SCOTTISH QUALIFICATIONS AUTHORITY

2004 Biology

Intermediate 1

Finalised Marking Instructions

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 CO_2, H_2O
   - 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 is 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 ✓ or ✗ 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.

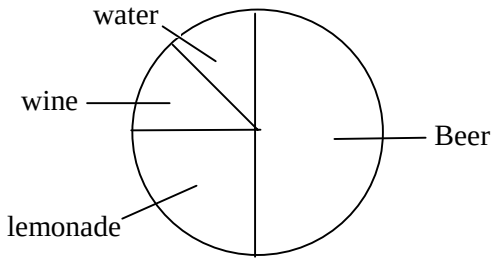
2004 Biology Intermediate 1

Marking scheme

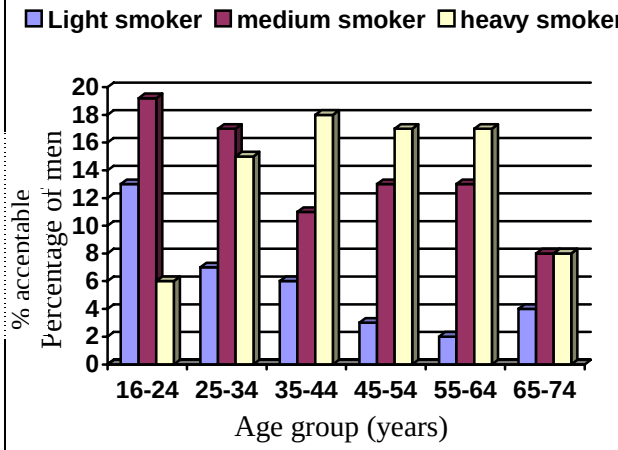
Section A

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

Section B

Question	Acceptable answers	Marks	Unacceptable Answer	Negates
1 (a)	Britain, New Zealand, Australia, Ireland (UK) All 4 correct	**1**	Austria Omitting any country	
(b)	4.5	**1**		
(c)	Children	**1**	1 in 13 adults and 1 in 8 children No	
(d)	<u>Genetic and environmental</u> Both correct	**1**		
2 (a) (i)	Beer	**1**		
(ii)	25%	**1**		
(iii)	Can divide in other way Can use key Correct proportions = 1 Correct labels = 1  4 segments labelled (any proportion)	**2**	Line not touching tick mark No ruler OK but must touch tick 5 segments drawn and 4 labelled – lose 2 marks	Put in wrong % beside label, lose label mark

<table>
<tr><th>Question</th><th>Acceptable answers</th><th>Marks</th><th>Unacceptable Answer</th><th>Negates</th></tr>
<tr><td>2 (b)</td><td>Cirrhosis of liver/other acceptable cancer
Liver damage/problems/cancer/failure/disease/
brain damage/heart disease/high blood
pressure/stroke/pancreatitis/
become addicted/alcoholic/alcoholism/
memory loss/kill the brain cells
Liver damage and cancer</td><td>1</td><td>Lung disease/cancer/alcohol
poisoning/kidney
Failure/worn/pickled/weakens
liver/
Slower reaction time/slower
recovery time/forget things/death</td><td>Any short term effect
Any unacceptable answer (+ correct
one)
(except cancer)</td></tr>
<tr><td>3 (a) (i)</td><td><table><tr><th>Instrument</th><th>Measurement</th><th>High or low tech</th></tr><tr><td></td><td>(Body) temp(erature)</td><td>Low</td></tr><tr><td></td><td>Blood pressure/bp</td><td>High</td></tr><tr><td></td><td>Pulse (rate)/heart rate</td><td>High</td></tr></table>
All six correct = 2
Three, four or five correct = 1</td><td>2</td><td>Body heat/heat
Heart beat
Pulse beat
PR</td><td></td></tr>
<tr><td>(ii)</td><td>Cost/expensive/difficult to use/complicated/hard to
work/require (specialist) training</td><td>1</td><td>batteries dead/fuse broken/other
specific reason
Break easily/may not work/
Not accurate/run out of
electricity/power cut out</td><td></td></tr>
<tr><td>(b)</td><td>(Increased risk of) heart
disease/attack/damage/failure/problems/
high blood pressure/stroke/high blood
cholesterol/kidney failure/arthritis/diabetes/asthma/
depression</td><td>1</td><td>Obesity
Shortage of breath
High heart rate</td><td></td></tr>
</table>

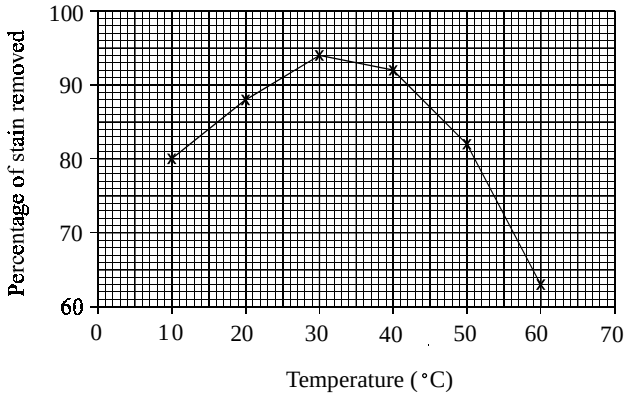
Question	Acceptable Answer	Marks	Unacceptable Answer	Negates
4 (a) (i)	17%	**1**		
(ii)	62%	**1**		
(iii)	 Ignore bar width Label = 1 All plots = 1	**2**	Topless bars Daylight at top of bar % men that smoke % smokers	
(iv)	Heaviest smokers in the 35–44 age group/same percentage of heavy smokers in 45–54 & 55–64 age groups Correct conclusion from data Must include specific age group or youngest/oldest	**1**	Vague statements such as Middle age, younger, older Restatement of data e.g. 7% light smokers in 25–34 age group	
(b)	Carbon monoxide (CO)	**1**	Tar alone	Carbon monoxide with any other substance except tar

Question	Acceptable answers	Marks	Unacceptable Answer	Negates
5 (a)	Increases and then decreases/increases/percentage got higher/more girls ate fresh fruit/increased by 8%/both boys and girls increased/it goes up	**1**	Any other comparison with boys	Incorrect % change
(b) (i)	Prevent/protect against (deficiency) diseases/infections/named deficiency disease/or description of disease (eg bleeding gums)	**1**	Vague statements e.g. stronger/healthier healthy skin etc Diseases	
(ii)	Protein, carbohydrate and fat All three correct	**1**		
6 (a) (i)	Vanilla ice	**1**		
(ii)	Repeat experiment/grow more than one seed (of each type/variety)/do it more than once	**1**	Put all the seeds in	
(b)	Oxygen/air/moisture/water/damp/watering/lots of water	**1**		Light
(c)	Dormancy/dormant (seeds)	**1**		
(d)	Photosynthesis	**1**		

Question	Acceptable answers	Marks	Unacceptable Answer	Negates
7 (a) (i)	Node	**1**		
(ii)	Rotting powder (or mis-spelling) (Dip in) rooting powder/compost/powder which encourages root growth	**1**	Special food for roots Growth powder Powder	
(iii)	(Put cutting in/use) plastic/polythene/clear bag/water the floor/floating fleece/greenhouse/cloche/clingfilm/ sprinkler/place on water mat	**1**	Bag/black bag Incubator/propagator	
(b) (i)	Layering	**1**		
(ii)	Larger plants/success with plants that are difficult to propagate from cuttings/easier than taking a cutting/being fed by parent plant/living off parent	**1**	Easy/faster/only need to water one pot Lot more plants produced	
8 (a) (i)	$21^{o}C$	**1**		
(ii)	Temperature was recorded earlier in the day/ door/window left open **or** recorded at night/different time of day/heater not switched on/fan left on/air vent open/mis-reading thermometer/thermometer not working/taking reading in different place	**1**	Weather conditions	

<table>
<tr><th>Question</th><th>Acceptable answers</th><th>Marks</th><th>Unacceptable Answer</th><th>Negates</th></tr>
<tr><td>8 (b)</td><td>Fans/open window(s) or door/air conditioning/ventilation/blinds/cover glass/let more air in/painting/sheeting</td><td>1</td><td>Thermostat/cooling system/ cold heater/painting black/ move greenhouse into shade</td><td></td></tr>
<tr><td>9 (a)

(i)
(ii)</td><td><table><tr><td></td><td></td><td></td></tr><tr><td></td><td>Pots</td><td>(Capillary) matting</td></tr><tr><td></td><td>89</td><td>120</td></tr><tr><td></td><td>51</td><td>55</td></tr><tr><td></td><td>57</td><td>62</td></tr></table>Headings
All entries correct</td><td>1
1</td><td></td><td></td></tr>
<tr><td>(b)</td><td>(C.) balearicum</td><td>1</td><td></td><td></td></tr>
<tr><td>(c)</td><td>Plant the same number/amount of seeds in pots and on the capillary matting
Same volume of water/same amount of water
Same temperature
Planted at same time/same day
Same spacing/area of planting
Same type of compost in pots</td><td>1</td><td>Same number of days/time left for
Same conditions/method
Same mass of seeds
Same heat/same warmth</td><td></td></tr>
</table>

Question	Acceptable answers	Marks	Unacceptable Answer	Negates
10 (a)	 Minimum of two other numbers on y-axis label = 1 scale = 1 plot = 1	**3**	Temp Line extending beyond 10 or 60, lose plot mark Points not joined, lose plot mark Bar chart instead of line graph, lose plot mark Over-run point Double line	
(b)	30°C/line drawn to 30°C/30°C underlined	**1**		
(c) (i)	Bacteria(l)/bacterium/<u>GM</u> yeast	**1**	Micro-organisms	Yeast
(ii)	<u>Prevent/stop</u> allergic reactions/rashes/eczema/ asthma/irritation/itchiness People allergic to it/does not harm/affect skin Will not damage hands if touched	**1**	Irritates people Allergies/itches/rashes	
(iii)	(Less energy used to heat water so) <u>less fossil fuels burned/used</u> (and therefore less pollution)	**1**		

<table>
<tr><th>Question</th><th>Acceptable answers</th><th>Marks</th><th>Unacceptable Answer</th><th>Negates</th></tr>
<tr><td>11 (a)</td><td>
<table>
<tr><td>Treatment</td><td>Type of milk</td></tr>
<tr><td></td><td>UHT</td></tr>
<tr><td></td><td>Skimmed</td></tr>
<tr><td></td><td>Evaporated</td></tr>
<tr><td></td><td>Semi-skimmed</td></tr>
</table>
All four correct = 2
Two or three correct = 1</td><td>2</td><td></td><td></td></tr>
<tr><td>(b)</td><td>Bacteria/lactic acid/acid
Micro-organisms (ignore rate of bacteria/growth of bacteria)</td><td>1</td><td>Souring/yeast
Freshness/quality of milk/if safe/good enough to drink
Germs</td><td></td></tr>
<tr><td>(c)</td><td>Protein
Whey
Both correct</td><td>1</td><td></td><td></td></tr>
</table>

[END OF MARKING INSTRUCTIONS]