

Respiration and Exercise 2 MS

QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	120		1
a)ii)	11 760 or correct answer from candidate's answer to (a)(i)	correct answer with or without working if answer incorrect 120 × 98 or candidate's answer to (a)(i) × corresponding SV gains 1 mark if candidate uses dotted line / might have used dotted line(bod) in (a)(i) and (a)(ii) no marks for (a)(i) but allow full ecf in (a)(ii) eg 140 x 88 = 12320 gains 2 marks	2
b)	trained athlete has higher stroke volume / more blood per beat same volume blood expelled with fewer beats or for same heart rate more blood is expelled		1 1
c)	increased aerobic respiration or decreased anaerobic respiration increased energy supply / need less lactic acid formed or to breakdown lactic acid or less O ₂ -debt can do more work or can work harder / faster / longer or less fatigue / cramp / pain	allow correct equation for aerobic respiration accept don't have to respire anaerobically accept muscle contraction for work	1 1 1 1
Total marks			9

QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	glycogen		1
a)ii)	respiration		1
b)i	483 kJ		1
b)ii)	oxygen		1
b)iii)	dilate		1
c)	supplies more / a lot of oxygen or removes more carbon dioxide or release more energy / faster respiration		1
Total marks			6

QUESTION 3

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
	only 24 students tested or only one test or reference to lack of controls eg gender / age		1
	students could drink as much water as they wanted		1
	or some students drank more water than others		
	or some students drank water and beer		
	differences only slight	ignore effects of beer or promotion of beer drinking	1
Total marks			3

QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	rate of chemical reactions (in the body)		1
a)ii)	any two from: <ul style="list-style-type: none"> •heredity / inheritance / genetics •proportion of muscle to fat or (body) mass •age / growth rate •gender 	allow (body) weight / BMI accept hormone balance or environmental temperature ignore exercise / activity	2
b)i	77	correct answer with or without	2

		working gains 2 marks allow 1 mark for 70/56 or 1.25 or 5	
b)ii)	increase exercise reduce food intake	accept a way of increasing exercise accept examples such as eat less fat / sugar allow go on a diet or take in fewer calories ignore lose weight ignore medical treatments such as gastric band / liposuction	1 1
Total marks			7

QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	4000	award both marks for correct answer, irrespective of working 1500 + 2000 + 500 gains 1 mark	2
b)	day 2 (no mark) any two from: ✘ more (water in) breath / breathing ✘ more (water in) sweat / sweating ✘ less (water in) urine	max 1 mark if correct day not identified or if no day given accept a lot of sweating if no other marks awarded allow 1 mark for more water lost on day 2	2
c)i	respiration		1
c)ii)	cools / removes heat owtte	ignore 'maintains body temperature' unqualified	1
c)iii)	osmosis		1
Total marks			7

QUESTION 6

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	mitochondrion / mitochondria	must be phonetically correct	1
a)ii)	carbon dioxide / CO ₂ water / H ₂ O	in either order accept CO ₂ but not CO ₂ accept H ₂ O or HOH but not H ₂ O	1 1
a)iii)	diffusion high to low concentration through (cell) membrane or through cytoplasm	allow down a concentration gradient do not accept cell wall	1 1 1
b)	ribosomes make proteins / enzymes using amino acids part A / mitochondria provide the energy for the process	allow ATP do not accept produce or make energy	1 1 1
Total marks			9