2014 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 posting a question on the Marking Team forum or by e-mailing/phoning the e-marker Helpline.*

(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 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. 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 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 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 errors. Any tolerance in an answer is given in the Marking Instructions
- when plotting points on a line graph, no '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 'daylight' should be visible between the drawn line and the place on 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 '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 marks are read appropriately. A Marker should refer the paper directly to the Team Leader by checking the 'Referral' box on the marking screen 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, a dash (-) 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 a dash (-) is required in each box
- you use the draw tools ✓, × or underline to indicate on the scripts a correct answer or part of an 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 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, check if the Markers' Forum has a submission which addresses this issue.
- Always consider the Markers' Forum as a source of support and a repository for decisions which you have made.
- You are encouraged to make a decision and to be consistent in applying your decision.
- If a decision cannot be made, however, refer the paper directly to the Team Leader by checking the 'Referral' box on the marking screen.

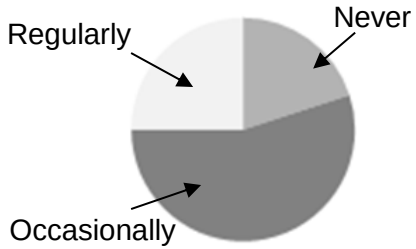
Part Two: Marking Instructions for each Question

Section A

Question			Acceptable Answer(s)	Max Mark	Unacceptable Answers	Negates
1.			B	**1**		
2.			D	**1**		
3.			B	**1**		
4.			A	**1**		
5.			B	**1**		
6.			B	**1**		
7.			D	**1**		
8.			A	**1**		
9.			C	**1**		
10.			A	**1**		
11.			D	**1**		
12.			D	**1**		
13.			D	**1**		
14.			A	**1**		
15.			B	**1**		
16.			B	**1**		

Question			Acceptable Answer(s)	Max Mark	Unacceptable Answers	Negates
17.			D	**1**		
18.			D	**1**		
19.			A	**1**		
20.			C	**1**		
21.			D	**1**		
22.			C	**1**		
23.			A	**1**		
24.			C	**1**		
25.			C	**1**		

Section B

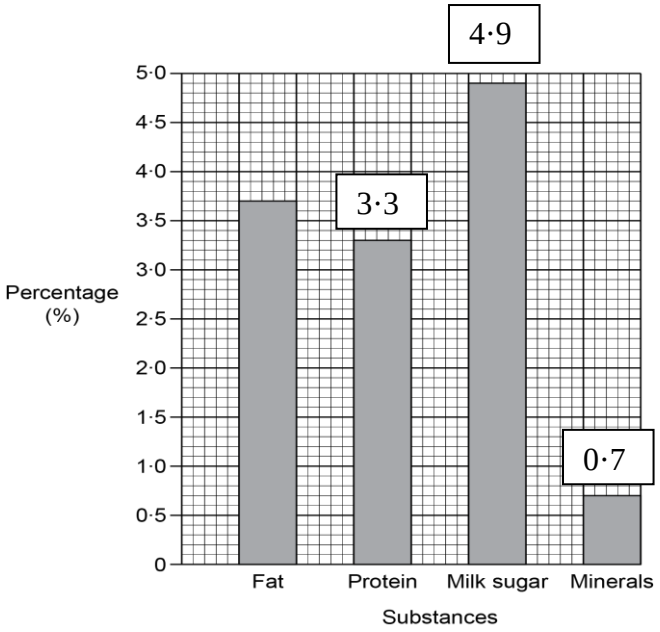
Question			Acceptable Answer(s)	Max Mark	Additional Answers
1.	**(a)**	**(i)**	Pulse rate/heart rate	**1**	Pulse alone is not acceptable
1.	**(a)**	**(ii)**	Digital thermometer/liquid crystal thermometer	**1**	Thermometer alone, clinical thermometer are unacceptable
1.	**(b)**		120/80 Accept within range 90-140/60-90	**1**	
2.	**(a)**	**(i)**	 Portions all correct = 1 Labels all correct = 1	**2**	Never = 4 segments Occasional = 11 segments Regular = 5 segments
2.	**(a)**	**(ii)**	5:7	**1**	
2.	**(b)**		In the blood	**1**	
2.	**(c)**		Liver or brain damage	**1**	Any other condition linked to alcohol e.g. diabetes, kidney disease, cirrhosis, liver cancer. Cancer alone is insufficient

Question			Acceptable Answer(s)	Max Mark	Additional Answers
3.	**(a)**	**(i)**	X Vein Y Artery Z Capillary 3 correct = 2 1 or 2 correct = 1 0 correct = 0	**2**	
3.	**(a)**	**(ii)**	Pump blood (around the body)	**1**	
3.	**(b)**	**(i)**	3 (litres per minute)	**1**	
3.	**(b)**	**(ii)**	Stays the same/does not change	**1**	
3.	**(b)**	**(iii)**	Two (times greater) Twice/2x	**1**	
4.	**(a)**		Above average	**1**	
4.	**(b)**		Every day	**1**	
4.	**(c)**		Fat in diet: 7 Frequency of exercise: 7 Both required	**1**	Fat in diet: accept 7 and High (i.e. 'High' does not negate) Frequency of exercise: accept 7 and None (i.e. 'None' does not negate)

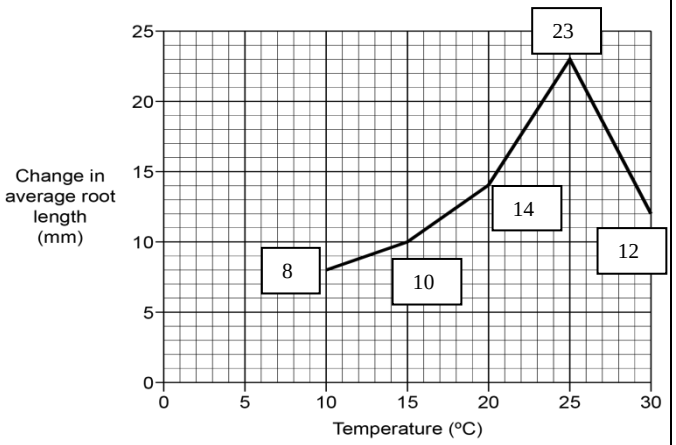
<table>
<tr><th colspan="3">Question</th><th>Acceptable Answer(s)</th><th>Max Mark</th><th>Additional Answers</th></tr>
<tr><td>5.</td><td>(a)</td><td>(i)</td><td><u>Fermenter</u></td><td>1</td><td></td></tr>
<tr><td>5.</td><td>(a)</td><td>(ii)</td><td>Nutrients/temperature/pH</td><td>1</td><td></td></tr>
<tr><td>5.</td><td>(b)</td><td></td><td>Fungi 1 mark
Bacteria 1 mark</td><td>2</td><td></td></tr>
<tr><td>6.</td><td>(a)</td><td></td><td>
<table>
<tr><th>Name of bacteria</th><th>Can break down milk sugar</th><th>Uses citric acid as food source</th></tr>
<tr><td>Shigella</td><td>No</td><td><u>No</u></td></tr>
<tr><td><u>Salmonella</u></td><td>No</td><td>Yes</td></tr>
<tr><td><u>Escherichia</u></td><td>Yes</td><td><u>No</u></td></tr>
<tr><td>Enterobacter</td><td><u>Yes</u></td><td><u>Yes</u></td></tr>
</table>
6 correct = 2
3, 4 or 5 correct = 1
0, 1 or 2 correct = 0</td><td>2</td><td></td></tr>
<tr><td>6.</td><td>(b)</td><td></td><td>Must be comparative and include reference to milk sugar or citric acid.
Eg, Shigella cannot break down <u>milk sugar</u> but Escherichia can or neither can use citric acid as food source.</td><td>1</td><td>Don’t need both a reference to milk sugar and citric acid as a food – a comparison of one factor is sufficient

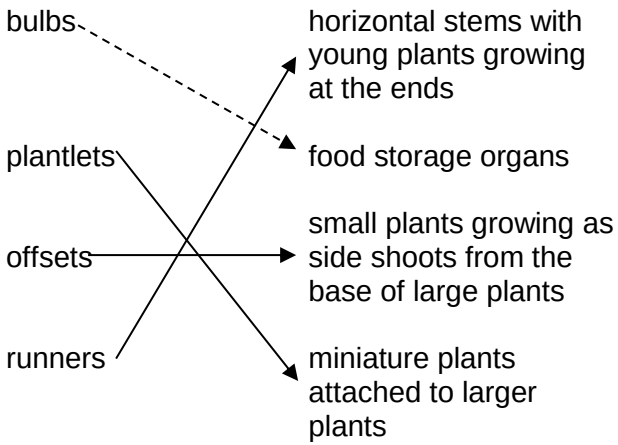
An incorrect response negates an otherwise correct answer

Reference to sugar alone is insufficient</td></tr>
</table>

Question			Acceptable Answer(s)	Max Mark	Additional Answers
7.	**(a)**		68(%)	**1**	
7.	**(b)**		0 (units)	**1**	
7.	**(c)**		The higher the concentration (of the antifungal), the lower the percentage of fungi growing or antifungals reduce the percentage of fungi growing or equivalent.	**1**	A statement of percentage at a particular concentration, read directly from the graph – i.e. a re-statement of results. Reference to volume of antifungal is incorrect
8.	**(a)**	**(i)**	 1 Label on horizontal axis = 1 2 All plots correct = 1 Bars must have tops, no 'daylight'	**2**	

Question			Acceptable Answer(s)	Max Mark	Additional Answers
8.	**(a)**	**(ii)**	87·4 (%)	**1**	
8.	**(b)**		Resazurin	**1**	
9.	**(a)**		Cylinder – A Explanation – It contains yeast	**1**	Acceptable alternative explanation – cylinder B does not contain yeast
9.	**(b)**		Repeat (the experiment)	**1**	Do the experiment several/many times is acceptable
9.	**(c)**		Carbon dioxide	**1**	
10.	**(a)**	**(i)**	Turn yellow and fall off Both parts required	**1**	Additional correct information does not negate
10.	**(a)**	**(ii)**	From cuttings imported from abroad Both parts required	**1**	
10.	**(b)**		Crushing/insecticides/pesticides/soapy water/biological control/ burning	**1**	Named example of biological control (e.g. ladybirds) is acceptable Fungicides in unacceptable

Question			Acceptable Answer(s)	Max Mark	Additional Answers
11.	**(a)**	**(i)**	<u>17</u>	**1**	
11.	**(a)**	**(ii)**	 1. Label for the vertical axis, including units =1 2. Completing the scale of the vertical axis =1 3. Plotting the average change in root length =1	**3**	Plotting to zero negates plotting point
11.	**(a)**	**(iii)**	**<u>25</u>**(°C)	**1**	
11.	**(a)**	**(iv)**	Any two from: Volume of water/light (intensity)/ type or volume of compost/type of seedling/other valid variable	**2**	Number of seedlings or temperature negates Period of time/days negates 'Water' alone is unacceptable 'The same plants' is unacceptable 'Type of seed' is acceptable
11.	**(b)**		<u>Embryo</u> (root/shoot)	**1**	'Root' or 'shoot' alone is insufficient

Question			Acceptable Answer(s)	Max Mark	Additional Answers
12.	**(a)**	**(i)**	Fine	**1**	
12.	**(a)**	**(ii)**	Dormant	**1**	
12.	**(b)**		more longer Both required for 1 mark	**1**	
12.	**(c)**		**Propagation Structures** — **Description**  All three correct = 2 1 or 2 correct =1 0 correct = 0 marks	**2**	

[END OF MARKING INSTRUCTIONS]