

# **12. Respiration**

## **12.1 Respiration**

### **Paper 3 and 4**

Marking Scheme

**Q1.**

(c)	(respiration releases) <u>energy</u> ; needed for movement / needed for muscle contraction ;	2	
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**Q2.**

(b)	(Respiration) releases energy ; (Respiration) uses glucose. ;	2	<b>R</b> each additional line
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**Q3.**

(c)	<i>any three from:</i> active transport ; muscle contraction ; protein synthesis ; cell division ; growth ; passage of nerve, impulses / signals ; maintenance of a constant body temperature ; AVP ;;	3	
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**Q4.**

(b)	active transport ticked ; protein synthesis ticked ;	2	
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## Q5.

(b)	$C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$ ;;	2	MP1 for correct reactant MP2 for correct products
(c)(i)	1.6 cm <sup>3</sup> per minute ;;;	3	MP1 correct volumes read from Fig. 1.2 i.e. 11 cm <sup>3</sup> (at 10 minutes) <b>and</b> 19 cm <sup>3</sup> (at 15 minutes) MP2 correct calculation of rate MP3 correct units for rate
(c)(ii)	<i>any one from:</i> to prevent oxygen entering (solution) / to keep it anaerobic ; allow carbon dioxide to (still) escape ;	1	
(c)(iii)	(all) sugar / glucose / substrate, has been used up / broken down / run out / AW (by the yeast cells) ;	1	<b>A</b> alcohol is toxic (to yeast)
(c)(iv)	<i>any three from:</i> enzymes / active site, have <u>denatured</u> ; enzyme / active site, has changed shape ; (denatured) <u>active site</u> , does not fit / does not bind / is not complementary to, substrate ; (denatured enzymes / dead yeast) cannot, respire (anaerobically) ;	3	
(d)	bread(-making) / to make dough <u>rise</u> / leavening (agent) / AVP ;	1	
(e)	methane / AVP ;	1	

## Q6.

(b)	dividing cell / cell division / mitosis, needs (lot of) energy ; carry out <u>aerobic respiration</u> ; provide / release, energy ; (for) a named function in dividing cells ; <b>e.g.</b> movement of chromosomes making cell wall making new (named) molecules (e.g. protein / DNA) making (named) organelle(s)	3	
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