

Using Transects MS

QUESTION 1

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	20		1
a)ii)	12000		1
b)	area of strips or length / width / size of transect or number of transects		1
c)i)	since squirrels mobile or squirrels could be counted twice or squirrels hide		1
c)ii)	any two from: ✗ numbers of larders observed likely to be lower than actual ✗ since unlikely that all could be spotted if 5 m away ✗ old larder ✗ squirrels moved on / died ✗ young squirrels ✗ haven't made a larder	do not accept squirrels share larders or squirrels have more than one larder	2
d)i)	0 to 6.8		1
d)ii)	any one from: ✗ squirrels prefer blue spruce cones / seeds / nuts as food ✗ more cones / food ✗ more nesting sites ✗ fewer predators / competitors	do not accept squirrels prefer blue spruce	1
Total marks			8

QUESTION 2

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	quadrat / grid	allow suitable description in a(i) or a(ii) allow quadrant	1
a)ii)	any two from: ⊖ use a transect / description ⊖ sample every metre	allow measure distance of the test or sample site from road ignore random placing of quadrat	2

	4 0 Total = 15	total correct for their figures	
b)ii)	1.5	allow ecf from (b)(i)	1
b)iii)	180	correct answer with or without working if answer incorrect, allow 1 mark for 15/10 x 120 or 15 x 20 or 15/10 x 12 x 10 10 Or 1.5 x 12 x 10 or 1.5 x 120 allow ecf from (b)(ii) allow 1 mark if only 1 error	2
c)	use a larger sample size / more quadrats or use bigger quadrats	ignore repeats but allow repeat in different places ignore 'count them all'	1
Total marks			7

QUESTION 4

QUESTION	ANSWER	EXTRA INFORMATION	MARKS								
a)i)	(white) clover		1								
a)ii)	reed sweet-grass	allow reed allow grass	1								
a)iii)	(only) found in swamp and aquatic zones or only found in water or doesn't grow in marsh	ignore wet conditions	1								
b)	<table border="1"> <thead> <tr> <th>0 marks</th> <th>Level 1 (1 -2 marks)</th> <th>Level 2 (3 -4 marks)</th> <th>Level 3 (5 -6 marks)</th> </tr> </thead> <tbody> <tr> <td>No relevant content.</td> <td>There is a basic description which describes how a quadrat or a metre tape could be used to collect data</td> <td>There is a clear description of how a quadrat and a metre tape could be used to collect data along a line</td> <td>There is a clear, logical and detailed description of a method that will produce valid, repeatable results across / at intervals along the stream.</td> </tr> </tbody> </table>		0 marks	Level 1 (1 -2 marks)	Level 2 (3 -4 marks)	Level 3 (5 -6 marks)	No relevant content.	There is a basic description which describes how a quadrat or a metre tape could be used to collect data	There is a clear description of how a quadrat and a metre tape could be used to collect data along a line	There is a clear, logical and detailed description of a method that will produce valid, repeatable results across / at intervals along the stream.	6
0 marks	Level 1 (1 -2 marks)	Level 2 (3 -4 marks)	Level 3 (5 -6 marks)								
No relevant content.	There is a basic description which describes how a quadrat or a metre tape could be used to collect data	There is a clear description of how a quadrat and a metre tape could be used to collect data along a line	There is a clear, logical and detailed description of a method that will produce valid, repeatable results across / at intervals along the stream.								
	<p>examples of procedural points made in the response:</p> <ul style="list-style-type: none"> use of tape measure to produce transect placing of quadrats transect placed across stream score presence of each plant species use quadrat at regular intervals along tape repeat transect several times (3) along stream at random or regular intervals 										
Total marks			9								

QUESTION 5

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	chose places randomly method of obtaining randomness, e.g. (grid and) random numbers	allow thrown qualified e.g. over shoulder, eyes shut allow max 1 for mention of a transect with sampling at regular or random intervals	1 1
b)i	7 or 8	allow fractions / decimals between 7 and 8	1
b)ii)	count number of whole squares and add estimate of area covered by part squares	allow reference to counting squares with $\frac{1}{2}$ cover or more allow clear working on diagram and / or (b)(i)	1
b)iii)	28 - 32 (in range)	allow ecf if answer incorrect allow 1 mark for reasonable reference to divided by 25 or multiplied by 4	2
c)	nutrients / minerals / ions / fertiliser / water	allow light / pH / trampling / soil texture / grazing / mowing / weed killer / where seeds originally fell ignore pollution / soil / competition if unqualified ignore temperature / wind	1
Total marks			7

QUESTION 6

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)i)	to get data re position of seaweed / of organism in relation to distance from sea distance down shore / how long each seaweed was exposed		1 1
a)ii)	repeat several times elsewhere along the shore	minimum = 2 repeats	1 1
a)iii)	bladder wrack is further up the shore (than the sea lettuce) / exposed for longer sea lettuce (only) in rock pools / in the sea / (only) in water	ignore found in dry areas / on bare rock	1 1
b)	gets more light / closer to light (so) more photosynthesis	allow better access to CO ₂ allow 1 mark for light for	1 1

		photosynthesis allow 1 mark for CO ₂ for photosynthesis ignore reference to oxygen for respiration 'more' only needed once for 2 marks	
Total marks			8

QUESTION 7

QUESTION	ANSWER	EXTRA INFORMATION	MARKS
a)	any three from: <ul style="list-style-type: none"> place 30-m tape measure across field / from one wood to the other place quadrat(s) next to the tape count / record the number / amount of dandelions / plants in the quadrat repeat every 2 metres 	ignore 'record the results' ignore measures / estimates dandelions allow every metre / at regular intervals	3
b)i	low light / it is shady or not enough water / ions / nutrients or wrong pH of soil	allow no light ignore sun / rays accept correct named ion ignore no water / ions / nutrients accept competition with trees for light / water / ions ignore competition for space and competition unqualified accept soil too acidic / too alkaline ignore temperature	1
b)ii)	sensible suggestion for a small area, eg chance variation / anomaly / poisoned by animal waste / wrong pH of soil / eaten (by animals) / cut down / footpath		1
c)	repeat (transect) / compare with the results of other groups at different / random location(s) / elsewhere (across the field)	allow 'do it in two different locations' for 2 marks do not allow 'in other fields'	1 1
Total marks			7

QUESTION 8

QUESTION	ANSWER				EXTRA INFORMATION	MARKS
a)	<p>0 marks</p> <p>No relevant content.</p>	<p>Level 1 (1–2 marks)</p> <p>The apparatus needed to measure the leaf is identified or the apparatus needed to measure light intensity is identified or an appropriate use of the tape measure is identified.</p>	<p>Level 2 (3–4 marks)</p> <p>There is a description of a leaf being measured at different locations_ or light being measured at different locations_.</p>	<p>Level 3 (5–6 marks)</p> <p>There is a description of a leaf and light being measured at different locations_ and repetitions are included or a control variable is described or appropriate mathematical treatment of the data is described</p>		
	<p>examples of points made in the response:</p> <ul style="list-style-type: none"> •use of tape measure to produce transect •transect placed coming out of shady area (eg woodland) into lighter area •repeat transects •samples at same height above ground •samples at same aspect (N / E / S / W) on trees •measurement of length, or width, of leaves using ruler •measure several leaves at each location •use of light meter to measure light intensity •repeat measurements of light intensity on several days •measure light intensities at same time of day •calculate mean for each location •plot graph of mean leaf length, or width, vs. light intensity 					
Total marks						6