2013 Biology

Intermediate 1

Finalised Marking Instructions

Part One: General Marking Principles for Biology Intermediate 1

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

(a) Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor. You can do this by contacting your Team Leader using the messaging facility within Scoris. Alternatively, you can refer the issue directly to your Team Leader by raising an Exception from the tool bar.

(b) Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

GENERAL MARKING ADVICE: Biology Intermediate 1

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. The Marking Instructions will show how marks should be allocated in questions worth more than one mark.

2. In the Marking Instructions, if a word is **underlined** then it is essential; if a word is (**bracketed**) then it is not essential.

3. In the Marking Instructions, 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. The marking instructions cover these eventualities, wherever possible.

5. 'Bad Biology' should not result in a mark being awarded. Often, an otherwise correct answer can be negated by a response which is biologically wrong.

6. 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.

7. 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.

8. 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 CO_2, H_2O
- words not required in the syllabus can still be given credit if used appropriately eg Rhesus negative.

9. Incorrect **spelling** can be given. Sound out the word(s),

- if the answer is recognisable then give the mark
- if the word can easily be confused with another biological term then **do not** give the mark eg antibodies instead of antibiotics
- if the word is a mixture of other biological words then **do not** give the mark, eg dormination.

10. 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) for the plots. Credit can be given for labelling the axes correctly, or inserting an appropriate scale
- where a line graph is plotted, the individual points should be joined by a straight line, directly connecting adjacent points. A line of best fit is not acceptable, unless specifically asked for
- if the data on the horizontal and vertical axes are transposed, then do not give the mark for labelling axes. A mark may be awarded for plots if the plots are accurate and are plotted against an appropriate scale
- 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). The same applies if the plots in a line graph continue past the highest value provided, unless candidates have been asked to predict a point beyond the data provided
- 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. Any tolerance in an answer is given in the Marking Instructions
- when plotting points on a line graph, no more than minimal 'daylight' should appear between the plotted point and the place on the grid corresponding to where the plot should be
- when joining points on a line graph, a single line should be drawn between adjacent plots – do not accept a thick, shaded line or double line

- when plotting a bar chart or histogram, all bars should have a clearly drawn horizontal line across the top and no more than minimal 'daylight' should be visible between the drawn line and the part of the grid corresponding to where the line should be drawn. Furthermore, plotting only horizontal bars without supporting 'sides' to the bar is insufficient
- always check the additional graph paper or pie chart provided towards the end of the question paper
- when drawing a pie chart, the same principles apply – no more than minimal 'daylight', no double lines etc.
- although candidates are instructed to use ink throughout (to increase legibility of scanned images), some may have used pencil. Use the zoom facility to ensure responses are read appropriately. A marker should refer a question directly to their Team Leader by raising an Exception, if they think the image is difficult to read accurately or if they cannot see a graph but suspect it may have been drawn faintly.

11. Marking from Image: Recording Marks

The question (or part of a question) which is being marked is highlighted. Ensure the mark awarded is entered into the correct box adjacent to the space for the answer. Where the candidate has made no attempt to answer the question, NR (No Response) should be entered in the box. Otherwise insert the mark awarded or 0 if the answer is not correct and no mark is awarded.

12. Annotating scripts:

- a mark, zero or NR (No Response) is required in each box
- you can use the draw tools ✓, × or underline to indicate on the responses a correct answer or part of answer or an incorrect answer or part of an answer.

13. Use of language

- It is not possible to list every possible way in which candidates may provide a correct answer eg increases, gets higher, gets bigger etc then, all mean the same and, if correct, the mark should be awarded.
- Candidates often use colloquial or casual language and, where there is no ambiguity and a biological term is not required, the mark should be awarded eg where 'lower leaves removed' is an acceptable answer and the candidate's answer is 'chop off the lower leaves', the mark should be awarded.

14. Interpreting an answer

- Candidates frequently provide part of an answer which implies the answer provided in the Marking Instructions. A mark should not be awarded if the marker has to 'do the work' or has to make an assumption about what the candidate might have intended with their response.
- Where a conclusion is required, do not accept a re-statement of the results – some form of interpretation of the results to form a conclusion is always required.

15. Biologically correct answers

Where a candidate provides an answer which is correct biologically and is an appropriate answer to the question, the mark should be awarded, even if the exact answer is not provided in the Marking Instructions.

16. One-off answers not covered by the Marking Instructions

- If a response is not covered by the Marking Instructions, consider whether this answer is equivalent to the acceptable answer and if so, award the mark and make a record of your decision as another candidate may have answered in the same way and it is important that you are consistent in your marking.
- If you cannot make a decision, contact your Team Leader using the Messaging Facility within Scoris.
- You are encouraged to make a decision and to be consistent in applying your decision.
- If a decision cannot be made, however, refer the response directly to your Team Leader by raising an Exception.

Part Two: Marking Instructions for each Question

Section A

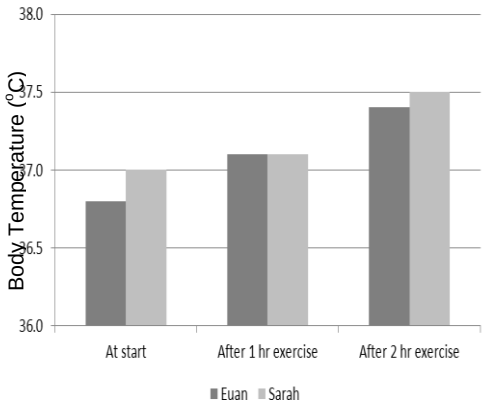
Question			Expected Answer/s	Max Mark	Additional Guidance
1			D	1	
2			D	1	
3			B	1	
4			B	1	
5			B	1	
6			C	1	
7			A	1	
8			A	1	
9			C	1	
10			D	1	
11			B	1	
12			A	1	
13			D	1	
14			C	1	
15			A	1	
16			C	1	

Question			Expected Answer/s	Max Mark	Additional Guidance
17			C	1	
18			B	1	
19			A	1	
20			C	1	
21			B	1	
22			D	1	
23			B	1	
24			D	1	
25			B	1	

Section B

Question			Acceptable Answer(s)	Max Mark	Further guidance
1	a	i	Bronchiole	1	
1		ii	Oxygen	1	
1	b		***Physiological measurement*** ***Definition*** Vital capacity → maximum volume of air breathed out in one breath Tidal volume → maximum rate at which air can be forced from the lungs Peak flow → volume of air breathed in or out of the lungs in one normal breath 3 correct = 2 1, 2 correct = 1 0 correct = 0	2	Additional lines drawn from any measurement negates an otherwise correct response.
2	a		0-2 minutes: ; 0-4 minutes: ; 2-4 minutes: ✓ ; 2-8 minutes:	1	More than one box ticked negates an otherwise correct response.
2	b		70	1	
2	c		Student B Reason: Lower (resting) pulse rate/ shorter recovery period/lower maximum pulse rate or another valid conclusion Both correct = 1	1	Restatement of results is unacceptable, unless a comparison is made.

<table>
<tr><th colspan="3">Question</th><th>Acceptable Answer(s)</th><th>Max Mark</th><th>Further Guidance</th></tr>
<tr><td>3</td><td>a</td><td>i</td><td>
<table>
<tr><td rowspan="2">Food</td><td colspan="2">Temperature of water (ºC)</td><td rowspan="2">Rise in temperature (ºC)</td></tr>
<tr><td>At start</td><td>At end</td></tr>
<tr><td>Bread</td><td></td><td></td><td></td></tr>
<tr><td>Cheese</td><td></td><td></td><td><u>13</u></td></tr>
<tr><td>Chicken</td><td></td><td><u>31</u></td><td></td></tr>
</table>
Both correct = 1</td><td>1</td><td></td></tr>
<tr><td></td><td></td><td>ii</td><td>Some heat loss to surroundings/air
Some heat used to heat up tube/spoon
Some energy converted to light
Not all food is burned</td><td>1</td><td></td></tr>
<tr><td></td><td></td><td>iii</td><td>
<table>
<tr><td>Temperature of water</td><td></td></tr>
<tr><td>Volume of water</td><td>✓</td></tr>
<tr><td>Mass of food</td><td>✓</td></tr>
<tr><td>Type of food</td><td></td></tr>
</table>
Both correct = 1</td><td>1</td><td></td></tr>
<tr><td>3</td><td>b</td><td></td><td>
<table>
<tr><th>Food group</th><th>Use</th></tr>
<tr><td><u>Carbohydrates</u></td><td>energy</td></tr>
<tr><td><u>Protein</u></td><td>growth and repair of cells/ tissues</td></tr>
<tr><td>Fat</td><td><u>energy</u></td></tr>
</table>
3 correct = 2
1, 2 correct = 1
0 correct = 0</td><td>2</td><td>‘Insulation’ or a description of insulation is an acceptable alternative answer for use of fat.
‘Warmth’ alone is unacceptable but does not negate an otherwise correct answer.</td></tr>
</table>

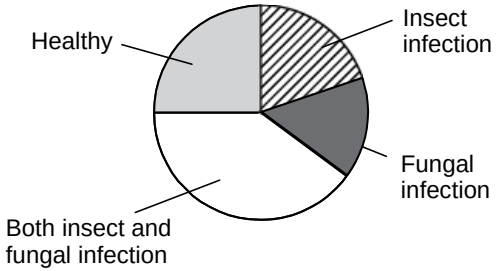
Question			Acceptable Answer(s)	Max Mark	Further Guidance
4	a	i	 Label on vertical axis including unit *(°C)* = 1 All plots correct = 1	**2**	No 'topless bars'. Vertical supporting sides of bars required. Where there is no shading/shading which varies from the example 'At start', assume order of bars is same throughout. If bars are labelled, they must be unambiguous, clearly labelled and distinct (E for Euan and S for Sarah are acceptable labels) if shading does not match with key provided. More than minimal 'daylight' between drawn bar and corresponding line on grid would lose plot mark. Plotted bars should be After 1 hour: Euan 37.1; Sarah 37.1 After 2 hrs: Euan 37.4; Sarah 37.5
4	a	ii	Euan and 0.6 Both correct = 1	**1**	
4	b		Digital thermometer/Infra-Red Thermometer/Ear Thermometer	**1**	

Question			Acceptable Answer(s)	Max Mark	Further Guidance
5	a	i	cool, moist (weather/air) Both required for 1	1	Additional information negates an otherwise correct response.
		ii	Leaves turn black Both required for 1	1	Additional information even if correct is unacceptable and negates as this is not what happens first.
		iii	(inside is) black and rotten Both required for 1	1	Cannot be eaten is not acceptable but does not negate an otherwise correct answer.
	b		Fungicide/antifungal	1	An incorrect response will negate an otherwise correct answer eg 'fungicide and pesticide' is an unacceptable response.
	c		Bulbs/corms/another storage organ	1	Named plant and storage organ eg 'onion bulb' is acceptable. Named plant alone eg 'onion' is an unacceptable answer. 'Root(s)' alone is not acceptable.
	d		Photosynthesis	1	

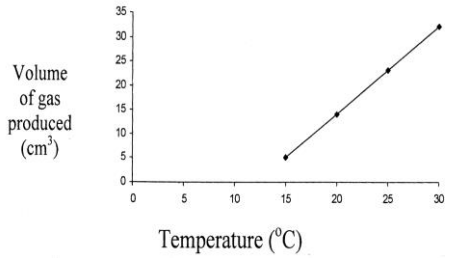
Question			Acceptable Answer(s)	Max Mark	Further Guidance
6	a	i	Perfect Speedy Maincrop	1	
		ii	Three/3	1	If three names are given correctly, ie Dutch Forcing, Early Nancy and Perfect Speedy Maincrop, award mark. If the answer 'three' is given and incorrect names provided, do not award mark.
	b		2000	1	
	c		Pelleting/enclose in a clay ball or pellet Sprinkling/scattering (by hand/fingers)	1	Any confusion with improving growth, such as mixing with fertiliser/peat, is incorrect and negates an otherwise correct answer. Mixing with perlite is unacceptable. 'Throwing' is unacceptable
	d		1. Suitable temperature/warmth 2. Air/oxygen Both correct = 1	1	'Temperature' alone is unacceptable. 'Heat' alone is unacceptable. Reference to light is unacceptable and negates two correct answers.

<table>
<tr><th colspan="3">Question</th><th>Acceptable Answer(s)</th><th>Max Mark</th><th>Further Guidance</th></tr>
<tr><td>7</td><td>a</td><td>i</td><td><u>Green</u></td><td>1</td><td></td></tr>
<tr><td></td><td></td><td>ii</td><td>Any two of yellow leaves, red leaf bases, longer roots, stunted shoots or equivalent.</td><td>1</td><td>Accept ‘red leaf bases’, ‘red leaf’ alone is not acceptable
Accept ‘yellow leaves’, ‘yellow’ alone is unacceptable.</td></tr>
<tr><td></td><td></td><td>iii</td><td>Phosphorus or P</td><td>1</td><td></td></tr>
<tr><td></td><td></td><td>iv</td><td>To compare with the other results/comparison.</td><td>1</td><td>‘To show what would happen with all minerals’ or equivalent is acceptable.</td></tr>
<tr><td>7</td><td>b</td><td></td><td>
<table>
<tr><th>Description</th><th>True</th><th>False</th><th>Correction</th></tr>
<tr><td><u>Potting on</u> is the removal of dead flowers to encourage further flowering.</td><td></td><td>✓</td><td>Dead-heading</td></tr>
<tr><td>Plants can be protected from low temperatures and wind using <u>automatic fans</u>.</td><td></td><td>✓</td><td>Glass/
green-house/
plastic/
floating fleece/
cloche/
propagator</td></tr>
<tr><td colspan="4">One mark per correct row</td></tr>
</table>
</td><td>2</td><td>Correction alone is acceptable.

Tick in correct box but no correction is not acceptable.</td></tr>
</table>

Question			Acceptable Answer(s)	Max Mark	Further Guidance
8	a	i	 Correct size of segments = 1 Correct labels = 1	 **2**	Full label as shown opposite is required for each segment healthy = 5 segments insect infection = 4 segments both insect and fungal infection = 8 segments fungal infection = 3 segments No bent lines No more than minimal 'daylight' Must be clearly labelled or key provided
		ii	<u>150</u>	**1**	
	b		Insecticides/pesticides/soapy water/ biological control/crushing	**1**	Insect/bug spray or repellent/fungicide/herbicide are unacceptable. A description which includes a named organism and the pest it controls is acceptable, eg ladybirds eating aphids/greenfly. A named organism, eg "ladybirds" alone is unacceptable.
	c		Thrush/athlete's foot/other named human fungal infection	**1**	Vague description such as 'toenail fungus' is unacceptable.

Question			Acceptable Answer(s)	Max Mark	Further Guidance
9	a	i	20	1	
		ii	Any conclusion from these results such as, 'the higher the temperature, the higher the rate of clotting/it is' or 'the rate of clotting/it is higher for cows (rennet) than camel (rennet)' or converse for any or any other valid conclusion. If only one type of rennet is mentioned in the response, it must include a comparative statement, eg 'cow rennet clots the milk more quickly/quicker'.	1	'Rate of clotting' or 'it' should be treated as equivalent. Restatement of results eg 'the rate of clotting at 10ºC for camel rennet was 30 units per minute'. Reference to 'young cow or camel milk' negates an otherwise correct answer.
	b		Curds	1	'Curdles' alone is not acceptable. Inclusion of 'cheese' does not negate an otherwise correct answer but 'cheese' alone is not sufficient.
	c		decrease decrease Both correct = 1	1	
	d		Creamy alcoholic drink/or brand name	1	Yoghurt is not acceptable. Alcoholic/fermented milk drink is not acceptable.

Question			Acceptable Answer(s)	Max Mark	Further Guidance
10	a	i	 Scale (as shown or scale begins at 0 with only plots of data provided) = 1 Label (units required) = 1 All plots correct and joined = 1	**3**	Extending graph to (0,0) loses plot mark only. 'Hairy' lines – unacceptable Extending graph beyond 30ºC loses plot mark. Scale must be linear and show minimum of one additional temperature eg 30 Scale provided must result in graph covering a minimum of half the printed grid. Plotted points should be (15,5), (20,14), (25, 23), (30,32)
		ii	Repeat (the experiment/investigation)/do it again	**1**	
		iii	<u>Carbon dioxide</u>	**1**	
		iv	Alcohol/ethanol	**1**	
	b		Fungus/fungal	**1**	Micro-organism, single-celled, living are unacceptable.

[END OF MARKING INSTRUCTIONS]