2013 Biology

Standard Grade General

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).

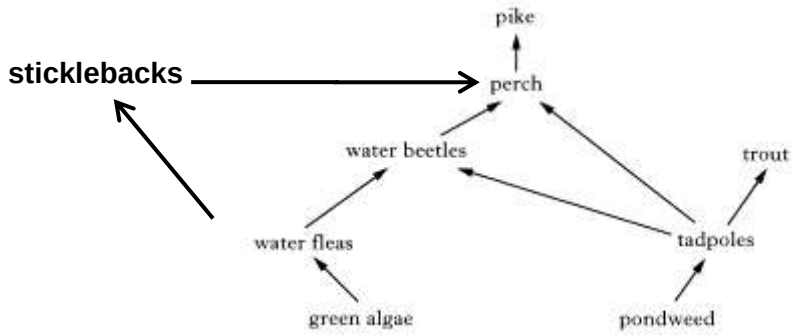
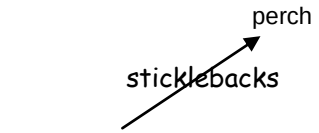
Do accept chemical formulae instead of chemical names.
Do accept subscript, superscript and normal script when used to identify generations in genetic crosses.
Do accept incorrect spelling if it looks or sounds reasonably correct – unless it could be confused with another biological term or is an amalgam 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 GENERAL LEVEL MARKING INSTRUCTIONS VERSION 2			
Qu	**Acceptable answer**	**Mark**	**Unacceptable answer**
1 (a) (i)	Green algae Pondweed (either order)	1	
(ii)	 (Accept '**sticklebacks**' positioned so that arrows cross other arrows so long as they make the correct connections)	1	 Extra 'perch'
(iii)	1. water beetles 2. perch **or** 1. perch 2. trout **or** 1. water beetles 2. trout **or** 1. water beetles 2. sticklebacks	1	
(iv)	Loss of one species / Decrease in numbers of one species	1	Extinction of one species One animal may die Reduced number of prey Less food
(v)	Factor: Name of appropriate abiotic factor (pH, temperature, light, etc.)	1	
	Method: Name of corresponding measuring instrument or method of use ('Method' mark cannot be given without the appropriate factor)	1	

Qu	Acceptable answer	Mark	Unacceptable answer
(b) (i)	9	1	
(ii)	90	1	
(c)	ecosystem population both needed	1	

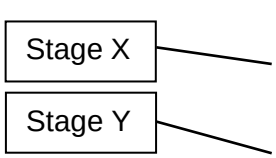
Qu	Acceptable answer	Mark	Unacceptable answer
2 (a) (i)	carbon dioxide / CO_2 water / H_2O either order, both needed =	1	
(ii)	Chlorophyll	1	
(iii)	light / sunlight	1	sun
(b) (i)	As the temperature increases, the concentration decreases / As the temperature decreases, the concentration increases	1	As the concentration decreases, the temperature increases. Use of abbreviations
(ii)	Any temperature in range 7 ^{o}C to 14 ^{o}C.	1	

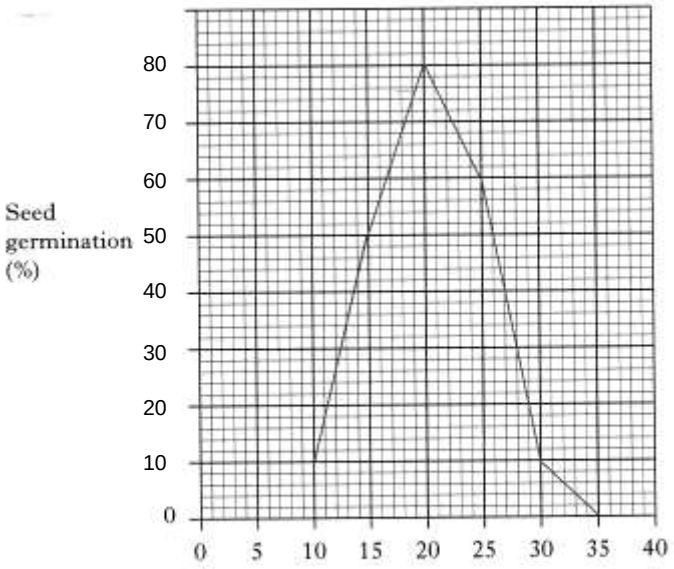
Qu	Acceptable answer				Mark	Unacceptable answer
3 (a)	**E**	anther	**produces / releases pollen / male sex cells**	6 correct = 3 4 / 5 correct = 2 2 / 3 correct = 1	3	Stores pollen Protects flower
	B	sepal	**protects flower bud / developing flower**			
	D	**Stigma**	collects pollen			
	G	**Ovule**	site of fertilisation			
(b)	Method: Insect Reason: Large petals / Nectary / Enclosed stamens / anthers / stigma / flower parts / Insect must pass anthers to reach nectary				1 1	 Brightly coloured / scented (negates)

Qu	Acceptable answer	Mark	Unacceptable answer
4 (a) (i)	C	1	
(ii)	G	1	
(iii)	B	1	
(b)	coronary artery	1	
(c) (i)	Engulf bacteria / Produce antibodies	1	
(ii)	protein	1	
(iii)	1 : **50** : **700**	1	

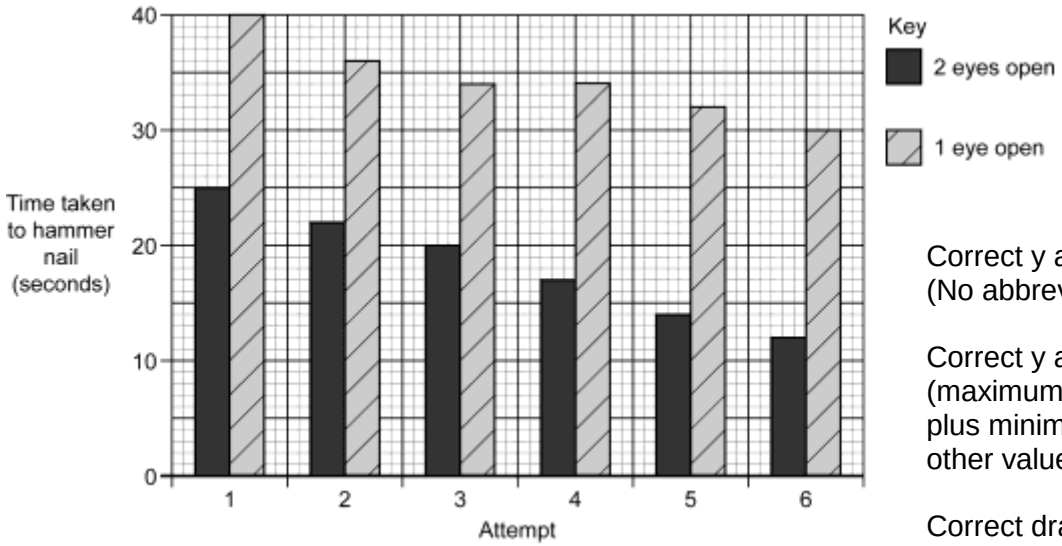
<table>
<tr><th>Qu</th><th>Acceptable answer</th><th>Mark</th><th>Unacceptable answer</th></tr>
<tr><td>5 (a) (i)</td><td>membrane
nucleus
cytoplasm } any order

3 correct = 2
1 / 2 correct = 1</td><td>2</td><td></td></tr>
<tr><td>(ii)</td><td>chloroplast</td><td>1</td><td></td></tr>
<tr><td>(iii)</td><td>stain</td><td>1</td><td>Name of an example / dye</td></tr>
<tr><td>(b)</td><td>
<table>
<tr><td>Male</td><td>Sperm</td><td>Testes</td><td>Small</td><td>No</td><td>Yes</td></tr>
<tr><td>Female</td><td>Egg / Ova</td><td>Ovaries / Ovary</td><td>Large</td><td>Yes</td><td>No</td></tr>
</table>
5 columns correct = 3
3 / 4 columns correct = 2
1 / 2 columns correct = 1</td><td>3</td><td></td></tr>
</table>

Qu	Acceptable answer	Mark	Unacceptable answer
6 (a)	 Chromosomes become visible in the nucleus Chromosomes line up at the equator Nuclear membrane breaks down Cytoplasm divides Mark Stage X and Stage Y separately	1 1	
(b)	nucleus the same as	1 1	

Qu	Acceptable answer	Mark	Unacceptable answer
7 (a) (i)	16 (Accept correct answer written in calculation space)	1	
(ii)	The number of seeds / 20 seeds / many seeds used at each temperature / in each dish	1	The amount of seeds used
(iii)	Volume / amount of water / light Mass / amount of cotton wool / spacing of seeds Type of seeds Any two, 1 mark each	1 1	Size of dish / oxygen / pH
(b)			
(i)	Correct x axis label = (No abbreviations)	1	
(ii)	Correct y axis scale (maximum value of 80 or 90 plus minimum of one other value) =	1	
(iii)	Correct plotting and joining of points =	1	
(c)	As temperature increases, seed germination increases to 20 °C. As temperature increases further, seed germination decreases (As temperature increases seed germination increases to an optimum then decreases = 1) (Optimum is 20 °C, above and below germination is less = 1)	1 1	

Qu	Acceptable answer	Mark	Unacceptable answer
8 (a) (i)	renal artery	1	
(ii)	ureter	1	
(iii)	collects / stores urine	1	
(iv)	urea	1	
(v)	reabsorption	1	absorption
(b) (i)	400 (Accept correct answer written in calculation space if units are given)	1	
(ii)	Water gain usually equals water loss / Water gain equals water loss at 15 ^{o}C and 20 ^{o}C / Water gain equals water loss at 2 of the 3 temperatures	1	Water gain equals water loss
(iii)	(Water loss in) urine decreases (Water loss in) sweat increases } Accept water loss increases as an alternative Water loss in breath increases } single answer to both of these Any 2 =	1	
(iv)	Drink (water / fluid)	1	

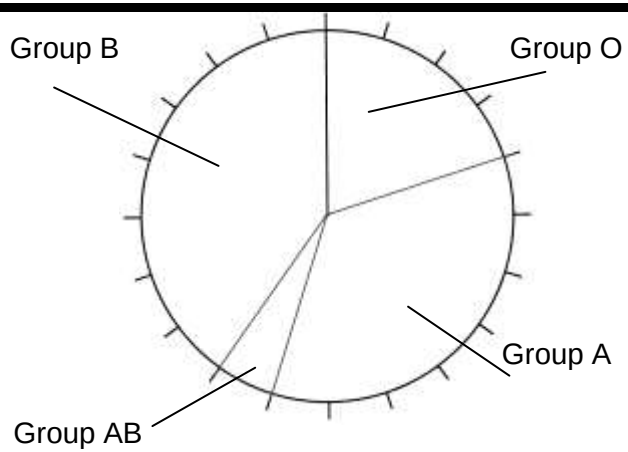
Qu	Acceptable answer	Mark	Unacceptable answer
9 (a)	Task is easier / faster / done better with two eyes / Judging distance is better with two eyes Practice improves results	1 1	Accuracy / Answers involving more than one person
(b)	Size / length / width / type of nail Thickness of wood Hardness / type of wood Size / mass / length of hammer / same hammer Same lighting conditions Same eye closed Same hand used Any two, one mark each	2	Same person Same nail Same piece of wood
(c) **(i)** **(ii)** **(iii)**	 Correct y axis label = (No abbreviations) Correct y axis scale (maximum value of 40 plus minimum of one other value) = Correct drawing of bars with straight level tops =	1 1 1	

Qu	Acceptable answer		Mark	Unacceptable answer
10 (a) (i)	Bruising (Exposure to) drought	either order	1	Exposure
(ii)	Mechanical stress (Zapping with) ultrasound (Zapping with) electricity	Any two =	1	
(iii)	(Help them) survive drought / disease / attack by pests / Mop up molecules which damage cells		1	Prevents disease /attack by pests Increases vitamin C content
(iv)	Vitamin C		1	
(b) (i)	Prevent damage to DNA		1	
(ii)	Combat heart disease / Protect arteries / Reduce risk of diabetes / Reduce risk of neurological disease		1	

Qu	Acceptable answer	Mark	Unacceptable answer
11 (a)	Sown in March	1	
	Height 30 – 60 cm	1	
	Cosmea Mallow both needed	1	
(b)	Height (of plants / flowers) Snapdragons are 30 – 60 cm tall, Sunflowers are 150 – 250 cm tall	1	
(c)	Both features shown by more than one of the plants Both features shown by Snapdragon, Marigold Could be Snapdragon or Marigold Don't know when it is sown / seed sowing time	1	
(d)	Hollyhock Snapdragon Sunflower All three needed	1	

<table>
<tr><th>Qu</th><th colspan="4">Acceptable answer</th><th>Mark</th><th>Unacceptable answer</th></tr>
<tr><td>12 (a)</td><td colspan="4"><table>
<tr><td>B</td><td>Muscle / quadraceps</td><td>Produces a force to move bones at a joint</td><td rowspan="4">5 correct = 3
3 / 4 correct = 2
1 / 2 correct = 1</td></tr>
<tr><td>C</td><td>Bone</td><td>Framework for muscle attachment</td></tr>
<tr><td>D</td><td>Tendon</td><td>Joins muscle to bone</td></tr>
<tr><td>A</td><td>Ligament</td><td>Joins bone to bone /
Joins the bones of the joint together</td></tr>
</table></td><td>3</td><td>Holds bones together / Keeps bones together / Holds joint together</td></tr>
<tr><td>(b)</td><td colspan="4">Hinge</td><td>1</td><td></td></tr>
</table>

Qu	Acceptable answer	Mark	Unacceptable answer
13 (a)	They become sickle shaped	1	They change shape
(b)	Immune	1	
(c)	Heart Spleen Both needed, any order =	1	

Qu	Acceptable answer	Mark	Unacceptable answer
14 (a)	 Correct divisions (any order) = Correct labels = (Allow label mark if segments are wrong but labelled in correct order of sizes)	1 1	
(b)	A	1	
(c)	2 million / 2 000 000	1	

Qu	Acceptable answer	Mark	Unacceptable answer
15 (a) (i)	Attached ear lobes Free ear lobes } either order Both needed =	1	
(ii)	1 Fred / Rab 2 Margot / Linda Both needed =	1	
(iii)	Attached	1	
(iv)	F_1 F_2 Both needed =	1	
(v)	Discontinuous	1	
(b)	Genotype	1	
(c) (i)	Gamete(s) / haploid	1	
(ii)	Fertilisation	1	

Qu	Acceptable answer	Mark	Unacceptable answer
16 (a)	To kill / prevent the growth of bacteria To kill harmful bacteria	1	Kill micro-organisms Fight infection
(b) (i)	If not, all bacteria are not killed / bacteria numbers increase / So that all bacteria are killed	1	So bacteria don't become resistant to antibiotic
(ii)	5 000	1	

Qu	Acceptable answer	Mark	Unacceptable answer
17 (a) (i)	Methane / Biogas	1	
(ii)	It is renewable / It does not run out / It conserves fossil fuels	1	Fossil fuels will run out It is infinite Less harmful to the environment
(b)	oxygen / aerobic conditions	1	Food
(c)	Cholera / Dysentry / Polio / Typhoid	1	

[END OF MARKING INSTRUCTIONS]