

1(a)	A oxygen ; B ethanol ; C aerenchyma ;												
1(b)	<i>ref. to</i> ethanol dehydrogenase (to break it down) ; A alcohol dehydrogenase												
1(c)(i)	as gibberellin concentration increases, the length of stem increases or positive correlation between concentration of gibberellin and length of stem ; data quote – two concentrations and two lengths with units ; <table border="1"> <thead> <tr> <th>conc gibberellin / au</th><th>length of stem / mm ± 0.5 mm</th></tr> </thead> <tbody> <tr> <td>1</td><td>3</td></tr> <tr> <td>2</td><td>19</td></tr> <tr> <td>3</td><td>27</td></tr> <tr> <td>4</td><td>45</td></tr> <tr> <td>5</td><td>52</td></tr> </tbody> </table>	conc gibberellin / au	length of stem / mm ± 0.5 mm	1	3	2	19	3	27	4	45	5	52
conc gibberellin / au	length of stem / mm ± 0.5 mm												
1	3												
2	19												
3	27												
4	45												
5	52												
1(c)(ii)	any three from : 1 ethylene causes break down of ABA, so gibberellin, active / stimulated / functional ; 2 plants grow tall(er) / stems increase in length / stem elongation / increase in internodal length ; 3 (so) leaves / flowers, held above the water ; 4 (so) photosynthesis can occur / increased access to light / AW or (so) gas exchange / reproduction, can occur ;												

9(a)	1 NAD ; 2 <u>coenzyme A</u> ;
9(b)	any three from: 1 enzyme activity decreases over time at both concentrations (of hydrogen peroxide) ; 2 activity decreases, more / faster / at a greater rate, at high(er) H ₂ O ₂ concentration or enzyme less active with, with high(er) H ₂ O ₂ concentration ; 3 paired data quote ; 4 H ₂ O ₂ , acts as an inhibitor / inhibits enzyme activity ;
9(c)	any four from: 1 energy is used to <u>pump</u> , protons / H ⁺ , into intermembrane space ; 2 proton gradient (formed) ; 3 protons <u>diffuse</u> through ATP synthase ; 4 ATP produced from ADP and Pi ; 5 oxygen accepts electrons to form water ; 6 <i>ref. to</i> chemiosmosis ;
9(d)	any three from: 1 respiration in anaerobic conditions ; 2 produces lactate ; 3 need oxygen, to oxidise lactic acid to CO ₂ and H ₂ O / for breakdown of lactic acid in Krebs cycle plus oxidative phosphorylation / (for ETC) to make extra ATP ; 4 ATP used for lactate → glucose / glycogen ; 5 <i>idea of</i> re-paying oxygen debt ;

1(a)	any two from: glucose (phosphate) ; fructose (phosphate / bisphosphate) ; triose phosphate ; (named) fatty acid / keto-acid ; glycerol ; amino acid ;
1(b)	any four from: 1 breaks down / hydrolyses to, ADP / AMP, and Pi ; 2 releases, energy / 30.5 kJ mol^{-1} ; 3 reversible reaction / high turnover / can be regenerated ; 4 small / soluble, so can, diffuse / move (freely), in cell ; 5 AVP ;
1(c)	substrate-linked / substrate-level (phosphorylation) ;
1(d)(i)	oxygen ;
1(d)(ii)	<i>presence of oxygen:</i> 1 (ATP yield) increases / is higher ; <i>plus any two from:</i> 2 oxygen acts as final, electron / proton, acceptor ; 3 oxidative phosphorylation / chemiosmosis (occurs) ; 4 energy from, reduced NAD / reduced FAD / electron transport chain ; 5 proton gradient / $\text{H}^+ \rightarrow$ into intermembrane space ; 6 ATP made in Krebs cycle ;
2(a)	any four from: 1 sodium hydroxide absorbs, carbon dioxide / CO_2, released by, woodlice / respiration ; 2 oxygen / O_2, taken in reduces pressure (in boiling tube) ; 3 drop of liquid moves towards, boiling tube / bung / woodlice / left ; 4 measure, distance / length, moved by drop, in set time ; 5 <u>rate</u> = distance divided by time ; 6 detail of calculation of volume of O_2 used ;
2(b)	<i>rate at 5 °C:</i> lower / slower and less / lower, kinetic energy or fewer enzyme-substrate, collisions / complexes or fewer, enzyme-catalysed / respiration / glycolysis / link reaction / Krebs cycle, <u>reactions</u> ;