



**2007 Biology**

**Standard Grade – General**

**Finalised Marking Instructions**

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## Standard Grade General Biology 2007 – Additional marking notes

Please use these notes alongside the finalised ‘**VERSION 2 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 a 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.

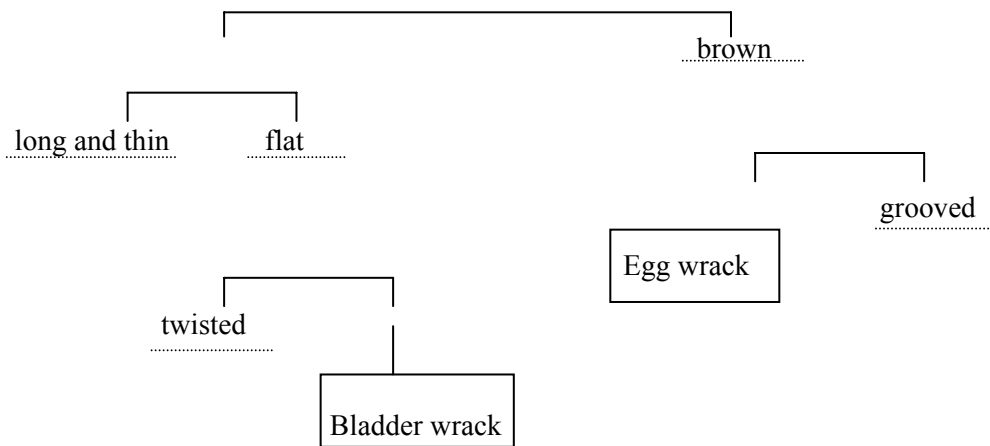
### Referring scripts

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 – 2007 GENERAL LEVEL MARKING INSTRUCTIONS VERSION 2

Qu	Acceptable answer	Mark	Unacceptable answer									
<b>1(a)</b>	F T T  <p style="text-align: right;">All correct =</p>	<b>1</b>										
<b>(b)</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Producer</td> <td>heather / moss / grass</td> <td></td> </tr> <tr> <td>Consumer</td> <td>red grouse / beetle / moth / butterfly / red deer / linnet / skylark / hen harrier / fox</td> <td style="text-align: right;">Both correct =</td> </tr> </table>	Producer	heather / moss / grass		Consumer	red grouse / beetle / moth / butterfly / red deer / linnet / skylark / hen harrier / fox	Both correct =	<b>1</b>	grouse / harrier / deer			
Producer	heather / moss / grass											
Consumer	red grouse / beetle / moth / butterfly / red deer / linnet / skylark / hen harrier / fox	Both correct =										
<b>(c)</b>	heather	<b>1</b>										
<b>(d)</b>	heat / movement / decomposition or rotting or decay / uneaten remains / faeces or urine or undigested material or waste or excretion / migration from habitat <p style="text-align: right;">Any two different examples, 1 mark each =</p>	<b>2</b>										
<b>2(a)</b>	<table style="width: 100%; border: none;"> <tr> <td style="width: 5%; text-align: center;"><b>1</b></td> <td>loss of plants / loss of vegetation / starvation of animals / reduced biodiversity / soil erosion / desertification</td> <td></td> </tr> <tr> <td style="text-align: center;"><b>2</b></td> <td>acid rain / kills or damages or poisons trees or plants or lichens / damage to buildings / breathing problems / makes streams etc more acidic / kills aquatic animals or example</td> <td></td> </tr> <tr> <td style="text-align: center;"><b>3</b></td> <td>fish stocks reduced / fish populations destroyed / some species may become extinct/food sources for some other animals are reduced / upsets food webs or food chains</td> <td style="text-align: right;">Any one =</td> </tr> </table>	<b>1</b>	loss of plants / loss of vegetation / starvation of animals / reduced biodiversity / soil erosion / desertification		<b>2</b>	acid rain / kills or damages or poisons trees or plants or lichens / damage to buildings / breathing problems / makes streams etc more acidic / kills aquatic animals or example		<b>3</b>	fish stocks reduced / fish populations destroyed / some species may become extinct/food sources for some other animals are reduced / upsets food webs or food chains	Any one =	<b>1</b>	<p>loss of nutrients from soil</p> <p>global warming / damage to ozone layer / increase in greenhouse gases / affects plants</p> <p>all fish killed / references to affects on the fishing industry</p>
<b>1</b>	loss of plants / loss of vegetation / starvation of animals / reduced biodiversity / soil erosion / desertification											
<b>2</b>	acid rain / kills or damages or poisons trees or plants or lichens / damage to buildings / breathing problems / makes streams etc more acidic / kills aquatic animals or example											
<b>3</b>	fish stocks reduced / fish populations destroyed / some species may become extinct/food sources for some other animals are reduced / upsets food webs or food chains	Any one =										
<b>(b)(i)</b>	fewer higher  <p style="text-align: right;">Both correct =</p>	<b>1</b>										
<b>(ii)</b>	food / energy / nutrients	<b>1</b>	carbohydrates / protein / fat									

Qu	Acceptable answer	Mark	Unacceptable answer
3(a)(i)	 <p>7 correct = 3 5/6 correct = 2 3/4 correct = 1</p>		<p>not green</p> <p>not flat    not long &amp; thin</p> <p>                 not saw-toothed</p> <p>not branched</p>
(ii)	<p>Sea lettuce is green, Spiral wrack is brown Sea lettuce is flat, Spiral wrack is twisted Sea lettuce does not have bladders, Spiral wrack does</p>	Any two = 1	<p>one is green, one is brown / different colour one is flat, one is twisted / different shape one has bladders, one hasn't</p>
(iii)	<p>both are brown both have bladders in pairs</p>	Both needed = 1	<p>same colour both have bladders</p>
(b)	<p>temperature <input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p> <p>light intensity <input checked="" type="checkbox"/></p> <p><input type="checkbox"/></p> <p><input type="checkbox"/></p>	Both correct = 1	

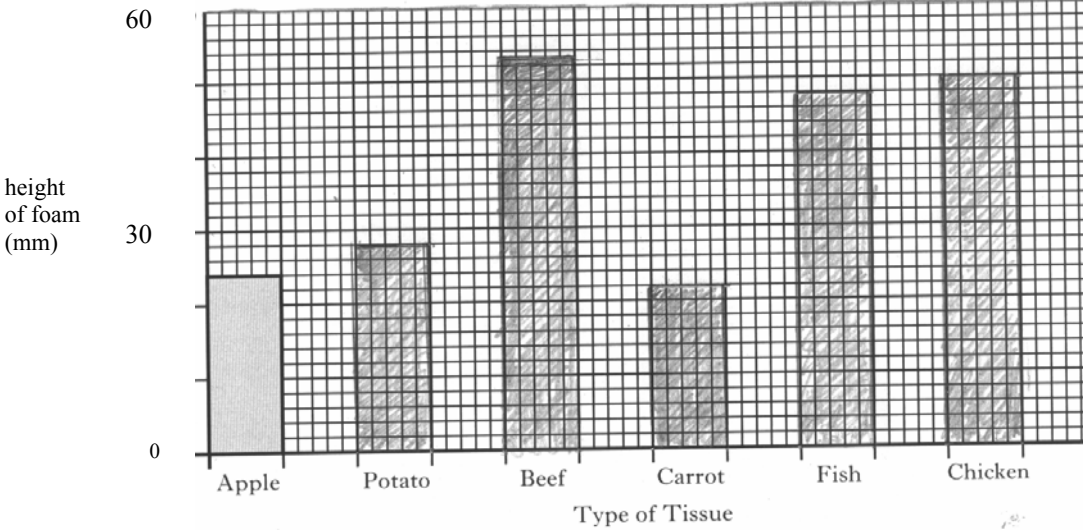
Qu	Acceptable answer	Mark	Unacceptable answer																
4(a)	<table border="1"> <tr> <td>Mosses</td> <td></td> <td></td> <td>spores</td> </tr> <tr> <td></td> <td>present</td> <td>feathery</td> <td></td> </tr> <tr> <td></td> <td>present</td> <td>needle-like</td> <td></td> </tr> <tr> <td>Flowering plants</td> <td></td> <td></td> <td>seeds</td> </tr> </table> <p>8 correct = 3 6/7 correct = 2 4/5 correct = 1</p>	Mosses			spores		present	feathery			present	needle-like		Flowering plants			seeds		needles flowers
Mosses			spores																
	present	feathery																	
	present	needle-like																	
Flowering plants			seeds																
(b)(i)	xylem	1																	
(b)(ii)	transports sugar or glucose or food or nutrients or products of photosynthesis	1	transports starch or water or minerals support																
(c)	Any suitable example + Appropriate use	Both parts needed = 1	poppies – remembrance day / illegal uses																
5(a)	A runners	1																	
	B tubers	1																	
(b)	food / starch / sugar / glucose / energy / materials for new cells / genetic information	1	instructions																
(c)	cuttings / grafting / layering / tissue culture	1	cloning																

Qu	Acceptable answer	Mark	Unacceptable answer
6(a)	 <p style="margin-left: 400px;">sowing time = harvesting time =</p>	<p>1 1</p>	
(b)	April	1	
(c)	Leek	1	
(d)	Beetroot    Cauliflower    Leek	All three needed = 1	additional answers
7(a)(i)	<p>Place food out of sight while still allowing scent to reach slugs / Place food in an unsealed container / behind a screen Do experiment in darkness</p> <p><b>or</b></p> <p>Keep food in sight while preventing scent reaching slugs / Place food in a transparent sealed container / Replace food with replica food / Use a fan to blow scent of food away from slugs</p>	1	impractical suggestions
(ii)	reduce effect of atypical result / reduce the effect of individual variation / improves reliability / makes results reliable	1	for reliability / makes results accurate or valid
(b)	<p>Any named animal + appropriate factor</p> <p>Appropriate response</p> <p>Accept bird migration and day length or temperature</p>	<p>Eg. Woodlouse    Moisture / humidity</p> <p>Moves towards moist areas / higher humidity <b>or</b> Moves away from dry areas / low humidity</p> <p>1 1</p>	

Qu	Acceptable answer	Mark	Unacceptable answer								
<b>8(a)(i)</b>  <b>(ii)</b>  <b>(iii)</b>	U and Z  V  X or Y	both needed = 1  1  1									
<b>(b)(i)</b>          <b>(ii)</b>	<table border="1"> <tr><td></td><td>B</td></tr> <tr><td></td><td>D</td></tr> <tr><td>gall bladder</td><td></td></tr> <tr><td>stomach</td><td></td></tr> </table>          absorb / reabsorb water		B		D	gall bladder		stomach		4 correct = 2 2/3 correct = 1          1	
	B										
	D										
gall bladder											
stomach											
<b>(c)</b>	villi or many small projections + create large surface area or increases rate of absorption <b>or</b> large surface area + increases rate of absorption	both parts needed = 1									

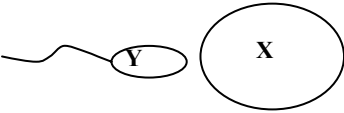
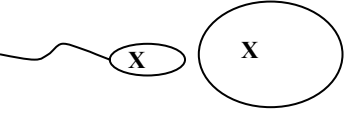
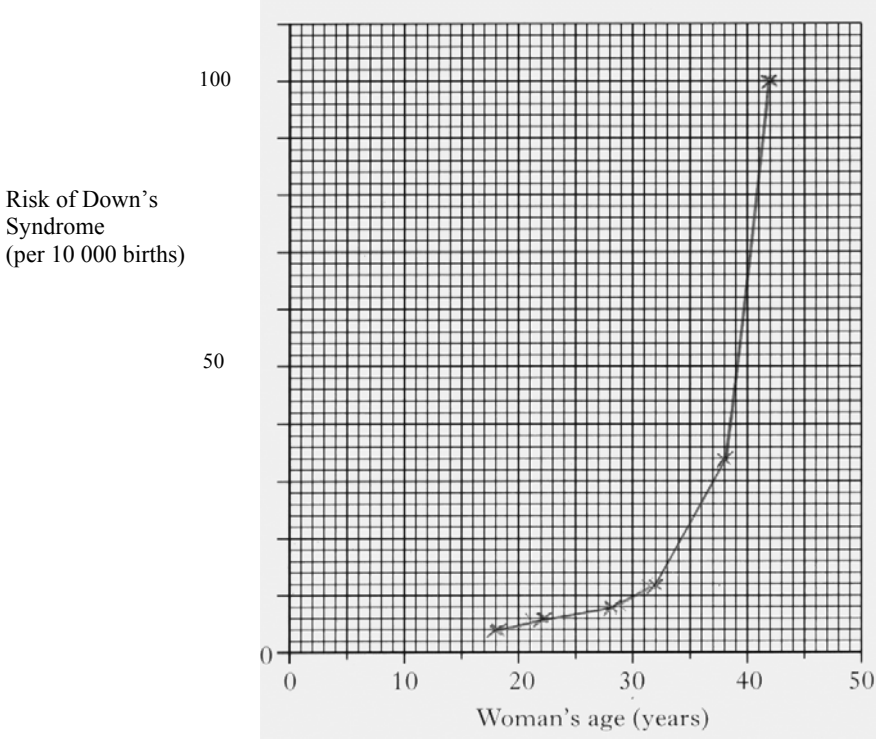
Qu	Acceptable answer	Mark	Unacceptable answer												
9(a)	To pull food from stomach	1	stop food moving out of stomach												
(b)	To provide optimum temperature for digestion / So the digestive juices could work properly / To keep the experiment conditions similar to the body/Enzymes work best at body temperature	1	reference to stomach acid instead of enzymes												
(c)	66	1													
(d)	<table border="1"> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>half gone / half digested /half original size</td> <td>half gone / half digested /half original size</td> <td>little change</td> </tr> <tr> <td>all gone / all digested / digestion complete / disappeared</td> <td>all gone / all digested / digestion complete / disappeared</td> <td>half gone / half digested /half original size</td> </tr> <tr> <td>all gone / all digested / digestion complete / disappeared</td> <td></td> <td></td> </tr> </table>				half gone / half digested /half original size	half gone / half digested /half original size	little change	all gone / all digested / digestion complete / disappeared	all gone / all digested / digestion complete / disappeared	half gone / half digested /half original size	all gone / all digested / digestion complete / disappeared			7 correct = 2 4/5/6 correct = 1	
half gone / half digested /half original size	half gone / half digested /half original size	little change													
all gone / all digested / digestion complete / disappeared	all gone / all digested / digestion complete / disappeared	half gone / half digested /half original size													
all gone / all digested / digestion complete / disappeared															
10(a)(i)	increases / rises	1	multiplies / doubles												
(ii)	nucleus	1													
(b)	S P R Q	All correct = 1													
(c)	64	1													
11(a)	195	1													
(b)	12	1													
(c)	10	1													



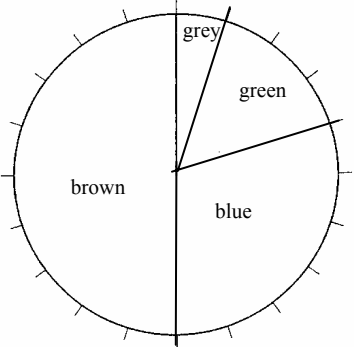
Qu	Acceptable answer	Mark	Unacceptable answer
12(a)	slow down / stop / rate decreases / takes longer	1	
(b)	(potato / starch) phosphorylase	1	
(c)(i)	temperature / mass or volume or amount of tissue / surface area of tissue / concentration or volume or amount of H <sub>2</sub> O <sub>2</sub> / diameter of tube / time in solution any one =	1	
(ii)	 <p style="text-align: center;">Type of Tissue</p> <p style="text-align: right;">correct y-axis scale (60 + minimum of one other) = 1 correct y-axis label = 1 correct plots (must show bar tops) = 1</p>	1	
(iii)	Animal or meat tissue contains more catalase than plant tissue / Animal catalase more active than plant catalase / tissues with more protein contain more catalase	1	
(iv)	decrease decrease both correct =	1	

Qu	Acceptable answer	Mark	Unacceptable answer																
13(a)	<table border="1"> <tr> <td>Skull / cranium</td> <td>brain</td> </tr> <tr> <td>ribs / rib cage</td> <td>heart / lungs</td> </tr> <tr> <td>spine / backbone / vertebrae / spinal column</td> <td>spinal cord</td> </tr> </table>	Skull / cranium	brain	ribs / rib cage	heart / lungs	spine / backbone / vertebrae / spinal column	spinal cord	<p>6 correct = 2 3/4/5 correct = 1</p>											
Skull / cranium	brain																		
ribs / rib cage	heart / lungs																		
spine / backbone / vertebrae / spinal column	spinal cord																		
(b)	<table border="1"> <tr><td style="background-color: #cccccc;"></td><td>✓</td></tr> <tr><td>✓</td><td style="background-color: #cccccc;"></td></tr> <tr><td style="background-color: #cccccc;"></td><td>✓</td></tr> <tr><td>✓</td><td style="background-color: #cccccc;"></td></tr> <tr><td>✓</td><td style="background-color: #cccccc;"></td></tr> <tr><td style="background-color: #cccccc;"></td><td>✓</td></tr> <tr><td>✓</td><td>✓</td></tr> <tr><td>✓</td><td>✓</td></tr> </table>		✓	✓			✓	✓		✓			✓	✓	✓	✓	✓	<p>8 rows correct = 3 6/7 rows correct = 2 4/5 rows correct = 1</p>	
	✓																		
✓																			
	✓																		
✓																			
✓																			
	✓																		
✓	✓																		
✓	✓																		
(c)(i)	P	1																	
(ii)	tendons	1																	

Qu	Acceptable answer	Mark	Unacceptable answer
14(a)	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px 10px; margin-bottom: 5px;">D</div> <div style="border: 1px solid black; padding: 2px 10px; margin-bottom: 5px;">C</div> <div style="border: 1px solid black; padding: 2px 10px;">A</div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 2px 10px; margin-bottom: 5px;">E</div> <div style="border: 1px solid black; padding: 2px 10px;">B</div> </div> <div style="text-align: right;"> <p>5 correct = 2</p> <p>3/4 correct = 1</p> </div> </div>		
(b)(i)	<p>3 2 6</p> <p>3 correct = 2 1/2 correct = 1</p> <p>(ii) better or easier with both eyes rather than one / not as good with one eye as with two better or easier with right eye than left / not as good with left eye as with right people differ in ability</p> <p style="text-align: right;">any 2, one mark each = 2</p> <p>(iii) the nervous system</p>		<p>statements referring to general eyesight rather than judgement of distance</p>

Qu	Acceptable answer	Mark	Unacceptable answer
<b>15</b>  <b>(a)(i)</b>  <b>(ii)</b>	  male / man                      female / woman	all correct = <b>1</b>  both correct = <b>1</b>	
<b>(b)</b>	species  genes	<b>1</b> <b>1</b>	
<b>(c)(i)</b>	mutation / mutating	<b>1</b>	
<b>(ii)</b>	amniocentesis	<b>1</b>	
<b>(d)(i)</b>  <b>(ii)</b>	25   Risk of Down's Syndrome (per 10 000 births)	<b>1</b>  correct y-axis scale (minimum of 100 or 110 + one other and covering at least ½ axis) = <b>1</b> correct y-axis label = <b>1</b> correct plots + line = <b>1</b>	

Qu	Acceptable answer	Mark	Unacceptable answer
<b>16(a)(i)</b>  <b>(ii)</b>  <b>(iii)</b>  <b>(iv)</b>	milk was pasteurised / heated to over 75 <sup>0</sup> C  35  enzymes were denatured / bacteria were killed  fermentation / anaerobic respiration	<b>1</b>  <b>1</b>  <b>1</b>  <b>1</b>	heating the milk / boiling the milk    temperature was too high / enzymes were killed or destroyed
<b>(b) (i)</b>  <b>(ii)</b>	1. A 2. B  3·0 - 4·5	both correct = <b>1</b>  <b>1</b>	
<b>17(a)(i)</b>  <b>(ii)</b>  <b>(iii)</b>	75 + / over 74 / 75 and over  1. 1·6 2. 3·2  25 - 34	<b>1</b>  both correct = <b>1</b>  <b>1</b>	758
<b>(b)(i)</b>  <b>(ii)</b>  <b>(iii)</b>	insulin  enzymes / digestive enzymes / biological catalysts  chromosomal material / genes	<b>1</b>  <b>1</b>  <b>1</b>	  named enzymes  chromosomes / plasmids

Qu	Acceptable answer	Mark	Unacceptable answer
18(a)		<p>correct divisions (any sequence) = <b>1</b>  correct labelling of divisions = <b>1</b></p>	
(b)	discontinuous	<b>1</b>	
(c)	15	<b>1</b>	

[END OF MARKING INSTRUCTIONS]