2013 Biology

Standard Grade Credit

Finalised Marking Instructions

Standard Grade Biology 2013 – Additional marking notes

Please use these notes alongside the finalised **'VERSION 1 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.

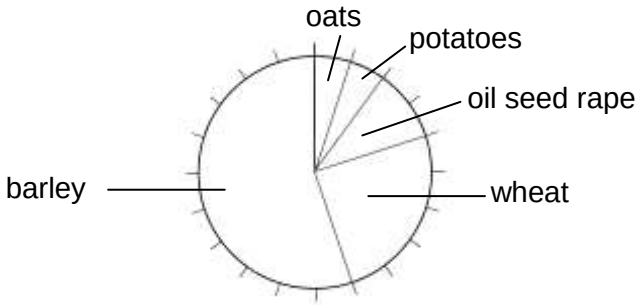
Do not make any written comments on the scripts. Use ticks, crosses, underlining, etc to indicate marking decisions.

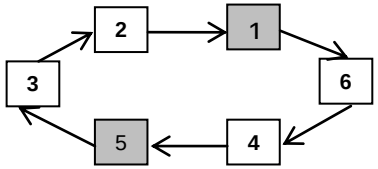
Referring scripts

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 S*pecial 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 – 2013 CREDIT LEVEL MARKING INSTRUCTIONS VERSION 2			
Qu	**Acceptable answer**	**Mark**	**Unacceptable answer**
1 (a) (i)	Decrease More ladybirds left to eat greenfly / them (needs reference to food / eating)	1	More ladybirds left to kill greenfly
(ii)	*Effect* — *Reason* Decrease — Less food / mice for stoats / them **/** no food / mice for stoats / them **/** stoats would starve Increase — Less food for weasels so they decrease. Less food for foxes so they decrease. Fewer stoats eaten Stay the same — Combination of both reasons (both must be given)	1	
(b)	☐ ☑ oak tree greenfly ladybird blackbird ☐ ☐	1	

Qu	Acceptable answer	Mark	Unacceptable answer
2 (a) (i)	 Correct divisions (any order) = Correct labels = (Allow label mark if segments are wrong but labelled in correct order of sizes)	1 1	
(ii)	12 500	1	
(b)	Named crop — Eg: Barley; Oil seed rape; Raspberries; Timber Associated production process: Malting; Extracting oil; Making Jam; Felling	1	

Qu	Acceptable answer	Mark	Unacceptable answer
3 (a) (i)	The further down the slope the lower the abundance of heather / The further up the slope the greater the abundance of heather / The abundance of heather decreases as you go down the slope / The abundance of heather increases as you go up the slope (needs continuum) (accept 'more heather' and 'less heather' as equivalent to 'higher abundance' and 'lower abundance')	1	Abundance is highest at the top and lowest at the bottom of slope. …. amount ….
(ii)	Soil moisture	1	Moisture
(iii)	6	1	
(b) (i)	 All correct = 1	1	
(ii)	3 4 5 Any two	1	
(c)	carbon / phosphorus / potassium / calcium / magnesium	1	oxygen

Qu	Acceptable answer	Mark	Unacceptable answer
4 (a)	☐ ☐ ☑ Most flour beetles turn to dry areas ☐	1	
(b)	Shows that humidity is the factor involved / (accept 'moisture' or 'dryness') Shows that other factors are not involved / Shows that direction is not the factor involved / Shows that they do not turn randomly	1	Answers referring to other specific factors To show they are responding to the conditions
(c)	To allow differences in humidity to be established / So air becomes humid at one end / So there is a moist end and a dry end	1	Allows air to settle Allows conditions to settle
(d)	So that beetles do not leave a scent which could guide other beetles / So that beetles are not affected by previous /other beetles	1	
(e)	18	1	

Qu	Acceptable answer	Mark	Unacceptable answer
5 (a)(i)	50	1	
(ii)	Increased carbon dioxide / temperature / water / moisture / humidity / light / fertiliser Any two (must include increase, or equivalent)	1	
(b)(i)	glucose / sugar starch cellulose 3 correct = 2 1 / 2 correct = 1	2	
(ii)	Mesophyll / spongy mesophyll / palisade mesophyll / palisade / lower epidermis	1	Guard cells / upper epidermis / spongy layer
6	P Staphylococcus Q Clostridium R Escherichia S Micrococcus 4 correct = 2 2 / 3 correct = 1	2	

Qu	Acceptable answer	Mark	Unacceptable answer
7 (a) (i)	10	1	
(ii)	To allow the solutions to reach the correct temperature / 30 ^{o}C / So enzyme did not start working before it reached the correct temperature / 30 ^{o}C / So the reaction did not begin before the correct temperature / 30^{o}C was reached (Must include reference to correct temperature / 30 ^{o}C))	1	To allow solutions to warm up
(iii)	21	1	
(iv)	As the starch (concentration) decreases the maltose (concentration) increases / As starch was digested maltose increases / The amount of maltose at the end was the same as the amount of starch at the start	1	There was no maltose until the enzyme and starch were mixed
(v)	amylase	1	

<table>
<tr><th>Qu</th><th>Acceptable answer</th><th>Mark</th><th>Unacceptable answer</th></tr>
<tr><td>7 (b)(i)

(ii)</td><td>mouth / salivary gland / pancreas

Small
Soluble } both correct either order =
(accept both answers on one line as long as not negated by additional incorrect information)</td><td>1

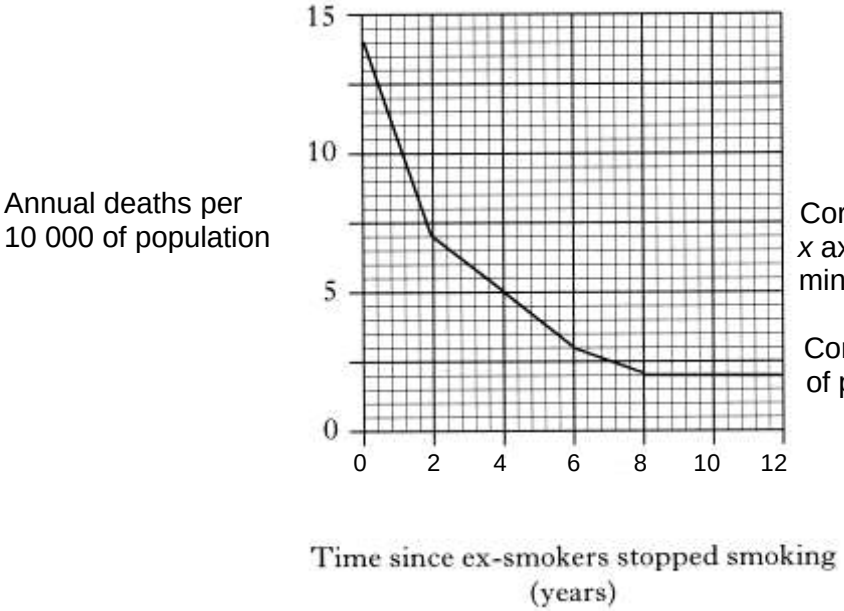
1</td><td></td></tr>
<tr><td>(c)</td><td>
<table>
<tr><td></td><td></td><td></td><td>carbon
hydrogen
oxygen</td></tr>
<tr><td>fat / lipid</td><td></td><td>fatty acids

glycerol</td><td></td></tr>
<tr><td></td><td></td><td>amino
acids</td><td>carbon
hydrogen
oxygen
nitrogen</td></tr>
</table>
5 boxes correct = 3
3 / 4 boxes correct = 2
1 / 2 boxes correct = 1
(Accept use of element symbols instead od names)</td><td>3</td><td></td></tr>
</table>

Qu	Acceptable answer	Mark	Unacceptable answer
8 (a) (i)	Immobilisation	1	
(ii)	Enzymes can be reused / Easier to separate product / No need to separate product / Allows continuous production	1	Faster / cheaper
(iii)	Identical except no enzyme in jelly beads / Identical except a different enzyme in the jelly beads (Accept repeat but with no enzyme)	1	No enzyme / protease
(iv)	Lipase digests fats / lipase does not digest protein Only protease enzymes digest protein / Enzymes are specific	1	
(v)	Prediction: Contents of beaker would stay cloudy / not become clear / take longer to clear/ Protein not digested / less protein digested (Needs to refer to this experiment)	1	Nothing would happen
	Reason: Enzyme was denatured / damaged / unable to work	1	Hot water has affected the enzyme
(b) (i)	Optimum	1	
(ii)	pH / concentration of enzyme / concentration of substrate	1	

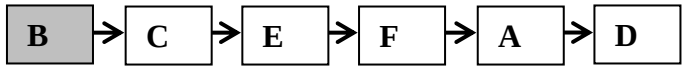
Qu	Acceptable answer	Mark	Unacceptable answer
9 (a)	Name: Cilia Function: To sweep / move mucus / trapped material away from lungs / upwards	1 1	
(b) (i)	1 Oxygen needs to be in solution / Allows oxygen to dissolve 2 Quicker / Easier / Short distance	1 1	
(ii)	Combines with haemoglobin to form oxyhaemoglobin	1 1	
(c)	☐ ☑ Intercostal muscles contract ☐ ☑ Diaphragm contracts ☑ Rib cage moves upwards and outwards ☐ All correct = 1 (Additional ticks negate)	1	
(d) (i)	1	1	
(ii)	30	1	

Qu	Acceptable answer	Mark	Unacceptable answer
10 (a)	29 / 30	1	
(b)	It contained more than one lens / Hooke's was many-lensed / van Leeuwenhoek's was single-lensed	1	
(c)	Similarity: perforated / porous Difference: (pores were) not regular	1 1	
(d)	Cell wall	1	
(e)	100 x 0·008 = 0·8 mm / less than 1 mm / 125 of 0.8 mm organisms needed to make 1 mm	1	

Qu	Acceptable answer	Mark	Unacceptable answer
11 (a)	 Correct *y* axis label + correct *x* axis scale (0, 12 plus minimum of one other value) = 1 Correct plotting and joining of points = 1 **(Note alternative scale of** 0 5 10 15 is possible with alternative plot.)		
(b)	falls 0 – 2 7	3 correct = 2 1 / 2 correct = 1 2	
(c)	The death rate never falls to that of non-smokers / to 1 per 10 000 (Needs to compare with non-smokers or non-smokers death rate)	1	

Qu	Acceptable answer	Mark	Unacceptable answer
12 (a) (i)	1 NN 2 Nn 3 nn (Use of other letters – lose 1 mark) 3 correct = 2 1 / 2 correct = 1	2	
(ii)	☑ Parent with normal wings ☑ Parent with vestigial wings ☐ ☐ Both correct = 1	1	
(b)	allele	1	
(c) (i)	A change to the number / structure of chromosomes / A change to the DNA / genes / genetic information / genetic code	1	
(ii)	radiation / X rays / UV light / high temperature / thermal shock / chemicals / mustard gas / colchicine	1	Age

Qu	Acceptable answer	Mark	Unacceptable answer
13 (a)	☐ ☐ ✓ He used a biological detergent only. ☐ ✓ He used a range of soaking times. ☐ ☐ Lose 1 mark for each additional answer	1 1	
(b) (i)	As the temperature increases stain removal increases up to a temperature of 36 ^{o}C. As the temperature increases further stain removal decreases (Increases then decreases = 1)	1 1	
(ii)	40 ^{o}C	1	
(iii)	5	1	
(c)	☐ ✓ bacteria ✓ ☐	1 1	

Qu	Acceptable answer	Mark	Unacceptable answer
14 (a)		1	
(b) (i)	F	1	
(ii)	A E (either order) Both correct = 1	1	

[END OF MARKING INSTRUCTIONS]