

New
Specification



Rewarding Learning

**General Certificate of Secondary Education
2012–2013**

Science: Single Award

Unit 1 (Biology)

Higher Tier

[GSS12]

MONDAY 27 FEBRUARY 2012

9.30 am–10.30 am

**MARK
SCHEME**

- 1 (a) any three from: they respond/grow to light, for more photosynthesis controlled by auxins, phototropism [3]
- (b) carbon dioxide + water \longrightarrow sugar/starch/glucose + oxygen [3]
[1 mark each side – 1 mark for arrow]
- (c) respiration: energy *or* reproduction: produce young *or* excretion: to get rid of waste [2]

- 2 (a) Indicative content
- Use BB/other to set alight to each food
 - Same mass food/volume water/distance lit food from tube same distance from bunsen/time to get lit food under tube
 - Place under boiling tube of water
 - Record temperature difference
 - Repeat experiment

Band	Response	Mark
A	Candidates must use appropriate specialist terms throughout to describe all four or five points above, including two or more controlled variables (listed in second point) in a logical sequence. They use good spelling, punctuation and grammar and the form and style are of a high standard.	[5–6]
B	Candidates use some appropriate specialist terms to describe three of the points above in a logical sequence. They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3–4]
C	Candidates describe the experimental procedure using one or two of the above points. However, these are not presented in a logical sequence. They use limited spelling, punctuation and grammar and they have made little use of specialist terms. The form and style are of a limited standard.	[1–2]
D	Response not worthy of credit.	[0]

[6]

- (b) (i) C;
- C – better than A as has fewer swallowing problems/fewer side effects;
- C – better than B as has fewer swallowing problems/fewer side effects; [3]
- (ii) effectiveness/how strong it is/amount of iron it contains [1]

AVAILABLE MARKS

8

10

			AVAILABLE MARKS	
3	(a) (i)	July – October 1986 (July/October 1986); biggest fall/lowest cases/less cases/numbers dropped	[2]	9
		(ii) never no patients/rise in numbers	[1]	
	(b) (i)	lack of space/lack of funds/lack of facilities	[1]	
		(ii) hand/good hygiene, gloving, mouth/nose/eye protection, gowning, (thorough) cleaning/wiping spillages cannot spread as easily cross contamination (not hygiene on own) <i>any 1 mark</i>	[2]	
	(c)	before antibiotic variation in resistance/different levels of resistance; only those with strongest resistance survived/[or converse]; all offspring inherited strong resistance/resistant survivors reproduce	[3]	
4	(a) (i)	more tries and ruler reading gets less/with practice gets faster	[1]	6
		(ii) try 4: should be lower than try 3/higher than try 3/off trend	[1]	
		(iii) height of ruler/Siobhan's arm stays on table/hand touching (not touching) ruler in advance/uses same hand/arm stays in same place	[1]	
		(iv) more people/different ages/gender;	[1]	
	(b)	use brain/ <u>reflex</u> only spinal cord think about it/don't think about it; slower/ <u>reflex</u> faster/doesn't happen straight away/immediate	[2]	
5	(a) (i)	cells/genetic material (not waste); from baby	[2]	7
		(ii) if positive: parents may not want to keep pregnancy	[2]	
	(b)	not insure, higher premiums; insured for lower amount (any two) need more medical care/link to shorter life span/more likely to make claim [1]	[3]	
6	(a) (i)	renewable energy source/doesn't run out; carbon neutral	[2]	10
		(ii) habitats destroyed; competition; threat of organic fertiliser <i>any two</i>	[2]	
	(b) (i)	steep slope so hard to clear	[1]	
		(ii) wide range of species; high biodiversity; habitats; native species; endangered/rare species <i>any 3</i>	[3]	
		(iii) safeguards habitats; no invasive species; raises public awareness <i>any 2</i>	[2]	

- 7 (a) Indicative content
- Active own antibodies produced
 - Passive antibodies injected
 - Active long lasting/produces memory cells
 - Passive acts quickly
 - Active time factor before immune/slow to act
 - Passive short/no memory cells

Band	Response	Mark
A	Candidates must use appropriate specialised terms throughout to describe the differences, pros and cons of active and passive immunity in a logical sequence using 5 or 6 of the IC. SPG, form and style is of a high standard.	[5–6]
B	Candidates use some appropriate specialised terms to partially describe the differences, pros and cons of active and passive using 3 or 4 IC. SPG, form and style is of a satisfactory standard.	[3–4]
C	Candidates describe the differences, pros and cons of active and passive using 1 or 2 of the IC. However these are not in a logical sequence. SPG, form, style and use of specialised terms are limited.	[1–2]
D	Not worthy of credit.	[0]

[6]

- (b) mutated microbes/new antigens;
no immune response/will not recognise/antibodies won't work as
microbes changes;
no vaccination programme/new vaccines needed/new medicines
needed
more time to spread/people infected for longer
- Any [3]

9

- 8 (a) (i) peak in winter/min. in summer/decrease then increases;
seasonal temp. differences [2]
- (ii) volume of ice decreases; rate increases over time [2]
- (iii) longitudinal; satellites (accurate); (many) images; many
scientists/reviewed by many scientist/large area (any three) [3]
- (b) read over/scrutinised (not reviewed); by other experts/scientists in the
field [2]

9

9 (a) 2 – bases/base triplets, 3 – amino acids	[2]	AVAILABLE MARKS
(b) base triplet	[1]	
(c) (i) different amino acid; different protein/no protein/inherited disease	[2]	
(ii) UV rays, skin cancer	[2]	7
Total		75