



**2011 Biology**  
**Standard Grade – General**  
**Finalised Marking Instructions**

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## Standard Grade Biology 2011 – Additional marking notes

Please use these notes alongside the finalised 'MARKING INSTRUCTIONS'

### Markers' Meeting

**Do** take clear notes of all decisions taken and use them in your marking.

**Do** bring up reasonable different interpretations of a question which may lead to different acceptable answers.

**Do** provide other responses illustrating good biology.

**Do** only bring up alternative responses you have actually seen.

**Do** try to form an idea of the minimal acceptable answer based on the marking instructions and any discussion.

**Do not** bring up obviously different ways of saying the same thing.

**Do not** bring up repeated examples of clearly incorrect answers.

**Do not** raise issues not directly concerning the marking instructions – put them in your report.

### During marking

There are **no half marks**.

In the marking instructions, if a word is underlined then it is essential; (bracketed) then it is not essential.

Answers separated by / are alternatives.

**Negation.** A correct answer can sometimes fail to gain the mark if it is negated. This happens when:

An extra **incorrect answer** is given together with the correct one.

Additional incorrect information is given which contradicts the correct answer, demonstrating a misunderstanding of the question. (Additional unrequired information will not negate a correct answer if it does not contradict that answer).

**Do** accept chemical formulae instead of chemical names.

**Do** accept subscript, superscript and normal script when used to identify generations in genetic crosses.

**Do** accept incorrect spelling if it looks or sounds reasonably correct – unless it could be confused with another biological term or is an amalgam of two or more words.

**Do** try to make a decision if you see a response not discussed at the markers' meeting. Make a note of your decision and use it if the same response is seen again.

**Do** put 0 in **every** mark box where zero marks have been awarded.

**Do** check the totalling of the script marks carefully.

**Do not** make any written comments on the scripts. Use ticks, crosses, underlining, etc to indicate marking decisions.

### Referring scripts

Refer scripts to the Principal Assessor (*PA Referral*) only in extreme cases of indecision over an answer. A relevant referral form must be completed and included with the script. The script should be labelled **PA Referral**.

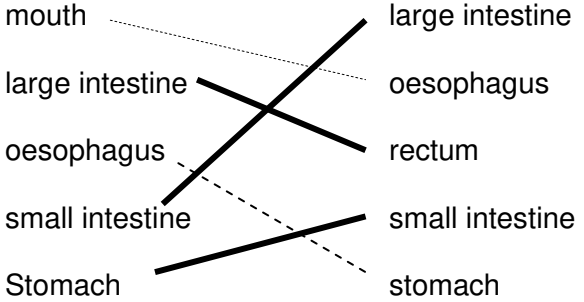
Refer scripts for *Special Attention (M)* if there is suspected malpractice or offensive remarks on the script. A report should be written on a separate piece of paper and included with the scripts. The script packet should be labelled **Special Attention (M)**.

**STANDARD GRADE BIOLOGY – 2011 GENERAL LEVEL MARKING INSTRUCTIONS**

Qu	Acceptable answer	Mark	Unacceptable answer
<p>1 (a) (i)</p> <p>(ii)</p> <p>(iii)</p> <p>(iv)</p>	<p>The transfer / movement / flow / direction of energy / which way the energy is going</p> <p>Plants / green plants</p> <p>Foxes, owls, kestrels, stoats</p> <p>plants → <u>insects</u> → <u>spiders</u> → toads → foxes /</p> <p>plants → <u>insects</u> → <u>spiders</u> → toads → owls</p>	<p>1</p> <p>1</p> <p>any two = 1</p> <p>1</p> <p>1</p>	
(b)	<p>movement / heat / undigested material <b>or</b> example / movement of animals from area / faeces / uneaten material / removal of an organism</p>	<p>1</p>	<p>Waste</p> <p>Maintaining body temperature</p> <p>Warmth</p>
<p>(c) (i)</p> <p>(ii)</p> <p>(iii)</p>	<p>F</p> <p>B</p> <p>A</p>	<p>1</p> <p>1</p> <p>1</p>	

Qu	Acceptable answer	Mark	Unacceptable answer
2 (a)	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;">cream streaked ladybird</div> <p style="text-align: center;">.....7 spots</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">7 spotted ladybird</div> <div style="border: 1px solid black; padding: 5px; width: 100px; text-align: center;">Eyed ladybird</div> </div> <p>(Full description needed for each answer)</p>	4 correct = 3 2 / 3 correct = 2 1 correct = 1 3	Abbreviations Less than 22 spots instead of '7 spots'
(b)	22 spotted ladybird	1	Partial answer
(c)	The colour of the wing case /  7 spotted ladybird has a red wing case and the cream streaked ladybird has a yellow wing case. Both parts of this statement needed	1	Its colour / Wing colour / Case colour One has ... and the other has ...
(d)	22 spots	1	The number of spots

Qu	Acceptable answer			Mark	Unacceptable answer	
3 (a)	A		(Answer must imply selection process) controls movement of materials / substances / things into and out of (the cell) / controls what goes in and out / controls entry and exit from cells	3 correct = 2 1 / 2 correct = 1	2	Allows... Controls diffusion  The control centre Contains information Contains chromosomes / genes
	B	cell wall				
	C		contains hereditary / genetic information <b>or</b> controls cell (activities / actions <b>or</b> reactions / functions) (what happens in cell) <b>or</b> controls mitosis			
(b)	cell wall / vacuole / chloroplast			any one =	1	
(c)	Stains				1	any named stain Dyes (are used to stain cells)

Qu	Acceptable answer	Mark	Unacceptable answer
4 (a)	incisors molars / premolars carnassials / molars / premolars	3 correct = 2 1 / 2 correct = 1 2	
(b)	 <p>(Additional lines – lose one mark each)</p>	3 correct = 2 1 / 2 correct = 1 2	
(c)	large surface area / long / folded (surface) / villi (equivalents) thin lining / walls good blood supply / rich blood supply enzyme secretory glands / enzyme secretory cells / produces (digestive) enzymes / produces digestive juices	any two from separate lines, one mark each 2	One cell thick / thin / one cell thick walls / membrane is selectively permeable

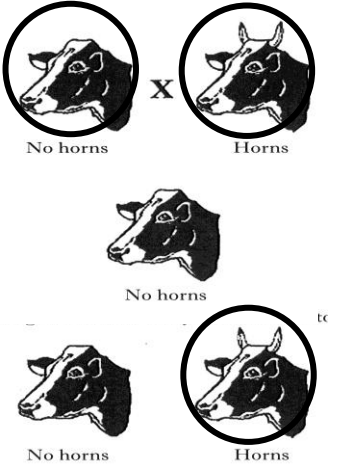
Qu	Acceptable answer	Mark	Unacceptable answer
5 (a)	12	1	
(b)	Daisies      Fewer daisies  Plantains      No effect / difference / population stays roughly the same / no real change	1  1	Kills a lot of daisies Reduction in distribution of daisies Volume <b>or</b> amount of daisies Limits the growth of daisies Reduced number of daisies closer to shortcut Number of plantains in 20's for all five
(c)	Make the result(s) (more) reliable / To reduce the effect of atypical result(s) / One result could be atypical	1	To make it / the investigation more reliable  Accurate / valid – negates

Qu	Acceptable answer	Mark	Unacceptable answer
6 (a)	It / (something that) speeds up a <u>chemical reaction</u> without being altered / and left unchanged / and not used up / and can be used over and over again (Both parts needed)	1	... not used in the reaction
(b)	protein / amino acids	1	
(c)	Phosphorylase Starch / potato phosphorylase	1	Glucose – 1 – phosphorylase



Qu	Acceptable answer	Mark	Unacceptable answer
6 (d) (i)	<p data-bbox="324 491 510 579">Percentage of starch converted to maltose</p> <p data-bbox="801 898 974 930">pH of solution</p>	<p data-bbox="1323 427 1503 491">x axis label = full label = 1</p> <p data-bbox="1245 528 1503 624">y axis scale (100 + minimum of one other value) = 1</p> <p data-bbox="1245 660 1503 724">correct plotting and joining points = 1</p> <p data-bbox="1261 761 1503 857">Wrong scale but correct plot to that scale = 1</p> <p data-bbox="1357 979 1503 1011">all correct = 1</p>	<p data-bbox="1675 427 2040 459">Partial label / changed label</p> <p data-bbox="1675 761 2018 825">Line from 10 – 11 showing daylight</p> <p data-bbox="1675 1114 2011 1145">Decreases and denatures</p> <p data-bbox="1675 1214 2018 1310">Concentration of enzyme / Volume of substrate / Heat / light intensity</p>
(ii)	3 10 11	1	
(iii)	Breakdown of starch / activity / percentage conversion / increases up to (pH) 6 then decreases (Activity increases (to an optimum) then decreases = 1) (increased then decreased = 1)	1 1	
(iv)	temperature / concentration of substrate concentration of starch	1	

Qu	Acceptable answer	Mark	Unacceptable answer
7 (a) (i)	36	1	
(ii)	Repeat	1	Do more tests / use more pieces of bone
(iii)	minerals / calcium phosphate hard <b>or</b> solid minerals	1	calcium / phosphorus
(b)	protection (of internal organs) (named organ)	1	Produce blood cells / Calcium store
(c) (i)	B	1	
(ii)	Tendon	1	

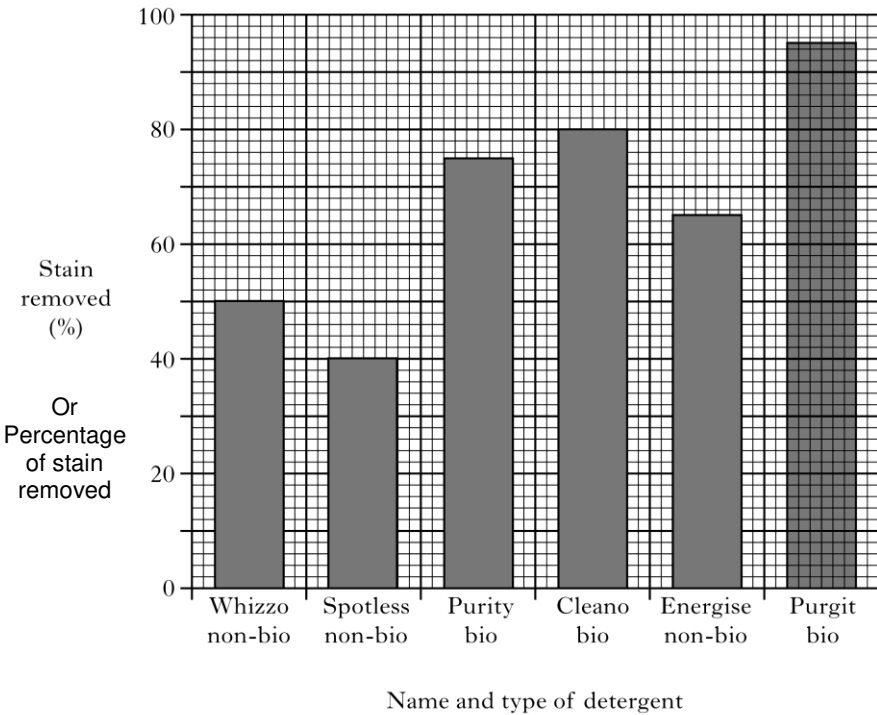
Qu	Acceptable answer	Mark	Unacceptable answer
<p>8 (a) (i)</p> <p>P F<sub>1</sub> F<sub>2</sub></p> <p>(ii)</p> <p>(iii)</p>	<p>(Accept superscripts <b>or</b> normal script)</p> <p>all correct =</p>  <p>any one correct = Or more than one correct</p> <p>Horns</p>	<p>1</p> <p>1</p> <p>1</p>	<p><sub>1</sub>F / <sub>2</sub>F / P<sub>1</sub></p>
(b)	25	1	

Qu	Acceptable answer	Mark	Unacceptable answer						
<b>9 (a) (i)</b>  <b>(ii)</b>  <b>(iii)</b>	10 17 16 8  51 <b>or</b> correct total of incorrect numbers in table (Part (i))  221 to 260 <b>or</b> 260 to 221	4 correct = 2 2 / 3 correct = 1  2  1  1	Additional incorrect answers						
<b>(b)</b>	eye colour / blood group / blood type / right or left handedness / tongue rolling / hair colour / ear lobes / sex / gender / dimples / freckles	1	Tattoos / Shoe size						
<b>(c)</b>	<table border="1" data-bbox="320 802 1003 1011"> <tbody> <tr> <td data-bbox="320 802 913 874">A group of animals with similar appearances which live in an isolated habitat</td> <td data-bbox="913 802 1003 874"></td> </tr> <tr> <td data-bbox="320 874 913 946">A group of animals which show variation and can breed to produce fertile offspring</td> <td data-bbox="913 874 1003 946">✓</td> </tr> <tr> <td data-bbox="320 946 913 1011">A group of animals which look similar and which can mate with each other</td> <td data-bbox="913 946 1003 1011"></td> </tr> </tbody> </table>	A group of animals with similar appearances which live in an isolated habitat		A group of animals which show variation and can breed to produce fertile offspring	✓	A group of animals which look similar and which can mate with each other		1	
A group of animals with similar appearances which live in an isolated habitat									
A group of animals which show variation and can breed to produce fertile offspring	✓								
A group of animals which look similar and which can mate with each other									

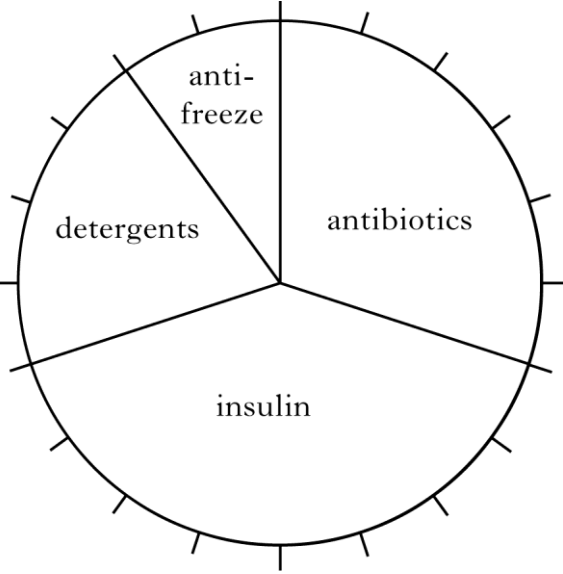
Qu	Acceptable answer	Mark	Unacceptable answer
10 (a)	Pathogens	1	
(b)	Vaccination programmes Public health improvements Increasing availability of antibiotics  3 correct = 2 1 / 2 correct = 1	2	Vaccination only Availability of antibiotics / more antibiotics Answers not relating to information in passage
(c)	(It is) resistant to antibiotics (It is) resistant to most / some antibiotics Resistance to antibiotics / growing a resistance to... Evolving to become resistant to antibiotics  Look for resistant or resistance	1	... immune to antibiotics Resisting antibiotics / Evolving to resist antibiotics
(d)	neutrophils macrophages dendritic (cells)  3 correct =	1	
(e)	It has a memory / it remembers (the pathogen / micro-organism / it)	1	Recognises pathogen
(f)	Immune cells target / destroy our own (body) cells	1	Target wrong body cells

Qu	Acceptable answer	Mark	Unacceptable answer												
11 (a) (i)	<table border="1"> <tr> <td>left atrium</td> <td>3</td> </tr> <tr> <td>right atrium</td> <td>2</td> </tr> <tr> <td>left ventricle</td> <td>18</td> </tr> <tr> <td>right ventricle</td> <td>4·5</td> </tr> </table> <p>mm after numbers do not negate</p> <p>all rows correct = 2 2 / 3 rows correct = 1 (Rows can be in a different order)</p>	left atrium	3	right atrium	2	left ventricle	18	right ventricle	4·5	2					
left atrium	3														
right atrium	2														
left ventricle	18														
right ventricle	4·5														
(ii)	1 : 4	1													
(b)	<table border="1"> <tr> <td>Blood goes from the right atrium to the <u>left atrium</u></td> <td></td> <td>✓</td> <td>right ventricle</td> </tr> <tr> <td>Blood from the <u>body</u> enters the right atrium</td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>The heart muscle obtains its blood supply from the <u>vena cava</u></td> <td></td> <td>✓</td> <td>coronary artery</td> </tr> </table> <p>Re-write of whole sentence with correction</p>	Blood goes from the right atrium to the <u>left atrium</u>		✓	right ventricle	Blood from the <u>body</u> enters the right atrium	✓			The heart muscle obtains its blood supply from the <u>vena cava</u>		✓	coronary artery	1 1 1	First branch of aorta
Blood goes from the right atrium to the <u>left atrium</u>		✓	right ventricle												
Blood from the <u>body</u> enters the right atrium	✓														
The heart muscle obtains its blood supply from the <u>vena cava</u>		✓	coronary artery												
(c) (i)	A and C (either order)	both correct = 1													
(ii)	To stop blood flowing backwards / To maintain blood flow in the right / correct direction To prevent backflow / To stop blood going in wrong / incorrect direction	1	Stop blood flowing back into heart To keep blood going one way												
(d)	Artery	1	Named artery												

Qu	Acceptable answer	Mark	Unacceptable answer
12 (a) (i)	2 ½ / 2.5	1	
(ii)	carbon dioxide / CO <sub>2</sub>	1	
(iii)	Mass / amount of yeast / volume / type / concentration / quantity temperature / time left for / amount of time left for  Any two, 1 mark each	2	O <sub>2</sub> concentration / pH / number of yeast / volume of water Time / investigation time / Amount of time / Kneading of dough
(iv)	To show the increase in / rising volume of / the dough was caused by the live yeast OR To allow a comparison (with beaker A / live yeast) OR To show only live yeast can respire	1	To show what happens without yeast To show yeast is responsible for reaction As a control To confirm live yeast is required
(b)	(Single celled) Fungus	1	Single celled
(c)	(Making) beer / wine / spirits (Accept named example) / alcohol / cider / brewing / flavouring	1	Use of brand names Bear
(d)	Fermentation / anaerobic respiration Lactic acid fermentation	1	Curdling Lactic fermentation

Qu	Acceptable answer	Mark	Unacceptable answer
<p><b>13 (a) (i)</b></p>	 <p>Stain removed (%) Or Percentage of stain removed</p> <p>Whizzo non-bio   Spotless non-bio   Purity bio   Cleano bio   Energise non-bio   Purgit bio</p> <p>Name and type of detergent</p> <p>y axis label = 1 y axis scale (100 plus minimum of one other value) = 1 Correct drawing of all bars = 1 (Bars must have accurate straight tops) Bar width unimportant</p>	<p>1 1 1</p>	
<p><b>(ii)</b></p>	<p>Biological detergents work best / remove stains / clean better (than non-biological) <b>or</b> converse Comparison needed</p> <p>No detergent removes all stain Detergents vary in their effectiveness / some biologicals work better than others Every detergent removes some stain</p> <p>Any two, 1 mark each</p>	<p>2</p>	<p>All detergents show a reaction Quoting actual results ... removes stains better than the others ... most effective / least effective</p>
<p><b>(b)</b></p>	<p>enzymes   bacteria</p> <p>Both correct =</p>	<p>1</p>	



Qu	Acceptable answer	Mark	Unacceptable answer
(c) (i)		<p>correct divisions (any order) = 1  correct labels = 1  (Allow 1 mark for incorrect divisions with labels in correct relative sizes)</p>	<p>Bits of pie chart 'unused'</p>
(ii)	<p>gene / chromosomal material / DNA / chromosome part  eg like insulin gene</p>	<p>1</p>	<p>Plasmids / chromosomes / allele  Genetic information /  Part of nucleus  (Plasmids does not negate)</p>

Qu	Acceptable answer	Mark	Unacceptable answer
<b>14 (a) (i)</b>  <b>(ii)</b>  <b>(iii)</b>	(The higher the flow rate), the higher the number of salmon caught <b>or</b> converse There are more salmon caught In 2007, number of salmon caught was highest (comparative needed)  900  13 / 14 / 15	1  1  1	Lots of salmon are caught / In 2007, high number of salmon caught   12.5
<b>(b)</b>	Rhythmical (behaviour)	1	Seasonal behaviour Rhythmic behaviour
<b>(c) (i)</b>  <b>(ii)</b>	Fertilisation  yolk / yolk sac / egg yolk	1  1	Food sac / Food stored in egg

