

Using Transects 2 MS

QUESTION 1

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 2

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

QUESTION 3

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	1

		accept competition with trees for light / water / ions ignore competition for space and competition unqualified accept soil too acidic / too alkaline ignore temperature	
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	allow 'do it in two different locations' for 2 marks	1
	at different / random location(s) / elsewhere (across the field)	do not allow 'in other fields'	1
Total marks			7

QUESTION 4

QUESTION	ANSWER				EXTRA INFORMATION	MARKS
a)	0 marks No relevant content.	Level 1 (1–2 marks) 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.	Level 2 (3–4 marks) There is a description of a leaf being measured at different locations or light being measured at different locations.	Level 3 (5–6 marks) 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		
	examples of points made in the response: <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 					

	<ul style="list-style-type: none">•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