

Question Number	Answer	Mark
1(a)	B ;	(1)

Question Number	Answer	Mark
1(b)	D ;	(1)

Question Number	Answer	Mark
*1(c) 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> <p>succession described:</p> <ol style="list-style-type: none"> 1. reference to lichens and mosses as <u>pioneer</u> community ; 2. able to grow in {little / no} soil / eq ; 3. (that) breaks up (rock) fragments / forms {thin / shallow / eq} soil; 4. reference to {plants / eq} with {small / short / eq} roots ; 5. (able to) grow in {thin / shallow / eq} soil / eq ; 6. idea that changes in soil structure enable {trees / shrubs} to grow / eq ; <p>general points:</p> <ol style="list-style-type: none"> 7. reference to soil able to {hold / retain / contain / eq} {water / minerals} ; 8. as plants {lose leaves / die / decay / eq} ; 9. reference to {organic matter / humus / eq} {increases / released / eq} ; 10. reference to competition effects ; 	(5)

Question Number	Answer	Mark
1 (d)	<p>1. climax (community) ;</p> <p>Any three from:</p> <p>2. includes (both) animals and plants / has many species / has high biodiversity / eq ;</p> <p>3. reference to {interaction / eq} between species / eq ;</p> <p>4. idea of balanced equilibrium of species ;</p> <p>5. reference to {dominant / codominant} (plant or animal) species ;</p> <p>6. reference to stable if no {change to environment / human influence} ;</p>	(4)

Question Number	Answer	Mark
2(a)(i)	(abiotic factors) are non-living / eq ;	(1)

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

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

Question Number	Answer	Mark
2(b)(ii)	<ol style="list-style-type: none"> 1. make it {easier / easy} to {estimate / measure / calculate / count} / eq ; 2. reference to more precise ; 3. idea of each section would be 4% ; 	max (2)

Question Number	Answer	Mark			
2(b)(iii)	<table border="1" style="width: 100%;"> <tr> <td>(water) mint</td> </tr> <tr> <td>(common) duckweed</td> </tr> <tr> <td>(soft) rush</td> </tr> </table> <p>one correct 1 mark ; three correct 2 marks ;;</p>	(water) mint	(common) duckweed	(soft) rush	(2)
(water) mint					
(common) duckweed					
(soft) rush					

Question Number	Answer	Mark
2(b)(iv)	<ol style="list-style-type: none"> 1. {saturation / eq} not measured / depth of water does not give saturation data / eq ; 2. no data on other {factors / variables / conditions} ; 3. other {factors / variables / conditions} may be {affecting distribution / not controlled / confounding} ; 4. named example / eq ; 5. idea of only one set of data taken ; 	<p>max (3)</p>

Question Number	Answer	Mark
3(a)	ref to biotic factors involve {organisms / living} abiotic are {physical / chemical / non-living} (factors) / eq ;	(1)

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

Question Number	Answer	Mark
3* (b)(ii) 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. ref to {several / many / more than 2} readings ; 2. ref to use of random quadrat positions ; 3. description of suitable process to give random positions / eq ; 4. ref to {known / stated} area of quadrat ; 5. number of individuals in each quadrat {counted/ recorded} / eq ; 6. description of how mean density calculated using total count e.g. total number (of each species) divided by total area sampled ; 	<p>maximum (3)</p>

Question Number	Answer	Mark
3(b)(iii)	<p>(Abiotic) light intensity / light duration / availability of oxygen(in rock pools) / length of exposure (to air) / length of submersion / temperature / presence of toxic chemicals / height above sea level / slope/ aspect / wave action / pH / any other suitable e.g. ;</p> <p>(Biotic) predators / availability of food organisms / disease / parasites / competition for a named resource / any other suitable e.g. ;</p>	(2)

Question Number	Answer	Mark
3(b)(iv)	B ;	(1)

Question Number	Answer	Mark
3(b)(v)	<p>Statement A 1. data on two species only / eq ;</p> <p>Statement B Accept any 3 of the following</p> <p>2. idea of density of both species changes as height changes ;</p> <p>3. as height increases <i>L. littorea</i> tends to increase, <i>L. obtusa</i> tends to decrease / eq ;</p> <p>4. no <i>L. obtusata</i> above 2 m, {very few / almost no} <i>L. littor</i> below 0.5 m ;</p> <p>5. competition not a (significant) factor as both species can be found at same height ;</p> <p>6. ref to both are {plentiful / high density} between 0.5 and 1.5 m ;</p> <p>Statement C 7. idea of density of species changes as height changes ;</p> <p>8. ref to no {information / data} for other factors ;</p>	<p>sub-max (3)</p> <p>maximum (4)</p>

Question Number	Answer	Mark
4(a)(i)	A anatomical adaptation ;	(1)

Question Number	Answer	Mark
4(a)(ii)	C 1976 to 1977 ;	(1)

Question Number	Answer	Additional Guidance	Mark
4(b)	<ol style="list-style-type: none"> 1. genetic variation / different alleles / large gene pool ; 2. mutations ; 3. polygenic inheritance / eq ; 	<ol style="list-style-type: none"> 1. ACCEPT genetic diversity, different genotypes 3. ACCEPT more than one gene controls beak size 	(2)

Question Number	Answer	Additional Guidance	Mark
4(c)	<ol style="list-style-type: none"> 1. selection pressure is { lack of food / tough food /eq} ; 2. idea of selection for the { longer / deeper} beaks ; 3. birds with shorter beaks died / reference to figures in table ; 4. birds with { advantageous/ eq } alleles (survive) to breed ; 5. { advantageous / eq} allele(s) passed onto offspring / eq ; 6. change in genotypes over generations / eq ; 	<ol style="list-style-type: none"> 2. CCEPT they survive 4&5. IGNORE genes 6. e.g. increased frequency of alleles for longer and deeper beaks 	(4)