

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

Question Number	Answer	Acceptable answers	Mark
<b>1(a)(ii)</b>	<p>A description linking <b>two</b> of the following points:</p> <p>the sweat gland releases water / sweat onto (the surface of the skin) (1)</p> <p>the water evaporates (1)</p> <p>by removing heat from the surface of the skin / heat energy lost as latent heat(1)</p>	Accept cooling effect	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1(a)(iii)</b>	<p>An explanation linking <b>two</b> of the following points:</p> <p>the (erector) muscle raises the hair (1)</p> <p>the hair traps <b>air</b> (next to the surface of the skin) (1)</p> <p>this acts as an insulator (1)</p> <p>causing more heat to be retained in the body (1)</p>	Ignore references to hair follicle standing up	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1(b)</b>	<b>A</b> homeostasis		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1(c)</b>	<p>An explanation linking <b>two</b> of the following points:</p> <p>this is the <u>optimum</u> temperature (1)</p> <p>involving enzymes (1)</p> <p>for chemical reactions in the body /metabolic reactions (1)</p> <p>denaturation occurs at higher temperatures / at lower temperatures reactions are slower (1)</p>	<p>Named chemical reactions e.g. digestion</p>	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>1(d)</b>	<p>An explanation linking <b>two</b> of the following points:</p> <p>reptiles are poikilothermic / ectothermic(1)</p> <p>they cannot generate heat to maintain their own body temperature (1)</p> <p>(so use the sun) to warm their bodies (1)</p> <p>for chemical reactions to occur (quickly) (1)</p>	<p>use the environment to control body temperature / internal temp is dependent on external temp</p>	<b>(2)</b>

**(Total for question 1 = 10 marks)**

Question Number	Answer	Acceptable answers	Mark
<b>2(a) (i)</b>	B – 1.1		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>2(a) (ii)</b>	continuous (data / variation)		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>2(a) (iii)</b>	$\frac{18}{60}$ (1) $0.3 \times 100 = 30(\%)$ (1) Or $0.33 \times 100 = 33(\%)$ (1)	correct answer 2 marks	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>2(b) (i)</b>	An explanation to include <b>four</b> of the following: <ul style="list-style-type: none"> <li>• <b>hypothalamus</b> controls body temperature(1)</li> <li>• causing the body to sweat (more) (1)</li> <li>• (sweating cools the body by) <b>evaporation</b> of water / sweat (1)</li> <li>• vasodilation (of blood vessels) (1)</li> <li>• heat lost by <b>radiation</b> (1)</li> <li>• this is called negative feedback (1)</li> </ul>	explanation of vasodilation – more blood flowing near surface of skin  hairs lie flat on skin (so no insulation) (1)	<b>(4)</b>

Question Number	Answer	Acceptable answers	Mark
<b>2(b) (ii)</b>	An explanation to include <b>two</b> of the following: <ul style="list-style-type: none"><li>• muscles (contract and relax)(1)</li><li>• friction (1)</li><li>• releasing heat by respiration (1)</li></ul>		<b>(2)</b>

**(Total for question 2 = 10 marks)**

Question Number	Answer	Acceptable answers	Mark
<b>3 (a) (i)</b>	<p>A description including two of the following points</p> <ul style="list-style-type: none"> <li>• initial /at the start increase in concentration (1)</li> <li>• 06.00 to 08.00 / 12.00 to 13.00 (1)</li> <li>• decrease in concentration after 08.00 / fall in concentration between 08.00 and 12.00 (1)</li> <li>• increased again at 13.00 (1)</li> </ul>	accept specific times eg. at 8.00 concentration high	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(a) (ii)</b>	<ul style="list-style-type: none"> <li>• increase due to food intake (1)</li> <li>• decrease due to glucose being used up / stored /insulin released / doing exercise(1)</li> </ul>	<p>accept 8:00 or 13:00 for increase</p> <p>answers must be linked to idea of increase or decrease not simply eating food</p>	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(a) (iii)</b>	glycogen in the liver		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(b)(i)</b>	substitution (1) $1.50^2 = 2.25$  or  $67.5 / 1.5^2$ (1)  evaluation (1) $67.5 \div 2.25 = \text{BMI of } 30$	accept 45 (1) ( as this is the correct calculation without squaring the 1.5)   give full marks for correct answer, no working	<b>(2)</b>

Question Number	Answer	Acceptable answers	Mark
<b>3(b)(ii)</b>	An explanation including the following points <ul style="list-style-type: none"> <li>• physical activity can be performed (to reduce glucose levels) (1)</li> <li>• diet can be controlled (to reduce glucose levels) (1)</li> <li>• take medication (orally or injected) (1)</li> </ul>	accept insulin/ metformin for medication	<b>(3)</b>

**(Total for question 3 = 10 marks)**

Question Number	Answer	Acceptable answers	Mark
<b>4a(i)</b>	<b>C</b> <input checked="" type="checkbox"/> hypothalamus		<b>(1)</b>

Question Number	Answer	Acceptable answers	Mark
<b>4(a)(ii)</b>	<p>An explanation linking <b>four</b> of the following:</p> <p>vasodilation occurs when the body is hot (1)</p> <p>blood vessels near the surface of the skin widen / the blood vessels increase the amount of blood flow near the surface of the skin (1)</p> <p>vasoconstriction occurs when the body is cold (1)</p> <p>blood vessels near the surface narrow /the blood vessels reduce the blood flow near the surface of the skin (1)</p>	<p>accept: description of shunt valve (1)</p>	<b>(4)</b>

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

Question Number		Indicative Content	Mark
<b>QWC</b>	<b>*4(c)</b>	<p>An explanation to include some of the following points:</p> <p>lowering blood glucose concentrations</p> <ul style="list-style-type: none"> <li>• insulin is released</li> <li>• from the pancreas</li> <li>• into the bloodstream</li> <li>• causing glucose to be converted to glycogen</li> <li>• stored in the liver / muscle tissue</li> <li>• blood glucose concentrations are lowered</li> </ul> <p>raising blood glucose concentrations</p> <ul style="list-style-type: none"> <li>• glucagon is released</li> <li>• from the pancreas</li> <li>• into the bloodstream</li> <li>• causing glycogen to be converted to glucose</li> <li>• glucose released into the bloodstream</li> <li>• blood glucose concentrations are raised</li> </ul>	<b>(6)</b>
<b>Level</b>	<b>0</b>	No rewardable content	
<b>1</b>	<b>1 - 2</b>	<ul style="list-style-type: none"> <li>• a limited explanation of either lowering or raising glucose concentrations in the blood</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>	
<b>2</b>	<b>3 - 4</b>	<ul style="list-style-type: none"> <li>• a simple explanation of both lowering and raising glucose concentrations in the blood or a detailed explanation of one of them</li> <li>• the answer communicates ideas showing some evidence of clarity and organisation and uses scientific terminology appropriately</li> <li>• spelling, punctuation and grammar are used with some accuracy</li> </ul>	
<b>3</b>	<b>5 - 6</b>	<ul style="list-style-type: none"> <li>• a detailed explanation of both raising and lowering blood glucose concentrations including the role of the hormones and the role of glycogen.</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>	

Total for question 4 – 12 marks