

# Mark Scheme (Results)

November 2012

GCSE Biology  
5BI1F/01

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Question Number	Answer	Acceptable answers	Mark
<b>1(a)(i)</b>	D - prokaryota		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1(a)(ii)</b>	C – a nucleus		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1(b)</b>	<p>A description to include two of the following points</p> <ul style="list-style-type: none"> <li>• It enters / attaches to a <u>cell</u> (1)</li> <li>• causes / spreads disease / infection (1)</li> <li>• makes copies of itself (1)</li> <li>• changes the way the cell works / changes the (cell) DNA (1)</li> </ul>	<p>allow named cells allow "takes over the cell"</p> <p>Ignore "illness"</p> <p>multiplies / reproduces</p>	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1(c)(i)</b>	<ul style="list-style-type: none"> <li>• oviparous (1)</li> <li>• viviparous (1)</li> </ul> <p>Answers MUST be in this order</p>		<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1 (c) (ii)</b>	<p>A description to include any two of the following points</p> <ul style="list-style-type: none"> <li>• oxygen absorption (1)</li> <li>• reproduction (1)</li> <li>• thermoregulation (1)</li> </ul>	<p>gill use / lung use / skin use</p> <p>internal / external</p> <p>homeothermic / poikilothermic / cold blooded / warm blooded</p>	<b>(2)</b>



Question Number	Answer	Acceptable answers	Mark
<b>2(c)</b>	<p>A explanation linking <b>2</b> of the following:</p> <ul style="list-style-type: none"> <li>• combustion / burning (1)</li> <li>• (fossil) fuels / named fuel (1)</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• humans respire (1)</li> <li>• breathe (out carbon dioxide) (1)</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• humans are cutting down trees /deforestation (1)</li> <li>• less carbon dioxide being removed by photosynthesis (1)</li> </ul>	<p>Ignore: car driving petrol</p> <p>Ignore "CO2 increase"</p>	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(a)</b>	A – nucleus (1)  B – chromosome (1)  Answers MUST be in this order	A - nuclear membrane  B – chromatid	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(b)(i)</b>	B - Homozygous		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(b)(ii)</b>	phenotype		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(c)(i)</b>	C - 3		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(c)(ii)</b>	An explanation linking the following points <ul style="list-style-type: none"> <li>• Jane is homozygous recessive / bb (1)</li> <li>• children inherit one allele from each parent (1)</li> </ul>	children can only inherit recessive allele /gene from mother ORA regarding Jason  Accept gene  Ignore unqualified Punnett squares	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(c)(iii)</b>	<p>An explanation that links the correct child with the following:</p> <ul style="list-style-type: none"> <li>• Jacob (1)</li> <li>• same sex (1)</li> <li>• the same genotype / alleles / bb / both homozygous (1)</li> </ul>	<p>Ignore "same eye colour" Accept gene</p> <p>If candidate has mentioned another child they can still obtain mp2 and mp3. These are stand alone marks</p>	<b>(3)</b>



Question Number	Answer	Acceptable answers	Mark
<b>4(a)</b>	photosynthesis (1)		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>4(b)(i)</b>	<b>C</b> - mutualism		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>4(b)(ii)</b>	<p>A suggestion including two of the following:</p> <ul style="list-style-type: none"> <li>• bees do not have the burden of carrying pollen (1)</li> <li>• bees use less energy (1)</li> <li>• bee able to fly / move more easily / aerodynamic / quicker (1)</li> <li>• <u>more</u> nectar collected (1)</li> <li>• avoiding predators (1)</li> </ul>	<p>Ignore non specific references to 'survival of the fittest'</p> <p>Accept "bees are lighter" Ignore: "pollen does not stick to the bee"</p>	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>4(c)</b>	skin (1)	dermis / epidermis	<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>4(d)</b>	<p>A description including two of the following:</p> <ul style="list-style-type: none"> <li>• can be used to wash hands (1)</li> <li>• can be used for cleaning surfaces (1)</li> <li>• to kill / destroy the pathogens / bacteria (1)</li> </ul>	<p>Accept: cleaning equipment</p> <p>Ignore "get rid of bacteria" "wipes away bacteria" "prevent the spread of infections"</p>	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>4(e)</b>	<p>A explanation including three of the following:</p> <ul style="list-style-type: none"> <li>• acid (1)</li> <li>• (in the) stomach (1)</li> <li>• lysozymes (1)</li> <li>• (in) tears / eyes (1)</li> <li>• kill / destroy microorganisms / pathogens (1)</li> </ul>	<p><b>2 marks max for listing the chemical defence method and site (mp1 – 4)</b></p> <p>Ignore "get rid of bacteria"</p>	<b>(3)</b>

Question Number	Answer	Acceptable answers	Mark
<b>5(a)(i)</b>	Increases	Accept positive correlation	<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>5(a)(ii)</b>	Reading off graph 7.5%, 4.5% (1)  Evaluation: 3 (%) (1)	give 2 marks for correct answer, no working	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>5(b)(i)</b>	C – mass and height		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>5(b)(ii)</b>	A suggestion including <ul style="list-style-type: none"> <li>• eat poor diet / too much sugar in diet (1)</li> <li>• little exercise (1)</li> <li>• become insulin resistant (1)</li> </ul>	Accept “unhealthy” / idea of an unhealthy diet  Unresponsive to insulin	<b>(2)</b>

Question Number	Indicative Content	Mark
5(c)	<p>An description linking the following points:</p> <ul style="list-style-type: none"> <li>• Type 1 diabetics do not produce the hormone insulin</li> <li>• <u>insulin</u> can be injected</li> <li>• into subcutaneous fat layer</li> <li>• insulin tablets</li> <li>• Type 2 diabetics are resistant to insulin</li> <li>• Type 2 diabetics should undertake more physical activity / exercise</li> <li>• this will use blood glucose and reduce it</li> <li>• Type 2 diabetics need a controlled diet</li> <li>• lower intake of carbohydrates so less digested into glucose</li> </ul>	(6)

Level	0	No rewardable content
1	1-2	<ul style="list-style-type: none"> <li>• a limited explanation of one type of diabetes and it's method of control</li> <li>• the answer communicates ideas using simple language and uses limited scientific terminology</li> <li>• spelling, punctuation and grammar are used with limited accuracy</li> </ul>
2	3-4	<ul style="list-style-type: none"> <li>• a simple explanation of both types of diabetes and their methods of control</li> <li>• the answer communicates ideas showing some evidence of clarity and organisation and mostly uses scientific terminology appropriately</li> <li>• spelling, punctuation and grammar are used with some accuracy</li> </ul>
3	5-6	<ul style="list-style-type: none"> <li>• a more detailed explanation of both types of diabetes and their methods of control</li> <li>• the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately</li> <li>• spelling, punctuation and grammar are used with few errors</li> </ul>

Question Number	Answer	Acceptable answers	Mark
<b>6(a)(i)</b>	<b>A</b> - depressant		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>6(a)(ii)</b>	Increased (time)	Takes longer ORA Accept "reactions are slower"	<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>6(a)(iii)</b>	A suggestion including two of the following <ul style="list-style-type: none"> <li>• <u>cirrhosis</u> of the liver (1)</li> <li>• brain damage (1)</li> <li>• kidney damage (1)</li> </ul>	Ignore "damage" / "cancer"  Ignore failure	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>6(b)</b>	A description linking <b>2</b> of the following: <ul style="list-style-type: none"> <li>• Caffeine is a stimulant (1)</li> <li>• Stimulants speed up reactions / decrease reaction time (1)</li> <li>• impulses / messages / signals sent faster (1)</li> </ul>	Ignore "more alert" or "more awake"  Accept speeds up reaction time	<b>(2)</b>

Question Number	Indicative Content	Mark
<b>6c</b>	<p>An explanation with the following points:</p> <ul style="list-style-type: none"> <li>• impulses / messages / signals are passed along the axon</li>   <li>• the (electrical) signals are insulated</li> <li>• by the myelin sheath which surrounds the axon</li> <li>• this speeds up the signal along the neurone / axon</li>   <li>• the dendrons at the end of the axon / neurone</li> <li>• allows signals to be carried onto other neurone(s)</li>   <li>• across the synapses</li> <li>• motor neurones connect to other neurones</li> <li>• neurotransmission across</li> <li>• motor neurones lead to effectors</li> </ul>	<b>(6)</b>

Level	0	No rewardable content
1	1-2	<ul style="list-style-type: none"> <li>• a limited explanation of how one structure of the motor neurone relates to its function</li> <li>• the answer communicates ideas using simple language and uses limited scientific terminology</li> <li>• spelling, punctuation and grammar are used with limited accuracy</li> </ul>
2	3-4	<ul style="list-style-type: none"> <li>• a simple explanation of how two structures of the motor neurone relate to their functions</li> <li>• the answer communicates ideas showing some evidence of clarity and organisation and mostly uses scientific terminology appropriately</li> <li>• spelling, punctuation and grammar are used with some accuracy</li> </ul>
3	5-6	<ul style="list-style-type: none"> <li>• a detailed explanation of how three structures of the motor neurone relate to their function</li> <li>• the answer communicates ideas clearly and coherently uses a range of scientific terminology accurately</li> <li>• spelling, punctuation and grammar are used with few errors</li> </ul>



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