

## Respiration Mark Scheme

7.	(a)		<u>Aerobic respiration</u>	1	Not Acceptable - anaerobic / this is the 2 <sup>nd</sup> stage of respiration
	(b)	(i)	Glucose	1	
		(ii)	ADP + Phosphate/Pi/ PO <sub>4</sub> → ATP	1	Complete answer required for mark Balancing not required, but wrongly balanced negates
	(c)	(i)	Sprinter 1  Highest lactic acid produced when oxygen is not used to release energy <b>OR</b> Highest percentage light tissue <b>OR</b> Highest fermentation <b>OR</b> Highest percentage of cells that do not use oxygen. 1	2	Second mark can be awarded for correct justification even if first answer is incorrect  Acceptable - most, more than all the rest etc. as substitutes for 'highest'  Not Acceptable - 'Lowest dark tissue cells'
		(ii)	Swimmer	1	

Question	Expected Answer(s)	Max Mark	Additional Guidance
8. (a) (i)	A = low      B = high      1  C = glucagon      D = insulin      1	2	
	(ii) Organ X = pancreas      1 Organ Y = liver      1	2	
(b)	Any 2 features from: <ul style="list-style-type: none"> <li>• Made of protein</li> <li>• <u>Chemical</u> messengers</li> <li>• Specific for some (target) tissues</li> <li>• Shaped to fit receptors</li> <li>• Released or produced by endocrine glands/ system</li> <li>• Carried in blood</li> <li>• Can have a long term effect</li> </ul>	2	1 mark for each feature

5.	(a)		<u>Aerobic respiration</u>	1	
	(b)		3	1	

4.	(a)	(i)	Requires/uses/needs a lot of energy/ATP AND for movement/contraction	1	Both parts required for mark.  Not acceptable: <ul style="list-style-type: none"> <li>requires energy</li> <li>for respiration</li> </ul>
		(ii)	Carbon dioxide/Water/(38) ATP	1	Not acceptable: Incorrect number of ATP
	(b)		Glucose converted/broken down to pyruvate/pyruvic acid (1)  Pyruvate/pyruvic acid converted to lactic acid (1)  (2) ATP produced (1)	3	1 mark if glucose is original substrate and lactic acid is end product. The addition of CO <sub>2</sub> negates.  Arrows are acceptable in place of explanation. Any other number of ATP negates.

6.	B	1
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5.	(a)	(i)	1·3	1	Acceptable - correct answer but not in table
		(ii)	Temperature	1	
		(iii)	(Respiration is) controlled by enzymes/enzymes are needed 1  Enzymes have been denatured (at 60°C) or description of denatured 1	2	Enzymes must be mentioned at least once for both marks to be awarded.  Not acceptable - reference to denaturing at temperatures 'above optimum'
		(iv)	To show it is the germinating/live peas that are producing the result/using oxygen/respiring OR To show that <u>dead</u> peas do not respire	1	Reference to 'temperature having no effect on dead peas' does not negate an otherwise correct answer
	(b)		X - Pyruvate OR Y - Ethanol/alcohol	1	

5.

(a)

<i>Statement</i>	<i>Aerobic</i>	<i>Fermentation</i>
Oxygen is required	✓	
Pyruvate is formed	✓	✓
Lactate is formed		✓
Carbon dioxide is formed	✓	

(1)

(1)

2