Homeostasis and Exercise - Mark Scheme

Question Number	Answer	Additional Guidance	Mark
1(a)	1. idea that (some) have less myoglobin present ; 2. less blood / fewer red blood cells / less haemoglobin ; 3. as fewer capillaries present / eq ; 4. idea that respiration is (mainly) anaerobic ;		(2)

Question Number	Answer	Additional Guidance	Mark
1(b)(i)	negative feedback ;	ACCEPT -ve feedback, biofeedback is negative	(1)

Question Number	Answer	Additional Guidance	Mark
***1(b)(ii)**	(QWC – spelling of technical terms must be correct and the answer must be organised in a logical sequence) 1. idea that low pH is due to acid in the blood ; 2. *lactate* taken to *liver* / eq ; 3. reference to oxygen debt / EPOC ; 4. used to convert *lactate* back to *pyruvate* ; 5. with production of *reduced* NAD / eq ; 6. {*lactate* / *pyruvate*} converted to *glucose* / *glycogen* ; 7. *pyruvate* into *mitochondria* ; 8. idea of *chemoreceptors* detecting change in pH ; 9. idea of response e.g. increased { nerve impulse rate from *medulla* / breathing rate / heart rate} ; 10. (dissolved) CO_2 from blood (*diffuses*) into *alveoli* / eq ;	QWC emphasis is spelling ACCEPT *lactic* acid for *lactate* throughout and *pyruvic* acid for *pyruvate* 1. Accept for acid: *lactic acid*/*lactate*/(dissolved) CO_2 5. ACCEPT $NADH_2$ and NADH + H^+ 7. ACCEPT *lactate*, *matrix* as equivalent to mitochondria	**(5)**

Question Number	Answer	Additional Guidance	Mark
1(b)(iii)	1. reference to arterioles ; 2. muscles contracting to restrict diameter / eq (in shunts) ; 3. muscles relaxing to increase diameter / eq (of arterioles) ; 4. to redirect blood {away from deeper arterioles / into surface arterioles} / eq ; 5. to increase blood flow { into capillaries / towards surface } / eq ; 6. (so more heat lost) through radiation ;	IGNORE ref to relaxation of hair erector muscles 2. ACCEPT vasoconstriction 3. ACCEPT muscles relax to dilate arteriole ; 3. ACCEPT vasodilation 4. ACCEPT shunt vessels 5. More blood enters = to increase blood flow	**(4)**

Question Number	Answer	Additional Guidance	Mark
2(b)	An answer that makes reference to the following: • (an increase in body temperature causes) a greater increase in rate of sweating in males than in females (1) • males lose heat faster because they produce sweat at a faster rate (1) • females have larger SA to body mass ratio that allows for { faster / more effective } heat loss (1) • males have less { body fat / insulation } which may allow { faster / more effective } heat loss (1)	ALLOW converse for any marking point ALLOW 'males sweat more' ALLOW SA:volume	**(4)**