

# **Environmental and Land Based Science**

General Certificate of Secondary Education

Unit **B683/01/03**: Commercial Horticulture, Agriculture and Livestock Husbandry  
(Foundation Tier)

## **Mark Scheme for June 2013**

---

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

© OCR 2013

For answers marked by levels of response:

- a. **Read through the whole answer from start to finish**
- b. **Decide the level that best fits** the answer – match the quality of the answer to the closest level descriptor
- c. **To determine the mark within the level**, consider the following:

Descriptor	Award mark
A good match to the level descriptor	The higher mark in the level
Just matches the level descriptor	The lower mark in the level

- d. Use the **L1**, **L2**, **L3** annotations in Scoris to show your decision; do not use ticks.

Quality of Written Communication skills assessed in 6-mark extended writing questions include:














- appropriate use of correct scientific terms
- spelling, punctuation and grammar
- developing a structured, persuasive argument
- selecting and using evidence to support an argument
- considering different sides of a debate in a balanced way
- logical sequencing.
- 

#### Annotations

Annotation	Meaning
/	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

Available in scoris to annotate scripts

	indicate uncertainty or ambiguity
	benefit of doubt
	contradiction
	incorrect response
	error carried forward
	draw attention to particular part of candidate's response
	draw attention to particular part of candidate's response
	draw attention to particular part of candidate's response
	no benefit of doubt
	reject
	correct response
	draw attention to particular part of candidate's response
	information omitted

**Subject-specific Marking Instructions**

- a. If a candidate alters his/her response, examiners should accept the alteration.
- b. Crossed out answers should be considered only if no other response has been made. When marking crossed out responses, accept correct answers which are clear and unambiguous.

Eg

For a one mark question, where ticks in boxes 3 and 4 are required for the mark:

Put ticks (✓) in the two correct boxes.

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

This would be worth 1 mark.

Put ticks (✓) in the two correct boxes.

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

This would be worth 0 marks.

Put ticks (✓) in the two correct boxes.

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

This would be worth 1 mark.

c. The list principle:  
 If a list of responses greater than the number requested is given, work through the list from the beginning. Award one mark for each correct response, ignore any neutral response, and deduct one mark for any incorrect response, eg one which has an error of science. If the number of incorrect responses is equal to or greater than the number of correct responses, no marks are awarded. A neutral response is correct but irrelevant to the question.

d. Marking method for tick boxes:  
 Always check the additional guidance.  
 If there is a set of boxes, some of which should be ticked and others left empty, then judge the entire set of boxes.  
 If there is at least one tick, ignore crosses. If there are no ticks, accept clear, unambiguous indications, eg shading or crosses.  
 Credit should be given for each box correctly ticked. If more boxes are ticked than there are correct answers, then deduct one mark for each additional tick. Candidates cannot score less than zero marks.

E.g. If a question requires candidates to identify a city in England, then in the boxes

<b>Edinburgh</b>	
<b>Manchester</b>	
<b>Paris</b>	
<b>Southampton</b>	

the second and fourth boxes should have ticks (or other clear indication of choice) and the first and third should be blank (or have indication of choice crossed out).

<b>Edinburgh</b>			✓			✓	✓	✓	✓	
<b>Manchester</b>	✓	x	✓	✓	✓				✓	
<b>Paris</b>				✓	✓		✓	✓	✓	
<b>Southampton</b>	✓	x		✓		✓	✓		✓	
<b>Score:</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>NR</b>

## MARK SCHEME:

Question		CBT Question Numbers	Answer	Mark	Guidance
1		1	Cherry – Hydrangea – Buddleia - Forsythia	3	all correct = 3 marks 2 or 3 correct = 2 marks 1 correct = 1 mark
2		2	<b>B:</b> preventing weed growth	1	
3		3	<b>D:</b> hardiness	1	
4		4	<p><b>[Level 3]</b> Explains the main stages in such a way that someone following it could carry out the procedure safely. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks)</p> <p><b>[Level 2]</b> Explains the main stages in the correct sequence with some omissions in the procedure or safety. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks)</p> <p><b>[Level 1]</b> Explains some of the main stages with omissions in both procedure and safety. Quality of written communication impedes communication of the science at this level. (1 – 2 marks)</p> <p><b>[Level 0]</b> Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)</p>	6	<p><b>This question is targeted at grades up to E</b></p> <p><b>Indicative scientific points may include:</b></p> <ul style="list-style-type: none"> <li>• planning the job/risk assessment</li> <li>• wearing PPE</li> <li>• calibrating scales</li> <li>• working calmly so as not to upset the animal</li> <li>• using a weigh-band</li> <li>• safely moving animal into the crate</li> <li>• recording weight</li> <li>• identifying animal</li> <li>• safely returning animal</li> <li>• cleaning scales</li> <li>• separate weighed and non-weighed animals</li> </ul>

Question		CBT Question Numbers	Answer	Mark	Guidance
5		5	rumen; reticulum; abomasum	3	
6		6	<p><b>[Level 3]</b> Explains in detail both the advantages and disadvantages of the siting of this glasshouse. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks)</p> <p><b>[Level 2]</b> Explains some features of both the advantages and disadvantages of the siting of this glasshouse. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks)</p> <p><b>[Level 1]</b> Lists some advantages or disadvantages with limited explanation. Quality of written communication impedes communication of the science at this level. (1 – 2 marks)</p> <p><b>[Level 0]</b> Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)</p>	6	<p><b>This question is targeted at grades up to E</b></p> <p><b>Indicative scientific points may include:</b></p> <p>Advantages</p> <ul style="list-style-type: none"> <li>• easy access - to work in there</li> <li>• insulation/heat from classroom</li> <li>• sheltered spot – to avoid wind damage</li> <li>• access to services</li> </ul> <p>Disadvantages</p> <ul style="list-style-type: none"> <li>• orientation – is not south facing to maximise sun</li> <li>• overhanging trees – avoid – falling branches; shade; leaves in gutters</li> <li>• near a slope risk of water run off</li> <li>• danger of objects/pupils running into it</li> <li>• near a path/glass/danger</li> <li>• overhanging trees – avoid – falling branches; shade; leaves in gutters</li> <li>• shade; avoid - plants need the light</li> </ul>
7		7	egg release - egg and sperm meet – sperm enters egg - chromosomes join	2	2 marks all correct 3 in correct order but wrong boxes 1 mark 1 mark 2 correct
8		8	Mineral Magic – because it contains both calcium for bones and iron for the blood	2	<b>allow</b> one mark each if reason for calcium or iron given regardless of supplement chosen.



Question		CBT Question Numbers	Answer	Mark	Guidance
9		9	Biological involves using other living organisms to control the pest Non-biological involves using cultural/chemical pest control	2	<b>accept</b> spraying
10		10	<b>B:</b> pancreas	1	
11		11	Loss of nutrient; build-up of pests; build-up of disease	2	Max 2 points
12		12	Compost, mulch, peat pots, raised beds	2	<b>Max 2 – ignore</b> words growing medium/soil improver but except suitable examples
13	(a)	13	Amateur gardeners.	1	
	(b)	13	6%	1	
	(c)	13	Any campaign needs to be directed at amateur gardeners and professional growers because they use most peat.	2	
14	(a)	14	Amateur gardeners.	2	
	(b)	14	It rose until 2001 then gradually declined until 2007.		
15	(a)	15	2 572.5 and 46%	2	A – 45.6%
	(b)	15	Peat alternatives are more popular for soil improvement than as a growing medium; peat is used more as a growing medium; more peat alternatives are used than peat.	2	Max 2 points
16	(a)	16	<b>Any two from:</b> population goes up and down (fluctuates) throughout the period; reaches a maximum of approximately 32 million in 2005; and a minimum of 26.5 million in 2008);	2	

Question		CBT Question Numbers	Answer	Mark	Guidance
			naming of any <b>two</b> critical figures from the graph		
	(b)	16	Free Range hens 194p	1	Both needed for the mark
17		17	<p><b>[Level 3]</b> Compares in detail the advantages and disadvantages of both intensive and extensive egg production. The answer is balanced with reference to the photographs. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks)</p> <p><b>[Level 2]</b> Compares both advantages and disadvantages of intensive and extensive egg production but not necessarily a balanced argument or reference to the photographs. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks)</p> <p><b>[Level 1]</b> Describes the features of intensive and extensive with limited comparison. Quality of written communication impedes communication of the science at this level. (1 – 2 marks)</p> <p><b>[Level 0]</b> Insufficient or irrelevant science. Answer not worthy of credit.</p>	6	<p><b>This question is targeted at grades up to C</b></p> <p><b>Indicative scientific points may include:</b></p> <p><b>Intensive Advantages</b></p> <ul style="list-style-type: none"> <li>• cheaper food production</li> <li>• less labour needed</li> <li>• easier environmental control</li> <li>• take up less space</li> <li>• predator proof</li> <li>• animals eat less</li> </ul> <p><b>Intensive Disadvantages</b></p> <ul style="list-style-type: none"> <li>• cost to set up</li> <li>• welfare issues</li> <li>• ethical issues</li> <li>• waste production</li> <li>• energy consumption</li> <li>• easier disease transmission</li> </ul> <p><b>Extensive Advantages</b></p> <ul style="list-style-type: none"> <li>• welfare issues</li> <li>• food more valuable</li> <li>• easier to monitor individual health</li> </ul> <p><b>Extensive Disadvantages</b></p> <ul style="list-style-type: none"> <li>• cost of labour</li> <li>• welfare issues</li> <li>• risk of predator</li> <li>• needs a lot of land</li> </ul>

Question			CBT Question Numbers	Answer	Mark	Guidance
						<p>Do not credit answers which are the same advantages/disadvantages repeated for each system</p> <p>Ignore cheaper /more profitable without qualification</p>
				<b>Total</b>	<b>50</b>	

**OCR (Oxford Cambridge and RSA Examinations)**  
**1 Hills Road**  
**Cambridge**  
**CB1 2EU**

**OCR Customer Contact Centre**

**Education and Learning**

Telephone: 01223 553998

Facsimile: 01223 552627

Email: [general.qualifications@ocr.org.uk](mailto:general.qualifications@ocr.org.uk)

**[www.ocr.org.uk](http://www.ocr.org.uk)**

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

**Oxford Cambridge and RSA Examinations**  
is a Company Limited by Guarantee  
Registered in England  
Registered Office; 1 Hills Road, Cambridge, CB1 2EU  
Registered Company Number: 3484466  
OCR is an exempt Charity

**OCR (Oxford Cambridge and RSA Examinations)**  
Head office  
Telephone: 01223 552552  
Facsimile: 01223 552553

© OCR 2013

