

GCSE BIOLOGY - B1
JANUARY 2015 MARK SCHEME

Question		Marking details	Marks Available
1	<i>(a)</i>	(i) Bunting	1
		(ii) Starling	1
	<i>(b)</i>	(i) any two from: <ul style="list-style-type: none"> • <u>{some/most}</u> hedges {gone/cut down}/{fewer/ loss of} hedges; • <u>{Less/loss of}</u> grassland; • <u>reduced</u> crop {variety/ types/OWTTE}/ no {peas/potatoes} grown/only wheat grown; • more buildings; NOT less trees	2
		(ii) any two from: habitat/ place to live/shelter/cover/hide from predators; NOT hide alone Food/ to get prey; nest sites/place to lay eggs;	2
			Question 1 total

Question		Marking details	Marks Available
2	(a)	vertebrates; <i>Equus</i> ; <i>ferus</i> ; correct spelling for all three answers upper case 'E', lower case 'f'	3
	(b)	(i) DNA;	1
		(ii) <u>species</u> ;	1
Question 2 Total			[5]

Question		Marking details	Marks Available																												
3	(a)	<table border="1"> <thead> <tr> <th rowspan="2">condition</th> <th rowspan="2">bacteria</th> <th colspan="3">excess</th> </tr> <tr> <th>alcohol</th> <th>energy in food</th> <th>salt in food</th> </tr> </thead> <tbody> <tr> <td>high blood pressure</td> <td></td> <td></td> <td></td> <td>given</td> </tr> <tr> <td>infection</td> <td>✓</td> <td></td> <td></td> <td></td> </tr> <tr> <td>drug dependence</td> <td></td> <td>✓</td> <td></td> <td></td> </tr> <tr> <td>obesity</td> <td></td> <td></td> <td>✓</td> <td></td> </tr> </tbody> </table>	condition	bacteria	excess			alcohol	energy in food	salt in food	high blood pressure				given	infection	✓				drug dependence		✓			obesity			✓		3
		condition			bacteria	excess																									
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drug dependence		✓																													
obesity			✓																												
(b)	(i)	infection;	1																												
	(ii)	obesity;	1																												
(c)		{Thick/excessive} mucus; NOT mucus alone {Blocking/clogging} bronchioles; Reject lungs/trachea	2																												
Question 3 Total			[7]																												

Question			Marking details	Marks Available
4	(a)	(i)	all plots correct;; +/- ½ small square tolerance 0 errors = 2 marks 1 error = 1 mark 2 errors = 0 marks	2
		(ii)	correct line through the plots;	1
		(iii)	(nitrate makes it) increase, then fall;	1
	(b)		To show that the {effect/difference} is due to nitrate;	1
	(c)	(i)	I 7; II 7;	2
		(ii)	1 number of dead/decaying plants increase; 2 (bacteria/decomposers/fungi) use oxygen/respire; <i>point 2 is dependent on point 1</i> Alternative 1 number of living plants increase; 2 plants produce oxygen/photosynthesis; <i>point 2 is dependent on point 1</i>	2
	Question 4 Total			[9]

Question		Marking details	Marks Available								
5	(a)	23;	1								
	(b)	X;	1								
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td></td> <td>given</td> <td>X</td> </tr> <tr> <td>given</td> <td>given</td> <td>XX</td> </tr> <tr> <td>Y</td> <td>XY</td> <td>XY</td> </tr> </tbody> </table> <p>one mark for correct gametes; one mark for correct mechanics from correct gametes; NO ecf from (i)</p> <p>Question 5 total</p>		given	X	given	given	XX	Y	XY	XY
	given	X									
given	given	XX									
Y	XY	XY									
			[4]								

Question		Marking details	Marks Available
6	(a)	Sweat gland {produces/releases/creates} sweat; Travels up sweat duct and onto the (skin) surface;	2
	(b)	<ul style="list-style-type: none"> • blocks {pore/duct}/sweat cannot get out/no sweat on surface; NOT no sweat {produced/released} alone/no sweating <ul style="list-style-type: none"> • {less/no} {cooling/heat loss}; • {No/less} evaporation; 	3
		Question 6 Total	[5]

Question		Marking details	Marks Available
7/1	(a)	(i) 2 17 3456 1 all correct 1 mark	1
		(ii) I Four trophic levels showing the correct shape and labelled; <div style="text-align: center;"> <p>oak tree 5137kg caterpillars 43 kg blue tits 1.2 kg sparrowhawk 0.18 kg</p> </div> II All masses correct including units; (independent of shape)	1
	(b)	Food chain column correct; Trophic level column correct;	1 1
	(c)	iv Question 7/1 total	1 [6]

Question		Marking details	Marks Available
8/2	(a)	(i) 1344;; <i>If answer incorrect award 1 mark for</i> $16 \times 20 \times 4.2$	2
	(b)	(ii) 6720 (ecf from a(i)); Any 3 from: 1 mark each <ul style="list-style-type: none"> • Time between igniting the food and placing it under the boiling tube varies (OWTTE); • Distance of the burning food from the boiling tube varied/ not placed in the same spot; • {Type/ kind} of food (burnt) varied; • Incomplete burning; NOT {mass/size} of food varied/different volume of water/ not burnt for same length of time/ different food Question 8/1 total	1 3
			[6]

Question		Marking details	Marks Available	
9/3	(a)	<p>Any one from:</p> <ul style="list-style-type: none"> Does not kill/ harm} {insects/ organisms} {which are beneficial/ that pollinate crops/ which are useful}/ ORA; Only 1 application/ it is cheaper/ ORA; <p>NOT bioaccumulation</p> <ul style="list-style-type: none"> No (chemical) pollution/ ORA; 	1	
	(b)	<p>Fertilizers/GM (crops)/ selective breeding/named fertilizer/ manure/slurry/biological control/genetic engineering;</p> <p>NOT reference to pesticide use/herbicides</p>	1	
	(c)	(i)	1947/ 1948 ;	1
		(ii)	<p>Leaching/run off/spray carried by air onto water/(rain) {carried/ washed} it into rivers ;</p> <p>NOT DDT sprayed onto water/rain leaked it into rivers</p>	1
		(iii)	<p>It (bio)accumulates/builds up (in tissues)/it is persistent/it concentrates in tissues/it is not destroyed after it enters the body;</p> <p>At the concentration found in the Bald Eagle it is {toxic/poisonous}/ORA;</p> <p>NOT kill/lethal</p> <p>2nd mark linked to 1st</p>	2
Question 9/3 Total			[6]	

Question		Marking details	Marks Available
10/4		<p>Indicative content:</p> <p>Pancreas Secretes insulin Travels in blood stream To liver Glucose is converted to glycogen Glycogen stored in the liver</p> <p>5 – 6 marks The candidate constructs an articulate, integrated account correctly linking relevant points, such as those in the indicative content, which shows sequential reasoning. The answer fully addresses the question with no irrelevant inclusions or significant omissions. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar.</p> <p>3 – 4 marks The candidate constructs an account correctly linking some relevant points, such as those in the indicative content, showing some reasoning. The answer addresses the question with some omissions. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.</p> <p>1 – 2 marks The candidate makes some relevant points, such as those in the indicative content, showing limited reasoning. The answer addresses the question with significant omissions. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar.</p> <p>0 marks The candidate does not make any attempt or give a relevant answer worthy of credit.</p> <p>Question 10/4 Total</p>	<p>6</p> <p>[6]</p>