

GENERAL MARKING ADVICE: BIOLOGY

The marking schemes are written to assist in determining the 'minimal acceptable answer' rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates' evidence, and apply to marking both end of unit assessments and course assessments.

1. There are no **half marks**. Where three answers are needed for two marks, normally one or two correct answers gain one mark.
2. In the mark scheme, if a word is **underlined** then it is essential; if a word is **(bracketed)** then it is not essential.
3. In the mark scheme, words separated by / are **alternatives**.
4. There are occasions where the second answer negates the first and no marks are given. There is no hard and fast rule here, and professional judgement must be applied. Good marking schemes should cover these eventualities.
5. Where questions on data are in two parts, if the second part of the question is correct in relation to an incorrect answer given in the first part, then the mark can often be given. The general rule is that candidates should not be penalised repeatedly.
6. If a numerical answer is required and units are not given in the stem of the question or in the answer space, candidates must supply the units to gain the mark. If units are required on more than one occasion, candidates should not be penalised repeatedly.
7. Clear indication of understanding is what is required, so:
 - if a description or explanation is asked for, a one word answer is not acceptable
 - if the questions ask for **letters** and the candidate gives words and they are correct, then give the mark
 - if the question asks for a word to be **underlined** and the candidate circles the word, then give the mark
 - if the result of a calculation is in the space provided and not entered into a table and is clearly the answer, then give the mark
 - **chemical formulae** are acceptable eg CO₂, H₂O
 - contractions used in the Arrangements document eg DNA, ATP are acceptable
 - words not required in the syllabus can still be given credit if used appropriately eg metaphase of meiosis
8. Incorrect **spelling** is given. Sound out the word(s),
 - if the correct item is recognisable then give the mark
 - if the word can easily be confused with another biological term then **do not** give the mark eg ureter and urethra
 - if the word is a mixture of other biological words then **do not** give the mark, eg mellum, melebrum, amniosynthesis.

9. **Presentation of Data:**

- if a candidate provides two graphs or bar charts (eg one in the question and another at the end of the booklet), mark both and give the higher score
- if the question asks for a line graph and a histogram or bar chart is given, then do not give the mark(s). Credit can be given for labelling the axes correctly, plotting the points, joining the points either with straight lines or curves (best fit is rarely used)
- if the x and y data are transposed, then do not give the mark
- if the graph used less than 50% of the axes, then do not give the mark
- if 0 is plotted when no data is given, then do not give the mark (ie candidates should only plot the data given)
- no distinction is made between bar charts and histograms for marking purposes. (For information: bar charts should be used to show discontinuous features, have descriptions on the x axis and have separate columns; histograms should be used to show continuous features; have ranges of numbers on the x axis and have contiguous columns.)
- where data is read off a graph it is often good practice to allow for acceptable minor error. An answer may be given 7.3 ± 0.1 .

10. **Extended response questions:** if a candidate gives two answers where there is a choice, mark both and give the higher score.

11. **Annotating scripts:**

- put a 0 in the box if no marks awarded – a mark is required in each box
- indicate on the scripts why marks were given for part of a question worth 3 or 2 marks. A $\sqrt{\quad}$ or x near answers will do.

12. **Totalling scripts:** errors in totalling can be more significant than errors in marking:

- enter a correct and carefully checked total for each candidate
- do not use running totals as these have repeatedly been shown to lead to more errors.

2003 Biology Intermediate 1

Marking scheme

Section A

1.	C	14.	C
2.	A	15.	A
3.	B	16.	C
4.	D	17.	A
5.	C	18.	B
6.	B	19.	A
7.	C	20.	C
8.	D	21.	C
9.	A	22.	A
10.	D	23.	B
11.	B	24.	C
12.	D	25.	A & B
13.	A		

2003 Biology Intermediate 1 - Marking Instructions – Section B				
Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
1 (a)	Meat/cereals/vegetables or cabbage/cauliflower/chicken/lamb/liver apricots/tuna/broccoli/peas/chocolate/ eggs/fish/lentils/pulses/cornflakes Any 2 from 3	1		
(b)	2 parts to question To <u>carry oxygen</u> in the blood/around the body	1	Found in red blood cells	Carry oxygen to/through/into the blood
(c)	(Makes people) feel tired/tiredness/tired all the time irritable/ less able/unable to concentrate Any 1 from 3	1		

Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
2 (a) (i)	2	1		
(ii)	<p>It gets bigger/increases/gets higher/gets more/speeds up/goes up</p> <p>More blood goes to the heart/is in the heart</p> <p>Goes up by 0.5 (each time)</p> <p>Doubles from rest to light exercise</p> <p>Triples from rest to hard exercise</p> <p>Goes up by 1 from rest to hard exercise</p>	1	<p>Less exercise means reduced volume/supply</p> <p>“heart gets bigger and pumps more blood”</p> <p>“hear beats faster”</p> <p>“amount”</p> <p>“Pumps more blood”</p>	<p>It slows down</p>
(b)	To <u>pump</u> blood (around the body)	1	<p>Carry blood</p> <p>Pass/passing blood</p> <p>Send/flow/push blood</p>	<p>Any additions re breathing or any other unrelated part of the body or process</p>

Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
3 (a) (i)	<p>Same length/size of cigarettes Make Brand B the same size as the others Shorten A and C to the same size as B Make B bigger to match A and C</p> <p>Mass/volume cotton wool Add more cotton wool in B</p> <p>Length of time cigarette is smoked Same suction/draw/pull/drag for each cigarette Same volume of air/smoke pulled through</p>	1	<p>Smoke cigarettes fully Repeat experiment</p> <p>“amount” of cotton wool “amount” of smoke “amount” of time “amount” of cigarette</p>	Same type of cigarette
(ii)	<p>It/this cigarette has more tar (Brand A is in stem of question)</p> <p>More tar/greater tar content/contains more tar Stronger/higher tar Brand C has less tar than Brand A</p>	1	<p>Nicotine in addition to tar Nicotine alone</p> <p>“more tar from one machine than the other”</p>	Any reference to Brand B
(b)	Cancer/emphysema/bronchitis/heart disease/asthma/lung disease/heart attack/angina	1	“black lungs” Short of breath	

Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
3 (c) (i)	Tidal volume	1		Peak flow Tidal flow Vital capacity Lung capacity Tidal capacity
(ii)	Fitness/exercise/activity Sex/age/being over weight Asthma/smoking/lung cancer	1	State of health Size of lungs Your size	

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4 (a) (i)	<p>Vertical axis Any one added number which shows the scale to be correct</p> <p>Horizontal axis Any two added numbers which show the scale to be correct Label – must be “Time after exercise (minutes or min or mins)”</p> <p>All plots correct AND joined – dot to dot or line of best fit</p> <p>Centre of crosses must be in correct place – no ‘daylight’ between centre of cross and line</p> <p>Please tick each item and plotted point</p>	1	<p>Ignore upright sticks to plotted points</p> <p>No penalty for extending line beyond 9 as long as still 68</p>	<p>Bar chart negates plot mark</p> <p>If join first point to zero then plot mark negated</p>
4 (a) (ii)	68	1		
(b)	<u>Recovery</u> (time/period)	1	Resting time	Reaction time
(c)	Weaker/less strong	1	Get stiff/sore/smaller Not able to lift things	
(d)	Blood pressure	1		Any additions Heart rate Measure fat

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5 (a) (i)	8 11 If numbers are not in the table but in space then it must be very clear which is which	1		
(ii)	More reliable/representative Reduces effect of atypical/fluke results	1	Make it fair/to get a good result Make it correct/valid/more accurate “get a better idea of the measurement”	
(b)	Reduction in body weight/mass Very thin/skinny/no fat on body/bones Stick out/stomach smaller Menstruation/periods stop Weak/tired/anaemic/pale/vitamin deficient/no energy/brittle bones/dizzy and fainting	1	Stiff joints Paranoia/you think you are fat Low pulse rate It can kill you/they can die	

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6 (a) (i)	<u>Potting on</u>	1	Re-potting Potting out	Potting off
(ii)	Roots visible/growing out of bottom of pot	1	Plant bigger than pot Plant growing out of pot References to the leaflet Roots growing round and round inside the pot	
(b)	<u>Capillary</u> matting/mat	1	mat	Straw, paper towels, rubber tubing, water pipe
(c)	Peat/water retentive gel/granules Water holding grains	1	Polystyrene Water	Sharp sand clay
(d)	<u>Node</u>	1		
(e)	<u>Dead heading</u> <u>Dead head</u> removal	1	Beheading Deheading	Offsets

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7 (a) (i)	<div> 12 1 0.5 row correct 4 20 0.5 row correct Tick numbers to make sure marking is correct </div>	<div> 1 1 </div>		
(ii)	<div> Bloodmeal Bonemeal Rock phosphate All 3 correct </div>	<div> 1 </div>		
(b)	Phosphorus/potassium/magnesium	<div> 1 </div>		

Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
8 (a) (i)	<p>Variety of Begonia seeds/number of seeds/spacing of seeds/seeds sown at same depth or all on the surface</p> <p>“trays”/type of/size of tray</p> <p>Level/mass or weight of compost</p> <p>Volume of water/how much water</p> <p>Same position in greenhouse/same light/same temperature</p> <p>Any two, 1 mark for each</p>	2	<p>Put in greenhouse at same time/on same day (this is in the question)</p> <p>“amount” in relation to light</p>	<p>“amount” in relation to seeds/compost/water (as these should be counted or measured)</p> <p>Type of seeds (as this is in the question)</p>
(ii)	<p>Count number of seedlings appearing/growing/germinating</p> <p>See/observe when/how quickly or soon the leaves or roots appear</p> <p>Measure height of seedlings/how much the roots have grown/how tall the seedlings have grown</p>	1	Repeat the experiment “amount” of seedlings	
(b)	<u>Mixed</u> with (silver) <u>sand</u>	1		Sown in sand Use sand

Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
9 (a) (i)	To clot protein/it To make curds	1	To make whey To thicken it To make it hard	
(ii)	Calf/calves	1	Fungi	Cows
(b) (i)	<u>Resazurin</u>	1		
(ii)	Changes to colourless/loses all colour/ becomes <u>colourless/white</u>	1	Clear	Pink
(c) (i)	Increases bacteria numbers Kills fish/kills them/other named organisms Fish suffocate/could die	1	“suffocate” alone “less oxygen” “uses up oxygen” Damage wildlife	River becomes poisonous
(ii)	Recycle waste Upgrade waste Use waste for another purpose/named use such as feed to pigs or make animal feed, cattle cake	1	Test it before disposal/ releasing it Sterilise it/clean it up	

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10 (a)	1 and 4 Both required	1		
(b)	2	1		
(c)(i)	Fewer wells per plate/space out wells more A different plate for each well/chemical One type of chemical per plate Leave for less time before taking results Do at a lower temperature	1	Repeat it	Leave it longer Do at a higher temperature Use the same chemical in each plate
(ii)	Clearer indication of the effect of the chemical on the yeast Would be able to see how well they had destroyed the yeast Would get clearer results/could see the effect better So one is less likely to spread over the others	1		

Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
11 (a) (i)	<p>Vertical axis Correct scale - any two numbers to show scale is correct AND Label WITH units – height of dough after 1 hour (cm)</p> <p>Plot All bars correct – a line must be drawn or shading evenly reach the line</p> <p>No ‘daylight’ rule applies – over 50% of the line must be on the graph paper line</p>	<p>1</p> <p>1</p>	Wider bars	
(ii)	<p>Different types of yeast work/grow at different rates/make dough rise by different heights</p> <p>Wine makers’ (yeast) is best/works best/made the dough rise most</p> <p>All types of yeast make the dough rise</p>	1		

Question	Acceptable answers	Marks	Unacceptable answers which do not negate	Unacceptable answers which negate
11 (b)	<u>Yeast</u> is still working in cask/not removed from cask	1	“yeast” alone make the beer taste better Because conditions are right	
(c)	Poor judgement/co-ordination/longer or slower reaction time/inability to drive a car Slurred speech/blurred vision Sleepiness/headache/dizziness/depression/sadness/crying/happiness/excitement. Inhibitions less/violent behaviour	1	Getting drunk Ill A hangover	Lung disease Slow recovery time/short reaction time Become an alcoholic Liver or kidney disease Breast cancer Loss of appetite

[END OF MARKING INSTRUCTIONS]