

New  
Specification



*Rewarding Learning*

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

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**Science: Single Award**

Unit 1 (Biology)

Higher Tier

[GSS12]

**MONDAY 27 FEBRUARY 2012**

**9.30 am–10.30 am**

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**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
<b>A</b>	Candidates must use appropriate specialist terms throughout to describe all <b>four or five</b> 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>B</b>	Candidates use some appropriate specialist terms to describe <b>three</b> 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]
<b>C</b>	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]
<b>D</b>	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) any 1 mark [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/reflex only spinal cord think about it/don't think about it; slower/reflex 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 any two [2]	
	(b)	(i) steep slope so hard to clear [1]	
		(ii) wide range of species; high biodiversity; habitats; native species; endangered/rare species any 3 [3]	
		(iii) safeguards habitats; no invasive species; raises public awareness any 2 [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
<b>A</b>	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>B</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]
<b>C</b>	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]
<b>D</b>	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]
- (b) base triplet [1]
- (c) (i) different amino acid; different protein/no protein/inherited disease [2]
- (ii) UV rays, skin cancer [2]

**Total****AVAILABLE  
MARKS**

7

**75**