



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**.

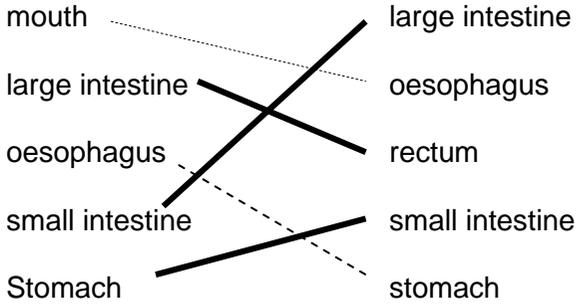
Refer scripts for *Special Attention (M)* if there is suspected malpractice or offensive remarks on the script. A report should be written on a separate piece of paper and included with the scripts. The script packet should be labelled **Special Attention (M)**.

STANDARD GRADE BIOLOGY – 2011 GENERAL LEVEL MARKING INSTRUCTIONS

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

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; margin: 10px 0;"> <div style="border: 1px solid black; padding: 5px;">7 spotted ladybird</div> <div style="border: 1px solid black; padding: 5px;">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 or controls cell (activities / actions or reactions / functions) (what happens in cell) or controls mitosis			
(b)	cell wall / vacuole / chloroplast			any one =	1	
(c)	Stains				1	any named stain Dyes (are used to stain cells)

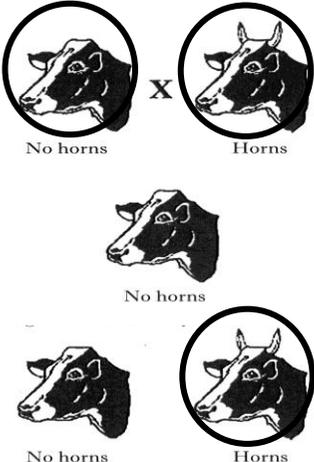
Qu	Acceptable answer	Mark	Unacceptable answer
4 (a)	incisors molars / premolars carnassials / molars / premolars	3 correct = 2 1 / 2 correct = 1 2	
(b)	 <p>(Additional lines – lose one mark each)</p>	3 correct = 2 1 / 2 correct = 1 2	
(c)	large surface area / long / folded (surface) / villi (equivalents) 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 or 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>Percentage of starch converted to maltose</p> <p>pH of solution</p>	<p>x axis label = full label = 1</p> <p>y axis scale (100 + minimum of one other value) = 1</p> <p>correct plotting and joining points = 1</p> <p>Wrong scale but correct plot to that scale = 1</p> <p>all correct = 1</p>	<p>Partial label / changed label</p> <p>Line from 10 – 11 showing daylight</p> <p>Decreases and denatures</p> <p>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	Decreases and denatures
(iv)	temperature / concentration of substrate concentration of starch	1	Concentration of enzyme / Volume of substrate / Heat / light intensity

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 or 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	

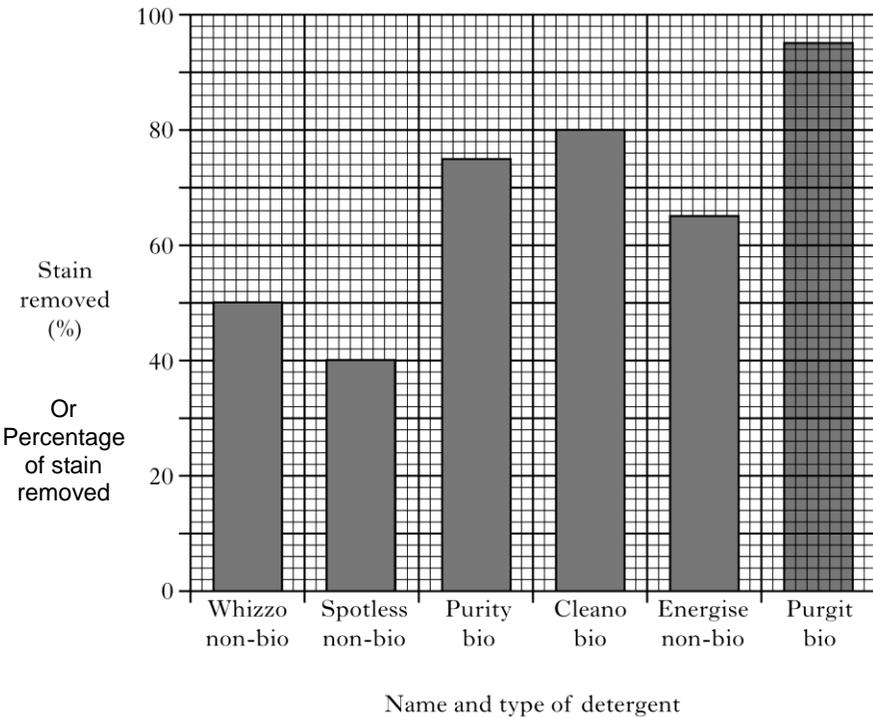
Qu	Acceptable answer	Mark	Unacceptable answer
<p>8 (a) (i)</p> <p>P F₁ F₂</p> <p>(ii)</p> <p>(iii)</p>	<p>(Accept superscripts or normal script)</p> <p>all correct =</p>  <p>any one correct = Or more than one correct</p> <p>Horns</p>	<p>1</p> <p>1</p> <p>1</p>	<p>₁F / ₂F / P₁</p>
(b)	25	1	

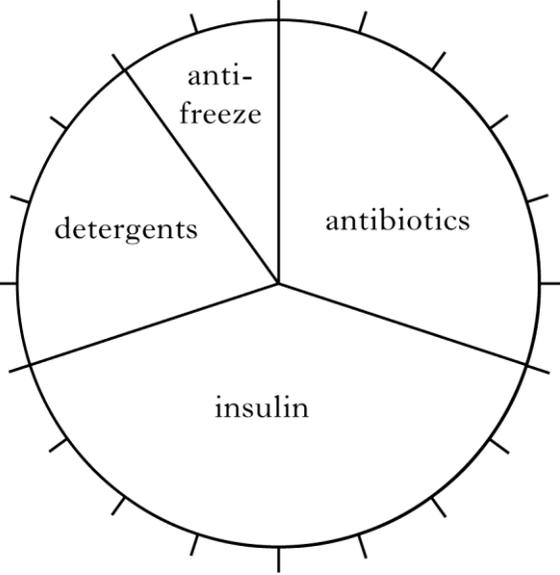
Qu	Acceptable answer	Mark	Unacceptable answer						
9 (a) (i) (ii) (iii)	10 17 16 8 51 or correct total of incorrect numbers in table (Part (i)) 221 to 260 or 260 to 221	4 correct = 2 2 / 3 correct = 1 2 1 1	Additional incorrect answers						
(b)	eye colour / blood group / blood type / right or left handedness / tongue rolling / hair colour / ear lobes / sex / gender / dimples / freckles	1	Tattoos / Shoe size						
(c)	<table border="1"> <tr> <td>A group of animals with similar appearances which live in an isolated habitat</td> <td></td> </tr> <tr> <td>A group of animals which show variation and can breed to produce fertile offspring</td> <td>✓</td> </tr> <tr> <td>A group of animals which look similar and which can mate with each other</td> <td></td> </tr> </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 ₂	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 ₂ 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>13 (a) (i)</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>(ii)</p>	<p>Biological detergents work best / remove stains / clean better (than non-biological) or 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)</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
14 (a) (i) (ii) (iii)	(The higher the flow rate), the higher the number of salmon caught or 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)	Rhythmical (behaviour)	1	Seasonal behaviour Rhythmic behaviour
(c) (i) (ii)	Fertilisation yolk / yolk sac / egg yolk	1 1	Food sac / Food stored in egg

