

# **Environmental and Land-Based Science**

General Certificate of Secondary Education

Unit **B493/01**: Management of the Natural Environment (Foundation Tier)

## **Mark Scheme for June 2011**

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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<b>Annotation</b>	<b>Meaning</b>
/	alternative and acceptable answers for the same marking point
(1)	separates marking points
<b>not/reject</b>	answers which are not worthy of credit
<b>ignore</b>	statements which are irrelevant - applies to neutral answers
<b>allow/accept</b>	answers that can be accepted
(words)	words which are not essential to gain credit
words	underlined words must be present in answer to score a mark
ecf	error carried forward
AW/owtte	alternative wording
ORA	or reverse argument

## MARK SCHEME: B493/01

Question		CBT Question Number	Answer	Mark	Guidance
1		1	slipping on rocks ----- wear footwear with grip heat stroke ----- carry water to prevent dehydration	1	<b>both</b> answers need to be correct for 1 mark
2		2	<b>C</b> pea	1	
3		3	alkaline 9 8 neutral 7 6 acidic 5	2	all three correct for 2 marks one correct 1 mark
4	a	4	sand / sandy	1	<b>accept:</b> not mouldable <b>reject:</b> sandy loam / grit / gravel
	b	4	cannot hold onto nutrients; warms up quickly in spring / cools quickly in autumn; particles do not stick together	1	if (a) is incorrect then ecf <b>accept:</b> reference to good drainage / big air spaces <b>reject:</b> easier to use / dig; acid / alkaline; ref to colour

Question		CBT Question Number	Answer	Mark	Guidance
5		5	D a place where organisms live	1	
6		6	sparrow ↑ ladybird ↑ aphids ↑ plants	2	all in correct sequence = 2 marks  plants in correct place = 1 mark
7		7	mulching  black polythene	2	1 mark for each correct answer
8	a	8	large / strong (front) legs / feet / hands / claws	1	<b>accept:</b> nails / fingers / paws <b>reject:</b> pointed nose / head
	b	8	they live underground / where there is no light / good sense of smell / sensitive to vibrations / live in the dark	1	<b>accept:</b> sensitive to touch / only come out at night

Question			CBT Question Number	Answer	Mark	Guidance
9	a		9	support	1	
	b		9	water / minerals	1	<b>reject:</b> food / nitrogen / space <b>accept:</b> nitrates / nutrients
10			10	slugs earthworms woodlice bacteria	1	<b>reject:</b> insects <b>accept:</b> ants
11			11	to protect people from injury OWTTE to protect the monument from damage OWTTE	2	<b>reject:</b> damage habitats; dangerous UNLESS qualified <b>accept:</b> health and safety
12	a		12	wind / wind generator / air movement <b>and</b> solar / light / solar panel	1	<b>both</b> answers needed for the mark <b>accept:</b> (rechargeable) batteries
	b		12	one of the energy resources may not be available ie solar will not work at night / windmill (aero generator) will not work unless the wind is blowing	1	1 mark for explanation <b>reject:</b> make it brighter

Question		CBT Question Number	Answer	Mark	Guidance
13		13	two from: cultivated land / land with buildings / military / racecourses / land normally used for training horses / aerodromes / railway land / quarries / surface mineral workings / golf courses	2	<b>accept:</b> conservation areas; SSI; protected wildlife areas / schools / motorways / building sites <b>reject:</b> private property; barns; farms
14	a	14	20 (%)	1	
	b	14	30 (%)	1	
15	a	15	139 [129+149 divided by 2 = 139]	1	only 139
	b	15	45 [135 divided by 3 = 45]	1	only 45
16	a	16	<b>B</b>	1	
	b	16	rates are equal / balanced	1	
17		17	examples of weathering: physical / chemical / biological / causing features to eroded	2	1 mark for <b>each</b> (of two) cause of weathering <b>reject:</b> rain / wind UNLESS qualified <b>accept:</b> acid rain

Question		CBT Question Number	Answer	Mark	Guidance
18		18	<p>any three:</p> <p><b>advantages:</b> large area covered / faster / quicker; reduces soil compaction / less crop damage / less fuel used ORA</p> <p><b>disadvantages:</b> difficult to manoeuvre / cannot be used in confined spaces / easy to damage; loss of hedgerows ORA</p>	3	<p>maximum of 2 marks if <b>all</b> advantages or <b>all</b> disadvantages</p> <p><b>reject:</b> go over same area twice / expensive</p> <p><b>accept:</b> less runs; less labour; heavier therefore soil compaction</p>
19		19	<p>visual</p> <p>large amount of waste produced;</p> <p>less land required;</p> <p>high energy consumption;</p> <p>increased use of antibiotics / medication;</p> <p>habitat loss;</p> <p>soil damage</p> <p>ORA</p>	3	<p>one point in detail = 2 marks</p> <p><b>accept:</b> air pollution if qualified (methane); waste pollutes water sources</p> <p><b>reject:</b> water pollution UNLESS qualified</p>
				36	

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