
**GCSE
BIOLOGY**

PAPER 1F

Mark scheme

Specimen 2018

Version 0.1

Draft

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Question 1

Question	Answers	Extra information	Mark	AO / Spec. Ref.
01.1	ventricle		1	AO1/1 4.2.2.2
01.2	lungs		1	AO1/1 4.2.2.2
01.3	muscle		1	AO1/1 4.2.2.2
01.4	no fatty deposit		1	AO2/1 4.2.2.4
	healthy artery is wider / bigger hole / has more blood flow		1	AO2/1 4.2.2.4
01.5	statins		1	AO1/1 4.2.2.4
	stent		1	AO1/1 4.2.2.4
01.6	any two from: <ul style="list-style-type: none"> • smoking • high-fat diet • lack of exercise 	allow: <ul style="list-style-type: none"> • overweight / obese • having high blood pressure • having high cholesterol 	2	AO1/1 4.2.2.4
01.7	10		1	AO2/1 4.2.2.4
01.8	more males have coronary heart disease than females		1	AO3/2b 4.2.2.4
Total			11	

Question 2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1	use of water bath		1	AO2/2 4.2.2.1
	any three from: <ul style="list-style-type: none"> • range of temperatures / at least 3 • use of thermometer • control variables / keep amount / concentration of hydrogen peroxide and catalase the same • use a ruler to measure height 	allow max 2 marks for control variables kept the same if no other marks scored allow keep everything else the same for 1 mark	3	AO2/2 4.2.2.1
02.2	to make the experiment more reliable		1	AO1/2 4.2.2.1
02.3	(circle) 0 at 20 °C		1	AO3/1a 4.2.2.1
02.4	ignored it / did not use it	ignore repeated it	1	AO2/2 4.2.2.1
02.5	temperature increases the rate of reaction up to 30 °C		1	AO3/3a 4.2.2.1
02.6	catalase was denatured		1	AO1/1 4.2.2.1
02.7	do the experiment at 30 °C, 35 °C and 40 °C		1	AO3/3b 4.2.2.1
Total			10	

Question 3

Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	B		1	AO2/1 4.1.1.1 4.1.1.2
03.2	it controls the activities of the cell		1	AO1/1 4.1.1.2
03.3	mitosis		1	AO1/1 4.1.2.2
03.4	electron (microscope)		1	AO1/2 4.1.1.5
03.5	higher magnification		1	AO1/2 4.1.1.5
03.6	45 (mm) 45 / 250 or 0.18 (mm) 180 (μm)	180 (μm) without working gains allow ecf	1 1 1	AO2/2 4.1.1.5
03.7	a bacterial cell is smaller than a cheek cell		1	AO1/1 4.1.1.1
Total			9	

Question 4

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.1	pathogens		1	AO1/1 4.3.1.1
04.2	viruses		1	AO1/1 4.3.1.2
04.3	(rose) black spot	allow any correct fungal plant disease eg potato blight	1	AO1/1 4.3.1.4
04.4	pain when urinating		1	AO1/1 4.3.1.3
	yellow discharge		1	AO1/1 4.3.1.3
04.5	three correct plots	allow ± 0.5 square tolerance	2	AO2/2 4.3.1.3
	correctly drawn line	allow 1 mark for two correct plots	1	AO2/2 4.3.1.3
04.6	any three from: <ul style="list-style-type: none"> • (fairly) level / steady up to (2009) • (there is a) greater rise after (2009) • males are (always) higher than females • males rising faster than females 	allow numbers of males fall (slightly) and females rise (slightly) up to 2009 allow overall increase (from 2005 to 2013)	3	AO3/1a 4.3.1.3

Question 4 continues on the next page

Question 4 continued

Question	Answers	Extra information	Mark	AO / Spec. Ref.
04.7	HIV is a virus		1	AO1/1 4.3.1.8
	(and) antibiotics are <u>only</u> effective against bacteria or antibiotics do not kill viruses	allow viruses live inside cells	1	AO2/1 4.3.1.8
04.8	antibiotics have been prescribed too often		1	AO1/1 4.3.1.8
	patients do not always finish their courses of antibiotics		1	AO1/1 4.3.1.8
Total			15	

Question 5

Question	Answers	Extra information	Mark	AO / Spec. Ref.
05.1	lactic acid		1	AO1/1 4.4.2.1
05.2	without oxygen		1	AO1/1 4.4.2.1
05.3	glucose	allow other suitable named sugar	1	AO1/1 4.4.2.1
05.4	carbon dioxide		1	AO2/2 4.4.2.1
05.5	count the bubbles or measure volume of gas in a given time		1	AO2/2 4.4.2.1
			1	AO2/2 4.4.2.1
05.6	brewing / bread making	allow other suitable use of fermentation in food industry	1	AO1/1 4.4.2.1
Total			7	

Question 6

Question	Answers	Extra information	Mark	AO / Spec. Ref.
06.1	foxglove produces poison / toxic chemicals		1	AO1/1 4.3.3.2
	(and) nettles have stinging hairs / can sting		1	AO2/1 4.3.3.2
	(both of) these stop herbivores / animals eating them		1	AO2/1 4.3.3.2
06.2	clove (oil)		1	AO3/2b 4.3.3.2
	it has the largest areas with no bacteria growing	allow largest inhibition zone or description of largest inhibition zone	1	AO3/2b 4.3.3.2
06.3	antibiotics were not tested		1	AO3/1b 4.3.3.2
Total			6	

Question 7

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.1	300		1	AO2/1 4.2.2.1
07.2	suitable scale on y-axis	allow 1 mark for 3 correct bars	1	AO2/2 4.2.2.1
	label y-axis		1	AO2/2 4.2.2.1
	4 bars drawn correctly		2	AO2/2 4.2.2.1
07.3	increases or 50 to 500		1	AO3/1a 4.2.2.1
	then decreases or 500 to 0		1	AO3/1a 3.2.2.1
07.4	absorption of glucose	allow by active transport	1	AO3/2b 4.2.2.1
	into blood		1	AO3/2b 4.2.2.1
	by diffusion		1	AO3/2b 4.2.2.1
Total			10	

Question 8

Question	Answers	Extra information	Mark	AO / Spec. Ref.
08.1	A		1	AO2/1 4.3.3.1
08.2	D		1	AO2/1 4.3.3.1
08.3	same type of plant or give equal amount of water to each plant	ignore size of pot	1	AO2/2 4.3.3.1
08.4	(advantage) more minerals		1	AO3/1b 4.3.3.2
	(disadvantage) cost / not free		1	AO3/1b 4.3.3.2
Total			5	

Question 9

Question	Answers	Extra information	Mark	AO / Spec. Ref.
09.1	lower rate (of photosynthesis)	allow less photosynthesis	1	AO2/1 4.3.1.2 4.3.3.1
09.2	water	allow sugar(s)	1	AO1/1 4.4.1.1
	glucose		1	AO1/1 4.4.1.1
09.3	less glucose made		1	AO2/1 4.4.1.3
	glucose needed for respiration		1	AO2/1 4.4.1.3
	which provided energy for growth or cannot make proteins		1	AO2/1 4.4.1.3
09.4	to kill virus or to prevent virus spreading		1	AO2/2 4.3.1.2 4.3.3.1
09.5	take (stem) cells from meristem or tissue culture	allow take cuttings	1	AO2/1 4.1.2.3 4.6.2.5
Total			8	

Question 10

Question	Answers	Extra information	Mark	AO / Spec. Ref.
10.1	active transport		1	AO1/1 4.1.3.3
10.2	xylem		1	AO1/1 4.2.3.1
10.3	any three from: <ul style="list-style-type: none"> • mount epidermis on a slide • count stomata in one area • repeat in four more areas • repeat method on lower surface of leaf • calculate mean 	allow nail varnish film	3	AO2/2 4.2.3.2
10.4	1	allow numbers written out in a line with middle number circled	1	AO2/2 4.2.3.2
10.5	41	allow 41.2 for 1 mark	2	AO2/2 4.2.3.2
10.6	less water lost		1	AO3/1a 4.2.3.2
	so it does not wilt		1	AO3/1b 4.2.3.2
Total			10	

Question 11

Question	Answers	Extra information	Mark	AO / Spec. Ref.
11.1	hydrochloric (acid) / HCl		1	AO1/1 4.3.1.6
11.2	any two from: <ul style="list-style-type: none"> • (carry out) phagocytosis or described • produce antibodies • produce antitoxins 		2	AO1/1 4.3.1.6
11.3	any six from: <ul style="list-style-type: none"> • test on cells or tissues or live animals • trials / test on healthy volunteers • (initially) use low doses • monitor for safety or side effects • test for (effective) dosage • test for efficacy • ref to double blind trial • ref to peer review of data 		6	AO1/2 4.3.1.9
Total			9	

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