

Mark Scheme (Results)

Summer 2013

GCSE Biology (5BI1F)
Paper 01

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- For questions worth more than one mark, the answer column shows how partial credit can be allocated. This has been done by the inclusion of part marks eg (1).
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Quality of Written Communication

Questions which involve the writing of continuous prose will expect candidates to:

- Write legibly, with accurate spelling, grammar and punctuation in order to make the meaning clear
- Select and use a form and style of writing appropriate to purpose and to complex subject matter
- Organise information clearly and coherently, using specialist vocabulary when appropriate.

Question Number	Answer	Acceptable answers	Mark
1a	An explanation to include two of the following points: sweat / water / fluid released (1) onto surface (of skin) (1) (sweat) <u>evaporates</u> (1)	sweat produced	(2)

Question Number	Answer	Mark
1b	<p>Maintenance of a stable internal environment</p> <p>homeostasis</p> <p>cystic fibrosis</p> <p>photosynthesis</p> <p>diabetes</p>	(1)

Question Number	Answer	Acceptable answers	Mark
1(c)(i)	A ☒ brain		(1)

Question Number	Answer	Acceptable answers	Mark
1(c)(ii)	A explanation linking two of the following points: muscles <u>contract</u> (1) producing heat (1) warming the body (1)		(2)

Question Number	Answer	Acceptable answers	Mark
1(c)(iii)	A description to include two of the following points: (hair) erector muscles contract (1) hair rises (1) traps air (1) insulates (1)	Ignore traps heat / warmth	(2)

Total for question 1 = 8 marks

Question Number	Answer	Acceptable answers	Mark
2(a)(i)	<input checked="" type="checkbox"/> C cancer		(1)

Question Number	Answer	Acceptable answers	Mark
2(a)(ii)	20(%) / ÷5 (1) 1000	Two marks for correct bald answer.	(2)

Question Number	Answer	Acceptable answers	Mark
2(a)(iii)	An explanation including two of the following points: (tobacco contains) tar (1) (tar is a) carcinogen (1) leads to mutations (1)		(2)

Question Number	Answer	Acceptable answers	Mark
2(b)(i)	<input checked="" type="checkbox"/> D stimulant		(1)

Question Number	Answer	Acceptable answers	Mark
2(b)(ii)	A description including two of the following points: affects the CNS / nerves (1) reactions speed up / decrease reaction times (1) reference to synapse / neurotransmitters (1)	caffeine keeps you awake / alert	(2)

Total for question 2 = 8 marks

Question Number	Answer	Acceptable answers	Mark
3a(i)	B <input checked="" type="checkbox"/> Fungi		(1)

Question Number	Answer	Acceptable answers	Mark
3a(ii)	<p style="text-align: center;">classification</p> <p style="text-align: center;">binomial name</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;"><i>Russula</i></div> <div style="border: 1px solid black; padding: 5px; margin: 5px;"><i>silvicola</i></div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">species</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">family</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">phylum</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">genus</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">order</div> </div>		(2)
Question Number	Answer	Acceptable answers	Mark

3(b)	Any two of the following photosynthesis (1) they feed autotrophically (1) have chlorophyll (1) have cell walls (containing cellulose) (1) multicellular (1)	makes own food have chloroplasts	(2)
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Question Number	Answer	Acceptable answers	Mark
3(c)(i)	Chordata (1) backbone (1)	Answers must be in this order	(2)

Question Number	Answer	Acceptable answers	Mark
3(c)(ii)	lungs (1) gills (1) skin (1)		(3)

Total for question 3 = 10 marks

Question Number	Answer	Acceptable answers	Mark
4(a)(i)	bacteria		(1)

Question Number	Answer	Acceptable answers	Mark
4(a)(ii)	<input checked="" type="checkbox"/> D in water		(1)

Question Number	Answer	Acceptable answers	Mark
4(b)(i)	The spread of cholera around the world has increased / more cases recorded		(1)

Question Number	Answer	Acceptable answers	Mark
4(b)(ii)	A suggestion to include two of the following: (more) world travel / migration (1) no access to clean water (1) resistant bacteria (1)	drought / famine / natural disaster	(2)

Question Number	Answer	Acceptable answers	Mark
4(c)	<p>An explanation to include three of the following:</p> <p>skin prevents the entry (1)</p> <p>scab formation on skin prevents entry into wound (1)</p> <p>cilia traps pathogens / waft pathogens upwards (1)</p> <p>mucus traps pathogens (1)</p>	<p>not just is a barrier</p> <p>accept nasal hairs traps pathogens (1)</p>	(3)

Question Number	Answer	Acceptable answers	Mark
4(d)	<p>Any two of the following names:</p> <p>antibiotics (1)</p> <p>antifungals (1)</p> <p>antibacterial (1)</p> <p>antiseptic (1)</p> <p>accept named chemicals eg bleach / alcohol</p>	<p>hydrochloric acid (in stomach)</p> <p>lysozymes (in tears)</p>	(2)

Total for question 4 = 10 marks

Question Number	Answer	Acceptable answers	Mark
5(a)(i)	A description to include the following: increases and decreases (1) reference to blood glucose concentration (1)		(2)

Question Number	Answer	Acceptable answers	Mark
5(a)(ii)	350 and 100 (1) 250 (mg per dm ³)	2 marks for correct bald answer with no working	(2)

Question Number	Answer	Acceptable answers	Mark
5(a)(iii)	A <input checked="" type="checkbox"/> 0 – 2 hours		(1)

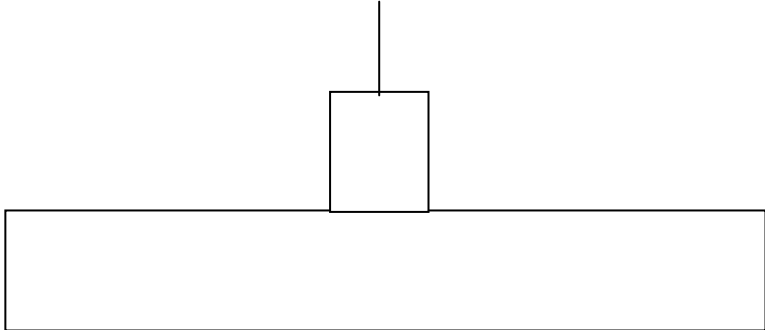
Question Number	Answer	Acceptable answers	Mark
5(b)	pancreas		(1)

Question Number	Indicative Content	Mark
QWC	<p>*5(c) A explanation to include some of the following</p> <ul style="list-style-type: none"> • responding to a stimulus • auxin / gibberellin is a plant growth hormone • phototropism happens in shoots • is a response to light • auxins produced in shoot tip • auxins moves to shaded side of shoot tip • cell elongation on shaded side • shoot bends towards the light • this is positive phototropism • more efficient photosynthesis • gravitropism / geotropism happens in roots • is a response to gravity • auxins produced in root tip • auxins moves to lower side of root tip • cell elongation stops on lower side • root bends downwards • this is positive gravitropism • more access to water / anchorage improved 	(6)
Level	0 No rewardable content	
1	<p>1 - 2</p> <ul style="list-style-type: none"> • a limited explanation including one correct statement of either phototropism or gravitropism • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy 	
2	<p>3 - 4</p> <ul style="list-style-type: none"> • a simple explanation of phototropism and gravitropism OR a detailed explanation of one type of tropism • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy 	
3	<p>5 - 6</p> <ul style="list-style-type: none"> • a detailed explanation of both types of tropism including the role of auxins / gibberellins • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors 	

Total for question 5 = 12 marks

Question Number	Answer	Acceptable answers	Mark
6(a)(i)	1000 and 50 (1) 950 (g)	2 marks for correct bald answer with no working	(2)

Question Number	Answer	Acceptable answers	Mark
6(a)(ii)	A suggestion to include two of the following: excretion (1) not all of organism eaten / some of organism is indigestible (1) respiration (1) movement (1) temperature regulation (1)	faeces / waste lost as heat (energy) hunting / catching prey / flying	(2)

Question Number	Answer	Mark
6(a)(iii)	If labels are used they must be correct 	(1)

Question Number	Answer	Acceptable answers	Mark
6(b)(i)	photosynthesis		(1)

Question Number		Indicative Content	Mark
QWC	* 6(b) (ii)	<p>An explanation including some of the following:</p> <ul style="list-style-type: none"> • paper can be recycled which will reduce the need for cutting down trees • more trees will be left growing removing carbon dioxide • habitats for animals not destroyed • less space needed for landfill • less pollution relating to burning of waste / machinery cutting down of trees <ul style="list-style-type: none"> • plastic can be recycled which will reduce the demand for fossil fuels • more fossil fuels available for other uses • less space needed for landfill • less pollution relating to burning of waste • plastic is slow to decompose <ul style="list-style-type: none"> • less energy used in recycling compared to making new products • the more products that are recycled the less pollution in the atmosphere and in the water supply 	(6)
Level	0	No rewardable content	
1	1 - 2	<ul style="list-style-type: none"> • a limited explanation including one correct statement of how recycling can benefit the environment. • the answer communicates ideas using simple language and uses limited scientific terminology • spelling, punctuation and grammar are used with limited accuracy 	
2	3 - 4	<ul style="list-style-type: none"> • a simple explanation of paper and plastic recycling OR a detailed explanation of one type of recycling • the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately • spelling, punctuation and grammar are used with some accuracy 	
3	5 - 6	<ul style="list-style-type: none"> • a detailed explanation of both types of recycling • the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately • spelling, punctuation and grammar are used with few errors 	

Total for question 6 = 12 marks

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