in individuals this results in the individuals with characteristics most suited to the environment being more likely to survive / to breed as a consequence the genes that have enabled these individuals to survive are passed on to the next generation		1 1 1 1
10(b)	any **two** from • the theory undermined the idea that God made all the animals and plants that live on Earth • there was insufficient evidence at the time • the mechanism of inheritance / variation was not yet known		2
Total			**6**

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STATUS: Specimen V1.0

question	answers	extra information	mark
11	argued evaluation • large scale trial gave better results • chose uneducated women so that if these women could use it correctly, women elsewhere would be able to • uneducated women unlikely to give informed consent • no placebo • used pill with high dose of hormone / should have tried a range of doses / results not valid for other populations • women not told pill was experimental / pill might have side effects / should have done pre-trial to check for side effects		6
Total			**6**