

Question number	Answer	Mark
1 (a)* QWC	<p>(QWC - Spelling of technical terms (<i>shown in italics</i>) must be correct and the answer must be organised in a logical sequence)</p> <ol style="list-style-type: none"> 1. idea that energy obtained from ATP ; 2. idea that ATP already in muscle cells e.g. ATP store ; 3. ATP from {<i>glycolysis</i>/ substrate level <i>phosphorylation</i>/ eq} ; 4. idea that <i>glycolysis</i> produces ATP {rapidly / eq} ; 5. idea that some {<i>aerobic respiration</i> / eq} due to some oxygen present ; 6. <i>glycolysis</i> occurs in <i>cytoplasm</i> / eq ; 7. idea of need to recycle NAD⁺ ; 8. idea that <i>pyruvate</i> is converted to <i>lactate</i> ; 9. reference to <i>anaerobic respiration</i> ; 10. idea of <i>lactate</i> tolerance ; 11. reference to fast <i>twitch</i> {muscle / fibres} ; 12. reference to {<i>creatine phosphate</i> / eq} ; 	(6)

Question number	Answer	Mark
1 (b)(i)	<ol style="list-style-type: none"> 1. (lactate build up) causes {drop in pH / more acidic / increase H⁺ / eq} ; 2. idea of this affects enzyme {activity / shape / eq} ; 3. this slows down {<i>glycolysis</i> / ATP production / anaerobic respiration / eq} ; 4. reference to muscle contractions being affected ; 	(2)

Question number	Answer	Mark
1 (b)(ii)	<ol style="list-style-type: none"> 1. reference to lactate in the blood / eq ; 2. {transported to / broken down in / eq} liver ; 3. lactate is {converted to pyruvate / eq} ; 4. this involves {oxidation / production of reduced NAD / eq} ; 5. pyruvate is then {oxidised / eq} ; 6. reference to Krebs cycle ; 7. {this requires extra oxygen / reference oxygen debt} / eq ; 8. idea that carbon dioxide and water are produced ; 	(4)

Question Number	Answer	Mark
2(a)	glycolysis ;	(1)

Question Number	Answer	Mark
2(b)(i)	B ;	(1)

Question Number	Answer	Mark
2(b)(ii)	C ;	(1)

Question Number	Answer	Mark
2(c)(i)	<ol style="list-style-type: none"> 1. oxygen {to oxidise hydrogen / as hydrogen acceptor / as final acceptor of electron transport chain} / eq ; 2. reference to reduced {coenzyme / NAD / FAD / eq} ; 3. (reduced coenzyme) from {glycolysis / Krebs Cycle / eq} ; 4. comparison of two {oxygen uptake / respiration rates} from pyruvate, molecules B and C e.g. respiration rate faster in pyruvate than molecule B ; 5. reference to uptake of substrate compared e.g. uptake of molecule B faster than molecule C ; 6. comparison of diffusion rate / molecular size / eq ; 7. comment on oxidation level of substrate e.g. ratio H:O in molecule / eq ; 8. relative quantity of {reduced coenzyme / eq} produced / eq ; 9. pH effect of pyruvate more favourable for {enzyme / reaction} / eq ; 10. number of carbon atoms of {C lower than B} / eq ; 	max (4)

Question Number	Answer	Mark
2(c)(ii)	<ol style="list-style-type: none">1. lactate can be converted to {pyruvate / eq} ;2. increases oxygen requirement / reference to oxygen debt / eq ;3. idea of most potential for oxidation / e.g. can make the most {reduced coenzyme / eq} ;	max (2)