



2008 Biology

Standard Grade – Credit

Finalised Marking Instructions

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Standard Grade Biology 2008 – 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 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 – 2008 CREDIT LEVEL MARKING INSTRUCTIONS

Qu	Acceptable answer	Mark	Unacceptable answer	
1 (a)	(i) size or area of sheet / force or duration of shaking / number of times shaken / height of branches shaken / size or age of tree / position or aspect of tree / time of year	1	species of tree	
	(ii) some fly away or walk away or escape / some are not dislodged or cling too tightly / some live on other parts of tree / upper branches not sampled	1		
	(iii) <i>Technique</i> measuring light intensity / using light meter <i>Source of error</i> casting shadow / pointing meter away from light source <i>Minimising</i> avoid standing over meter	<i>Technique</i> measuring soil pH / using pH meter <i>Source of error</i> probe damp / dirty <i>Minimising</i> wipe probe		
	<i>Technique</i> measuring temperature using thermometer <i>Source of error</i> handling thermometer bulb / not allowing reading to settle <i>Minimising</i> don't handle bulb / allow to settle	<i>Technique</i> measuring soil moisture / using moisture meter <i>Source of error</i> probe damp / dirty <i>Minimising</i> wipe probe		
	any other suitable example following the same format	all parts needed = 1		

Qu	Acceptable answer	Mark	Unacceptable answer
(b) (i)	<p>1 2000</p> <p>2 65</p>	<p>1</p> <p>1</p>	
(ii)	<p>as the light intensity increases, the ground cover increases / as the light intensity decreases, the ground cover decreases</p>	1	<p>As the percentage ground cover increases, the light intensity increases As one increases the other increases</p>
(iii)	<p>the more light, the more plant growth / photosynthesis</p> <p>(answers must refer to plant growth or photosynthesis + a comparative of light levels)</p>	1	<p>answers referring to ground cover</p>

Qu	Acceptable answer	Mark	Unacceptable answer
2 (a) (i)	<p>1 increase less competition for food / more fruits and seeds or food to eat</p> <p>/ decrease more dormice would be eaten by owls</p> <p>/ stay the same both the above explanations given together with an indication that they would cancel each other</p> <p>2 decrease fewer sources of food</p> <p>/ stay the same eat more dormice or voles or weasels</p> <p>(ii) tree (bark) -> woodlouse -> weasel -> fox</p> <p>/ tree (bark) -> woodlouse -> weasel -> owl</p> <p>/ fruits and seeds -> vole -> weasel -> fox</p> <p>/ fruits and seeds -> vole -> weasel -> owl</p> <p style="text-align: right;">any one =</p>	<p>1</p> <p>1</p> <p>1</p>	<p>less food to eat</p>
(b)	blue whale	1	
3 (a) (i)	C	1	
(ii)	F and G (either order)	1	
(iii)	D	1	
(b)	villi	1	
(c)	amino acids / protein	1	

Qu	Acceptable answer	Mark	Unacceptable answer																				
4(a)	keep trachea or windpipe or bronchi or air passages open / prevent collapse or crushing of trachea etc / supports trachea etc	1	protect trachea etc																				
(b)	(i) mucus	1																					
	(ii) by the beating / sweeping / movement of cilia (answers must name cilia and indicate that they move to cause the removal)	1																					
(c)	(i) provides a large surface area / have thin walls / surface have moist surfaces	1	RBC combines with oxygen																				
	(ii) red blood cells	1																					
	(iii) forms oxyhaemoglobin	1																					
5 (a)	(i) sieve plate companion cell	1 1	sieve																				
	(ii) transport of sugars or glucose or food or products of photosynthesis	1																					
(b)	(i) epidermis	1																					
	(ii) guard cells	1																					
(c)	<table border="1"> <tbody> <tr> <td>1</td> <td></td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>✓</td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> <td></td> <td>✓</td> </tr> <tr> <td>4</td> <td></td> <td></td> <td>✓</td> <td></td> </tr> </tbody> </table>	1		✓			2			✓		3				✓	4			✓		<p>four correct = 2 two/three correct = 1</p>	
1		✓																					
2			✓																				
3				✓																			
4			✓																				

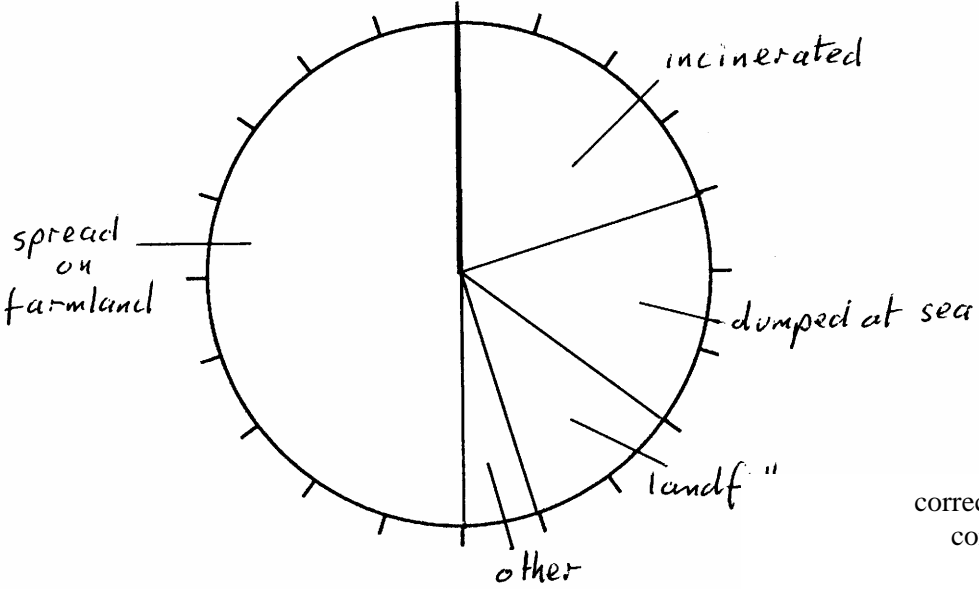
Qu	Acceptable answer	Mark	Unacceptable answer
6 (a) (i) (ii) (iii)	160 1996 5 : 2 2005 5 : 1 The number of patients waiting for a transplant increased every year <input checked="" type="checkbox"/> The number of transplants carried out decreased every year <input type="checkbox"/> The difference between the number of patients waiting for a transplant and the number of transplants carried out increased every year <input type="checkbox"/>	1 both correct = 1 1	
(b)	<i>Advantage</i> no dialysis / doesn't need use of a machine / no frequent or long hospital sessions / can lead reasonably normal life <i>Disadvantage</i> risk of rejection / need for medication / risks involved with operation	1 1	risk of kidney failure / too few donors

Qu	Acceptable answer	Mark	Unacceptable answer
7 (a)	as the boron concentration increases the greater the growth or length / as the boron concentration decreases the less the growth or length	1	as the length increases the greater the boron concentration
(b)	8	1	
(c)	to prevent any other source of boron affecting the results / other water may contain some boron / so the exact boron concentration was known / so no other minerals were present	1	other substances may be present
(d)	their food may contain boron / affect growth	1	they are eating other foods
8 (a)	size or volume of beaker / volume or amount of water / depth of funnel in water / diameter of glass tube / diameter or width of funnel or area of membrane / temperature / membrane material (thickness / type etc)	any two, one mark each = 2	volume of sugar solution length of glass tube size of funnel
(b)	water entered the tube or funnel + from a higher water concentration / from a high to a low water concentration / down a concentration gradient / because the water concentration was higher outside the funnel than in / because the water concentration was higher in the water than in the solution (answer must include both parts, ie direction of water movement + reason)	1	
(c)	31.5 moves 4.5 mm for each 0.5% increase in concentration / moves 9 mm for every 1% increase in concentration / always 9 times the concentration	1 1	

Qu	Acceptable answer	Mark	Unacceptable answer
9 (a)	Stage 2 chromosomes or chromatid pairs become attached to the spindle fibres / chromosomes or chromatid pairs line up at the cell equator or middle of cell	1	chromosomes line up in pairs or facing each other
	Stage 5 cell divided into two daughter cells / cytoplasm divides / new cell wall divides the cell	1	
(b)	so there is no loss of information / so cells have all necessary information / so cells have full set of chromosomes	1	
10 (a)	Proctor barley has bent stem, Rika barley has straight stem / Proctor barley has awns which spread out from grains or Rika barley has awns close to grains / Proctor barley is a lighter colour	1	different stem shapes / One has a straight stem and one has a bent stem different colour
(b) (i)	to convert starch into sugars or maltose for the yeast / yeast cannot use starch / to extract sugar	1	to convert starch into glucose
		(ii)	
11 (a)	(i) alleles	1	
	(ii) <u>different</u>	both correct = 1	
	(iii) <u>different</u>	1	
(b)	(i) 3 : 1	1	
	(ii) random effects of fertilisation / fertilisation involves chance / sample size is too small	1	
	(iii) Tall P <input checked="" type="checkbox"/> Dwarf P <input checked="" type="checkbox"/> Tall F ₁ <input type="checkbox"/>	both correct = 1	

Qu	Acceptable answer	Mark	Unacceptable answer
12 (a)	fermentation / anaerobic respiration	1	
(b)	<p>As the temperature increased up to 40°C the volume increased / As the temperature increased further, the volume decreased</p> <p style="text-align: center;">As the temperature increases, the volume increases then decreases =</p> <p style="text-align: center;">1</p> <p style="text-align: center;">(need to identify 40°C as the 'turning point' to get 2 marks)</p>	1 1	
(c)	<p><i>Prediction</i> any value below 5</p> <p><i>Explanation</i> yeast cells killed / yeast enzymes denatured</p>	1 1	
(d)	<p>flasks with 100 cm³ of glucose solution + 50 cm³ boiled and cooled or dead yeast suspension / same apparatus and contents except yeast is boiled and cooled or dead</p> <p>kept at same range of temperatures</p>	1 1	
(e)	<p style="text-align: center;">y axis scale of 0, 50 + one other value and at least ½ of grid + label =</p> <p style="text-align: center;">plotting and joining of points =</p>	1 1	

Qu	Acceptable answer	Mark	Unacceptable answer
13 (a)	transfer of useful genes from unrelated species	1	
(b)	enhanced protein content / protein is enhanced / contain more protein	1	improved nutrition
(c) (i)	allows use of weedkillers to remove weeds without harming crop	1	
(ii)	the modified plant becomes a pest which is difficult to control	1	
(d)	modified crops may produce toxins / antibiotic resistance genes may transfer to gut bacteria / gut bacteria may become antibiotic resistant / medicine production genes may transfer to food crops / food crops may produce medicines any one =	1	
14 (a) (i)	45	1	
(ii)	<input checked="" type="checkbox"/> 20 – 30 hours <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1	
(iii)	17.5	1	
(iv)	5hr	1	
(v)	1 glucose is being used 2 no hormone is produced	both correct = 1	
(b)	fat / oil	1	

Qu	Acceptable answer	Mark	Unacceptable answer
15 (a)	(source of) food / energy	1	
(b)	aerobic	1	
(c)	a large variety of micro-organisms	1	
(d)	 <p data-bbox="1272 895 1563 959">correct divisions = 1 correct labels = 1</p> <p data-bbox="1122 997 1509 1093">(segments can be in any order but must have appropriate labels for two marks)</p>		

[END OF MARKING INSTRUCTIONS]