



**2007 Biology**

**Standard Grade – Credit**

**Finalised Marking Instructions**

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## Standard Grade Credit 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 CREDIT LEVEL MARKING INSTRUCTIONS VERSION 2

Qu	Acceptable answer	Mark	Unacceptable answer
1(a)(i)	increases then: levels out / remains steady / reaches a maximum / reaches its optimum	both parts needed = <b>1</b>	lack of space / increase in temperature
(ii)	decrease in food / decrease in oxygen / build up of waste / build up of CO <sub>2</sub> / build up of lactic acid / decrease in pH	<b>1</b>	
(iii)	any line showing continuous decrease in number of cells (line must reach the end of stage D or reach the X-axis)	<b>1</b>	
(b)	energy value / protein content	<b>1</b>	
2(a)	5 1 3 <b>or</b> 4 2	4 correct = <b>2</b> 2/3 correct = <b>1</b>	
(b)	nitrate	<b>1</b>	
(c)	nitrifying bacteria / Nitrosomonas	<b>1</b>	nitrogen fixing bacteria

Qu	Acceptable answer	Mark	Unacceptable answer
3(a)(i)	used in respiration / for energy used to make cellulose / other organic compounds (accept other named organic compounds)	1 1	
(ii)	less light reaches leaves / some light is absorbed by the soot / pores / stomata are blocked and CO <sub>2</sub> uptake is reduced	1	light is needed for photosynthesis
(b)(i)	X in ovule or on wall of ovule	1	
(ii)	allow male nucleus / male gamete / pollen nucleus to reach or fertilise ovule / female nucleus / female gamete	1	reference to pollen grain moving through tube
(c)	animals depend on plants for food / loss of food sources for animals animals depend on plants for shelter / loss of shelter for some animals	1	
(d)	bright petals / scented flowers – dyes / scents / decorative use / attracts insects  tough stem fibres – textiles / materials eg rope / high fibre diet / support for plant  bitter seeds – food / medicine / stops seeds being eaten  starchy root – food / food storage	any feature + appropriate use = 1	

Qu	Acceptable answer	Mark	Unacceptable answer
4(a)	<p>mass of protein (g)</p> <p>Time (hours)</p> <p>not stirred</p> <p>stirred</p> <p>correct y-axis scale (0, 5 plus minimum of one other) <b>plus</b> both labels = <b>1</b></p> <p>correct plot for stirred results = <b>1</b></p>	<p><b>1</b></p> <p><b>1</b></p>	<p>G as unit abbreviation</p>
(b)	<p>protease / pepsin / trypsin</p>	<p><b>1</b></p>	<p>protein has dissolved</p>
(c)	<p>products are soluble / have dissolved</p> <p>(answer must refer to a change to the protein + the dissolving)</p>	<p><b>1</b></p>	

Qu	Acceptable answer	Mark	Unacceptable answer
(d)	pH / enzyme concentration / type of protein / type of enzyme	1	shape / size / length of protein
(e)	repeat investigation	1	
(f)	mixed enzyme and protein / increases contact between enzyme and protein	1	breaks down protein / increases surface area of protein
(g)	contraction of muscles / contraction of the stomach wall / churning the food / peristalsis	1	

Qu	Acceptable answer	Mark	Unacceptable answer								
5(a)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td>filters blood / allows small particles through from the blood</td> </tr> <tr> <td>Bowmans capsule</td> <td></td> </tr> <tr> <td>blood capillary</td> <td></td> </tr> <tr> <td></td> <td>passes urine to middle of kidney / ureter</td> </tr> </table>		filters blood / allows small particles through from the blood	Bowmans capsule		blood capillary			passes urine to middle of kidney / ureter	<p style="text-align: center;">4 correct = <b>2</b> 2/3 correct = <b>1</b></p>	<p>filtration</p> <p>capillary</p> <p>collects urea / waste</p>
	filters blood / allows small particles through from the blood										
Bowmans capsule											
blood capillary											
	passes urine to middle of kidney / ureter										
(b)(i)	liver blood / circulatory system / blood plasma	both correct = <b>1</b>	renal artery								
(ii)	urea / glucose / amino acids / salts protein	both correct = <b>1</b>									
(c)(i)	1045 : 95 : 1	<b>1</b>									
(ii)	30.24	<b>1</b>									

Qu	Acceptable answer	Mark	Unacceptable answer
6(a)	4	1	
(b)	dark high tide	1 1	
(c)	able to swim to find food at high tide / food present at high tide not seen by predators in darkness / food present when dark / avoids competition with animals which feed during the day  both points needed =	1	
7(a)(i)	osmosis	1	
(ii)	water moved out of cell from a high to low water concentration / water moved to a lower water concentration outside the cell / water moved from a higher water concentration inside the cell (accept reference to petal instead of cell)	1	definition of osmosis
(b)	oxygen / glucose / amino acid	any one = 1	
(c)	0.4 0.2	both values correct, either order = 1	



Qu	Acceptable answer	Mark	Unacceptable answer
8(a)(i)	volume or amount of water / distance between burning food and test tube / size or type of test tube / starting temperature of water / complete burning of food any two =	2	length of time food is burned / water level / position of thermometer / room temperature
(ii)	heat energy escaping / energy lost as light / incomplete combustion / residual heat in tube or food or needle any one =	1	energy lost
(iii)	6.3	1	
(b)	growth / cell division / chemical reactions / movement / absorbing materials any one =	1	repair / respiration / reproduction
(c)	fat / oil	1	

Qu	Acceptable answer	Mark	Unacceptable answer
<b>9(a)</b>	ligament holds bones together / holds joint together / attaches bone to bone	both correct = <b>1</b>	stops friction
	cartilage protects bones / cushions joint / cushions bone / shock absorber / reduces friction	both correct = <b>1</b>	
<b>(b)(i)</b>	synovial membrane lubricates joint / reduces friction / nourishes cartilage	both correct = <b>1</b>	synovial capsule stops friction / shock absorber
<b>(ii)</b>	<div style="display: flex; flex-direction: column; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">high cloudiness</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">slight cloudiness</div> </div> <div style="display: flex; flex-direction: column; align-items: center; justify-content: center; margin: 10px 0;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">go to 3</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">normal</div> </div> <div style="display: flex; flex-direction: column; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">inflammation</div> </div>	5 correct = <b>2</b> 3/4 correct = <b>1</b>	

Qu	Acceptable answer	Mark	Unacceptable answer
10(a)	claws covered in fine hairs	1	covered in hair
(b)(i)	Sea / sea and estuaries	all correct = 1	
(ii)	estuaries		
(iii)	freshwater		
(c)	ships' ballast water	1	in ships and dumped / in ships' water
(d)	collapse of banks / silting of rivers / destroying river banks  eating native species / competing with native species / competing with other species / competing with crayfish	1  1	eating crayfish / competition
(e)	herbivorous when young, becoming omnivorous / eats plants when young, eats plants and animals when older	1	becomes omnivorous
(f)	2 ½ / 2.5	1	

Qu	Acceptable answer	Mark	Unacceptable answer
11(a)	anaerobic	1	
(b)(i)	1.8	1	
(ii)	30.5	1	
(iii)	1. muscle fatigue 2. 25	1 1	fatigue / cramp
(iv)	heart lungs  both correct, either order =	1	

Qu	Acceptable answer	Mark	Unacceptable answer
12(a)(i)	rr Rr Rr  (ii) 1 in 2 / 1:1 / equal / even / 50% / 50-50 / ½  (iii) Fred  (iv) Jim / Margaret	3 correct = 2 1/2 correct = 1  1  1  1	
(b)	fertilisation is random / fertilisation involves chance / numbers are too small	1	it is random / mutations
(c)	allele / alleles	1	

Qu	Acceptable answer	Mark	Unacceptable answer
13(a)(i)	B		
(ii)	C		
(iii)	E	3 correct = 2 1/2 correct = 1	
(b)	because heat is produced (during fermentation)	1	to stop it getting too hot / to keep the temperature constant / because of heat from the motor
(c)(i)	batch (process) / batch processing	1	
(ii)	heat to 120°C / clean with disinfectant / clean with bleach / disinfect	1	heat to high temperature / sterilise / use autoclave / clean with steam / use antibacterial cleaner
(d)(i)	increases to maximum at 3 days / increases for three days / increases to optimum at 3 days then decreases (increases then decreases =1)	1 1	increases to point A
(ii)	lack of nutrients / yeast has used all the maltose / accumulation of waste / accumulation of alcohol / CO <sub>2</sub>	1	ingredients have run out / changes in pH / changes in temperature
(iii)	to convert starch to sugars or maltose / because yeast can't use starch	1	to convert starch to glucose

Qu	Acceptable answer	Mark	Unacceptable answer
14(a)	E	1	
(b)	B + D both correct, either order =	1	
(c)	no one antibiotic is effective against all bacteria / bacteria may be resistant to some antibiotics / new bacterial strains appear / people can be allergic to some antibiotics / different antibiotics kill different bacteria any one =	1	people are resistant to some antibiotics / reference to disease instead of bacteria / each antibiotic is specific to one bacteria

[END OF MARKING INSTRUCTIONS]