



2010 Biology

Standard Grade – General

Finalised Marking Instructions

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Standard Grade Biology 2010 – Additional marking notes

Markers Meeting

Do take clear notes of all decisions made 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 – 2010 GENERAL LEVEL MARKING INSTRUCTIONS

Qu	Acceptable answer	Mark	Unacceptable answer
1 (a) (i)	plant plankton	1	
(ii)	plant plankton → shrimp → herring / plant plankton → animal plankton → herring	1	
(iii)	shrimp and animal plankton / herring and mackerel / mackerel and sand eel / herring and sand eel	any pair = 1	
(b)	Consumers / heterotrophs	1	
(c) (i)	Organisms of the same species in the same area / habitat / ecosystem / community	1	Use of type / breed instead of species
(ii)	Food / oxygen / water / disease / space / predation (fishing / hunting) / temperature / pH / light / migration / birth rate / death rate / competition / habitat loss / pollution	1	Weather / heat / cold

Qu	Acceptable answer		Mark	Unacceptable answer
2 (a) (i)	Daisy	10	1	
	Dandelion	12		
Plantain	8			
Buttercup	11			
(ii)	Named sampling technique Eg Pitfall trap =1 Appropriate organism Eg Woodlouse =1 (Technique + inappropriate organism =1 No technique + organism =0)		2	Group names that are too general eg insects / invertebrates
(b)	Named abiotic factor Eg Light Appropriate description Light meter – avoiding your shadow (Description must be more than the name of the instrument used – it must include at least one relevant point for carrying out the measurement)		1	

Qu	Acceptable answer						Mark	Unacceptable answer
3 (a) (i)	Oatmeal	10	60	5	15	10	5 correct = 2 3 / 4 correct = 1	
	Wheatmeal	15	60	5	10	10		
(ii)	12						1	
(b)	Energy or movement or heat (maintain body temperature) or energy for (appropriate process eg reproduction) prevent disease or maintain health						1	Chemical reactions / reproduction
(c) (i)	digestion						1	
(ii)	enzymes						1	
(iii)	small intestine						1	

Qu	Acceptable answer			Mark	Unacceptable answer
4 (a)	A	food store / cotyledon / seed leaf	provides energy for growth	4 correct = 2 2 / 3 correct = 1	Food source Embryo root / embryo shoot
	B	seed coat	protects seed / embryo / food store		
	C	embryo	develops or grows into new plant		
(b)	seeds ovary	ovules	3 correct = 2 1 / 2 correct = 1		
5 (a) (i)	3 : 2			1	
(ii)	90			1	
(b)	Cover food so it can't be seen / carry out the investigation in darkness (description must prevent the sight of the food but allow the smell)			1	

Qu	Acceptable answer	Mark	Unacceptable answer
6 (a)	A and C	1	
(b)	A	1	
7 (a) (i)	Decreases until 70 then remains steady (Must identify 70 as the change point to get both marks. Change point must be in terms of age not bone strength) (Decreases then remains steady = 1)	1 1	
(ii)	30	1	
(iii)	26	1	
(b)	1 (hard) minerals or calcium phosphate  2 (flexible) fibres	both correct = 1	Calcium / phosphate / phosphorus Organic matter

Qu	Acceptable answer			Mark	Unacceptable answer
9 (a)	A	oviduct / fallopian tube	site of fertilisation	6 correct = 3 4 / 5 correct = 2 2 / 3 correct = 1	Stores sperm Where fertilised egg develops / protects fetus
	F	penis	deposits sperm		
	B	ovary	produces or releases or stores eggs or female gametes or female sex cells		
	G	testis	produces or releases sperm or male gametes or male sex cells		
	C	uterus	where embryo implants / where embryo or fetus or baby develops		
(b)	nucleus nucleus water amniotic			4 correct = 2 2 / 3 correct = 1	

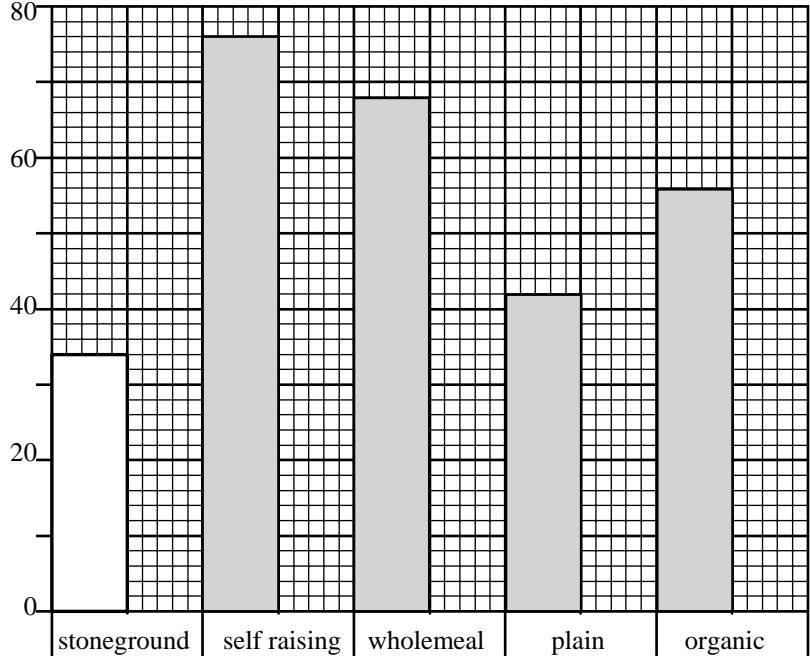
Qu	Acceptable answer	Mark	Unacceptable answer
10 (a)	decreases until August then it increases until December (Must identify August as the lowest and December as the highest to get both marks) (Decreases then increases = 1) (Change points must be in terms of months not sperm production)	1 1	
(b)	temperature / day length	1	
(c)	1500	1	
11 (a)	chewing/swallowing/talking/drinking/brushing teeth	any 3 correct = 2 any 2 correct = 1	
(b)	At the junction of teeth and gum / in the plaque	1	
(c)	Enzymes	1	
(d)	Cavities	1	

Qu	Acceptable answer	Mark	Unacceptable answer
12 (a) (i)	A ear bones / middle ear bones / hammer, anvil, stirrup/ear ossicles B ear drum C semi-circular canals D cochlea	4 correct = 2 2 / 3 correct = 1	
(ii)	1 B 2 D	both correct = 1	
(iii)	Carries signals / information / nerve impulses / electrical impulses / messages to the brain	1	Carries vibrations to the brain
(b)	To detect or tell the direction of sound / To tell where a sound is coming from	1	
13 (a) (i) the number of species per km ² increases / they increase	1	
(ii) the atmospheric SO ₂ concentration decreases / it decreases	1	
(iii) the rainwater pH decreases / it decreases	1	It becomes more acidic
(b)	SO ₂ concentration was too high / pH of rainwater was too low / Rainwater was too acidic	1	Conditions were too acidic
(c)	20	1	

Qu	Acceptable answer	Mark	Unacceptable answer
14 (a) (i)	A	1	
(ii)	D	1	
(iii)	E	1	
(b)	brown will unattached	3 correct = 2 2 correct = 1	
(c) (i)	Male	1	
(ii)	1 in 2 / equal / 1 to 1 / 50 – 50 / 50%/50:50 / 0.5	1	
(d) (i)	Tall All the F ₁ are tall / F ₁ is tall / All the offspring are tall / None of the F ₁ are dwarf / None of the offspring are dwarf	1	
(ii)	F ₂ / F2	1	
(iii)	4 : 1	1	
(e)	1	1	
(f)	yield / taste / disease resistance / colour / size/ flavour / resistance to infection etc	1	

Qu	Acceptable answer	Mark	Unacceptable answer
15 (a) (i)	oxygen / O ₂	1	
(ii)	respiration	1	
(iii)	To prevent loss of heat / To reduce loss of heat / To trap any heat produced	1	To keep flask warm
(b)	growth / repair / carry out reactions / movement / division / mitosis	1	Reproduction
(c)	<p data-bbox="331 879 479 975">Rise in temperature (°C)</p> <p data-bbox="786 1289 972 1326">Time (days)</p> <p data-bbox="232 794 264 820">(i)</p> <p data-bbox="232 979 264 1005">(ii)</p> <p data-bbox="232 1091 264 1117">(iii)</p>	<p data-bbox="1196 783 1525 874">y-axis scale with maximum of 6 / 7 + at least one other value.</p> <p data-bbox="1196 884 1525 943">Scale must occupy more than ½ the grid = 1</p> <p data-bbox="1196 986 1525 1011">y-axis label</p> <p data-bbox="1196 1021 1525 1046">Rise of temperature (°C) = 1</p> <p data-bbox="1196 1088 1525 1147">Correct plotting and joining of points = 1</p>	

Qu	Acceptable answer	Mark	Unacceptable answer
16 (a) (i) (ii) (iii)	40 8 : 1 0.25	1 1 1	
(b) (i) (ii) (iii)	More oxygen is needed by the muscles / To send more oxygen to the muscles / To allow more aerobic respiration to take place in the muscles / To remove CO ₂ from muscles faster fatigue Measure how long it takes for his breathing rate or pulse rate or lactic acid level to return to normal or resting rate	1 1 1	cramp
(c)	Less fit His pulse rate was higher / His lactic acid concentration was higher	1	

Qu	Acceptable answer	Mark	Unacceptable answer												
17 (a)	<p data-bbox="331 443 539 539">Average increase in height of dough (%)</p>  <table border="1" data-bbox="577 268 1384 927"> <caption>Data from Bar Chart</caption> <thead> <tr> <th>Type of flour</th> <th>Average increase in height of dough (%)</th> </tr> </thead> <tbody> <tr> <td>stoneground</td> <td>32</td> </tr> <tr> <td>self raising</td> <td>75</td> </tr> <tr> <td>wholemeal</td> <td>68</td> </tr> <tr> <td>plain</td> <td>42</td> </tr> <tr> <td>organic</td> <td>55</td> </tr> </tbody> </table> <p data-bbox="904 938 1066 970">Type of flour</p> <p data-bbox="226 1031 1021 1198"> (i) y-axis scale with maximum of 80 + at least one other value (ii) y-axis label Average increase in height of dough (iii) Correct drawing of bars (must show top of bars) </p>	Type of flour	Average increase in height of dough (%)	stoneground	32	self raising	75	wholemeal	68	plain	42	organic	55	<p data-bbox="1541 1031 1563 1198">1 1 1</p>	
Type of flour	Average increase in height of dough (%)														
stoneground	32														
self raising	75														
wholemeal	68														
plain	42														
organic	55														

Qu	Acceptable answer	Mark	Unacceptable answer
(b) (i)	Allows a comparison of the results / Because the doughs may have had different starting heights / volumes / amounts	1	
(ii)	40	1	
(c) (i)	amount or mass or volume of flour or sugar or water or yeast / type of sugar or yeast / degree of mixing	any 2 = 1	
(ii)	Sugar	1	
(iii)	carbon dioxide / CO ₂	1	
(d) (i)	Beer / lager / wine / whisky / other named spirits / alcohol / ethanol	1	
(ii)	cheese / yogurt	1	

END OF MARKING INSTRUCTIONS]