



**AQA Level 1/2 Certificate in Science:
Double Award**

BIOLOGY PAPER 1F

SPECIMEN MARK SCHEME

MARK SCHEME

Information to Examiners

1. General

The mark scheme for each question shows:

- the marks available for each part of the question
- the total marks available for the question
- the typical answer or answers which are expected
- extra information to help the Examiner make his or her judgement and help to delineate what is acceptable or not worthy of credit or, in discursive answers, to give an overview of the area in which a mark or marks may be awarded.

The extra information is aligned to the appropriate answer in the left-hand part of the mark scheme and should only be applied to that item in the mark scheme.

At the beginning of a part of a question a reminder may be given, for example: where consequential marking needs to be considered in a calculation; or the answer may be on the diagram or at a different place on the script.

In general the right hand side of the mark scheme is there to provide those extra details which confuse the main part of the mark scheme yet may be helpful in ensuring that marking is straightforward and consistent.

2. Boldening

- 2.1** In a list of acceptable answers where more than one mark is available 'any **two** from' is used, with the number of marks boldened. Each of the following lines is a potential mark.
- 2.2** A bold **and** is used to indicate that both parts of the answer are required to award the mark.
- 2.3** Alternative answers acceptable for a mark are indicated by the use of **or**. (Different terms in the mark scheme are shown by a / ; eg allow smooth / free movement.)

3. Marking points

3.1 Marking of lists

This applies to questions requiring a set number of responses, but for which candidates have provided extra responses. The general principle to be followed in such a situation is that 'right + wrong = wrong'.

Each error/contradiction negates each correct response. So, if the number of error/contradictions equals or exceeds the number of marks available for the question, no marks can be awarded.

However, responses considered to be neutral (indicated as * in example 1) are not penalised.

Example 1: What is the pH of an acidic solution? (1 mark)

Candidate	Response	Marks awarded
1	4,8	0
2	green, 5	0
3	red*, 5	1
4	red*, 8	0

Example 2: Name two planets in the solar system. (2 marks)

Candidate	Response	Marks awarded
1	Pluto, Mars, Moon	1
2	Pluto, Sun, Mars, Moon	0

3.2 Use of chemical symbols / formulae

If a candidate writes a chemical symbol / formula instead of a required chemical name, full credit can be given if the symbol / formula is correct and if, in the context of the question, such action is appropriate.

3.3 Marking procedure for calculations

Full marks can be given for a correct numerical answer, as shown in the column 'answers', without any working shown.

However if the answer is incorrect, mark(s) can be gained by correct substitution / working and this is shown in the 'extra information' column.

3.4 Interpretation of 'it'

Answers using the word 'it' should be given credit only if it is clear that the 'it' refers to the correct subject.

3.5 Errors carried forward

Any error in the answers to a structured question should be penalised once only.

Papers should be constructed in such a way that the number of times errors can be carried forward are kept to a minimum. Allowances for errors carried forward are most likely to be restricted to calculation questions and should be shown by the abbreviation e.c.f. in the marking scheme.

3.6 Phonetic spelling

The phonetic spelling of correct scientific terminology should be credited **unless** there is a possible confusion with another technical term.

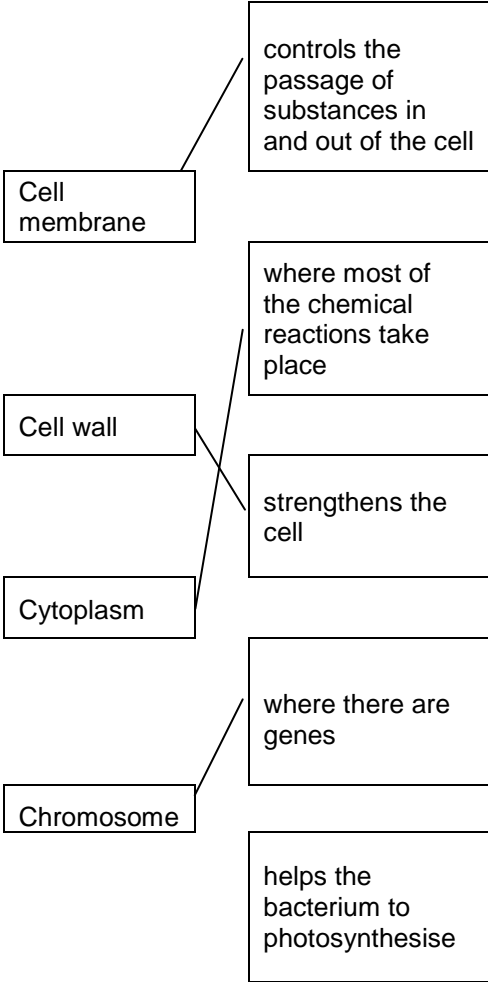
3.7 Brackets

(.....) are used to indicate information which is not essential for the mark to be awarded but is included to help the examiner identify the sense of the answer required.

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COMPONENT NAME: Biology Paper 1F

STATUS: Accredited

question	answers	extra information	mark
<p>1(a)</p>		<p>all four correct = 4 marks three correct = 3 marks two correct = 2 marks one correct = 1 mark</p> <p>extra line from a statement cancels the mark</p>	<p>4</p>
<p>1(b)</p>	<p>any two from: animal cell has...</p> <ul style="list-style-type: none"> • nucleus • no cell wall • separate chromosomes. 	<p>accept converse for bacterial cell</p>	<p>2</p>
<p>1(c)</p>	<p>A because there is a greater concentration of oxygen molecules outside the cell than inside</p>		<p>1 1</p>
<p>Total</p>			<p>8</p>

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question	answers	extra information	mark
2(a)	B		1
2(b)	C		1
2(c)	D		1
2(d)	oxygen / carbon dioxide		1
Total			4

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question	answers	extra information	mark						
3(a)	dominant		1						
3(b)	recessive		1						
3(c)	genes		1						
3(d)	via gametes / sex cells		1						
3(e)	<table border="1"><tbody><tr><td>(X)</td><td>(XX)</td><td>XX</td></tr><tr><td>Y</td><td>XY</td><td>XY</td></tr></tbody></table>	(X)	(XX)	XX	Y	XY	XY	1 mark for Y in sperm box 1 mark if XX box correct 1 mark if both XY boxes correct	3
(X)	(XX)	XX							
Y	XY	XY							
3(f)	1:1 or 50% or $\frac{1}{2}$ or 0.5 or 1 in 2 or 1 out of 2 or 50:50	do not accept 50/50 accept equal (probability)	1						
Total			8						

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question	answers	extra information	mark
4(a)	weedkillers		1
	rooting (powders)		1
4(b)	gravity	accept gravitropism / geotropism	1
	caused redistribution of auxin / hormone to <u>lower side</u> of stem		1
	these hormones stimulate growth of cells on the <u>lower side</u> of stem only		1
	so the stem grows upwards		1
Total			6

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question	answers	extra information	mark
5(a)(i)	$(691 \times 1000) / 17\,791$ = 38.8	correct answer with or without working gains 2 marks	1 1
5(a)(ii)	women in Ward 1 infected by pathogens / bacteria / viruses passed on by doctors (who have been in contact with dead bodies)		1 1
5(b)	medicine / drug that kills bacteria		1 1
5(c)(i)	mutation		1
5(c)(ii)	resistant to / not killed by antibiotics		1

Question 5 continues on the next page . . .

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Question 5 continued . . .

question	answers	extra information	mark
5(d)(i)	because antibiotics diffuse / pass (into agar)		1
	where they kill bacteria		1
5(d)(ii)	as a control		1
5(d)(iii)	higher concentration / it kills more bacteria or causes less growth		1
	levels off (at 6 units) or the greatest effect is when the concentration is increased from 4 to 6 units		1
Total			13

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question	answers	extra information	mark
6(a)(i)	40 – 42		1
6(a)(ii)	Palaeocene		1
6(a)(iii)	bushbabies		1
6(b)	any two from: <ul style="list-style-type: none">• religious objections• insufficient evidence• mechanism of heredity not known	allow 'could not prove' ignore 'no evidence'	2
Total			5

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question	answers	extra information	mark
7(a)	any two from: <ul style="list-style-type: none">• long / pointed horns and for defence• large ears and to hear predators approaching• appearance blends with background and gives camouflage	allow long legs and to run away or to kick predators allow tall and can see predators a long distance away allow eyes on the sides of their heads and to have all-round vision to spot predators	2
7(b)(i)	loss due to evaporation / transpiration in day and absorbed from air at night / when cool		1
7(b)(ii)	19.30 and 08.00		1
7(b)(iii)	this is when the moisture content in grass is highest therefore animal takes in most water if it eats at this time		1 1
Total			6

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question	answers	extra information	mark
8(a)	any three from: <ul style="list-style-type: none"> oxygen used in aerobic respiration more energy from aerobic respiration carbon dioxide and water are end products of aerobic respiration lactic acid is end product of anaerobic respiration 		3
8(b)	(Student Y) because she had the lower resting heart rate the lower heart rate increase and the quicker recovery time	accept converse for Student X	1 1 1
8(c)	when exercising the <u>rate</u> of respiration (in the muscles) is higher (the increased heart rate) increases <u>rate</u> of delivery of oxygen to the (respiring) muscles and increases <u>rate</u> of delivery of glucose to the (respiring) muscles and results in faster removal of carbon dioxide and lactic acid		1 1 1 1
Total			10