



**GCSE**

# **Environmental and Land Based Science**

General Certificate of Secondary Education

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

## **Mark Scheme for January 2013**

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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.

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## 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
Annotation	Meaning
	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

Annotation	Meaning
	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.

✗
✗

This would be worth 1 mark.

Put ticks (✓) in the two correct boxes.

✓
✗

This would be worth 0 marks.

Put ticks (✓) in the two correct boxes.

✗
✗
✓
✓

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.

Eg 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>	2	2	1	1	1	1	0	0	0	NR

Question			Answer	Marks	Guidance
1	(a)	1	begonia <b>E</b> fuchsia <b>B</b> lobelia <b>D</b> marigold <b>A</b> pelargonium (geranium) <b>C</b>	4	
	(b) (i)	2(a)	250	1	
	(ii)	2(b)	£187.5	1	allow ecf from part (b)
2		3	sowing anywhere before pricking out (1) pricking out anywhere before potting on (1) potting on anywhere before planting out (1)	3	
3		4	carbohydrate for energy; fat for energy; fibre to aid digestion; protein for growth and repair;	4	
4		5	annual plant lives for 1 year a perennial for many; annuals die after seeding perennials do not.	2	

Question			Answer	Marks	Guidance
5		6	<p><b>Level 3 (5–6 marks)</b>            Selective breeding; cross mutated animal with another animal; select offspring with the mutation; breed with these; repeat many times till a viable population is produced. All information in answer is relevant, clear, organised and presented in a structured and coherent format. Specialist terms are used appropriately. Few, if any, errors in grammar, punctuation and spelling.</p> <p><b>Level 2 (3–4 marks)</b>            Will cover the breeding of the best but will ignore the need to repeat over many generations. For the most part the information is relevant and presented in a structured and coherent format. Specialist terms are used for the most part appropriately. There are occasional errors in grammar, punctuation and spelling.</p> <p><b>Level 1 (1–2 marks)</b>            Will cover breeding with this animal to produce more with the characteristic. Answer may be simplistic. There may be limited use of specialist terms. Errors of grammar, punctuation and spelling prevent communication of the science.</p> <p><b>Level 0 (0 marks)</b>            Insufficient or irrelevant science. Answer not worthy of credit.</p>	6	<p><b>This question is targeted at grades up to E</b></p> <p><b>Relevant points include:</b></p> <ul style="list-style-type: none"> <li>• Concept of selective breeding</li> <li>• Breeding with another animal without the new characteristic</li> <li>• Selection of 2<sup>nd</sup> generation with the characteristic</li> <li>• Breeding with this 2<sup>nd</sup> generation either with each other with the parent or with other unrelated animals</li> <li>• Repetition over many generations</li> <li>• Until the line breeds true.</li> </ul> <p><b>accept</b> references to inbreeding / line-breeding</p> <p><b>ignore</b> anything to do with genetic engineering.</p>



Question			Answer	Marks	Guidance
6	(a)	7	D	1	
	(b)	8	80	1	
7		9	<p><b>Level 3 (5–6 marks)</b> Covers all aspects of preparation, laying and aftercare with some explanation. All information in answer is relevant, clear, organised and presented in a structured and coherent format. Specialist terms are used appropriately. Few, if any, errors in grammar, punctuation and spelling.</p> <p><b>Level 2 (3–4 marks)</b> Does not cover up to 2 aspects of the production, or fails to explain why the actions were carried out. For the most part the information is relevant and presented in a structured and coherent format. Specialist terms are used for the most part appropriately. There are occasional errors in grammar, punctuation and spelling.</p> <p><b>Level 1 (1–2 marks)</b> Only describes how to lay the turf. Answer may be simplistic. There may be limited use of specialist terms. Errors of grammar, punctuation and spelling prevent communication of the science.</p> <p><b>Level 0 (0 marks)</b> Insufficient or irrelevant science. Answer not worthy of credit.</p>	6	<p><b>This question is targeted at grades up to E</b></p> <p><b>Relevant points include:</b></p> <ul style="list-style-type: none"> <li>• ground preparation, (weeding, stone removal, feeding, levelling)</li> <li>• turf selection.</li> <li>• calculation of quantities of turf needed</li> <li>• timing of turf laying – ideally spring or autumn</li> <li>• turf laying – (turf laid in staggered pattern; firming; filling in cracks)</li> <li>• after care watering, further crack filling, avoiding walking on new lawn.</li> </ul> <p><b>Ignore</b> ideas about the advantages / disadvantages of turf.</p> <p><b>ignore</b></p>

Question			Answer	Marks	Guidance
8	(a)	10	80000 g (80 Kg)	1	
	(b)		24000 g (24 Kg)	1	
9		11	put the cow to the bull; carry out AI on the cow	1	<b>accept</b> mark / record the animal which is on heat.
10		12	strangers cause stress in the cows; milk let-down is controlled by hormones; stress hormones cause less milk to be released.	2	
11		13	generic: plan the task; use more than one person; check security of new field; check route to be taken; put up warning signs; approach animal correctly; move animal in calm, quiet manner; secure animal in field; check on animal regularly;  specific to animal: e.g. pig board / food to encourage pig; cattle – halter / steel toe cap boots; sheep – dog / number of people	4	any two from generic any two specific points or two further generic points linked clearly to the animal

Question			Answer	Marks	Guidance
12	(a)	14	<p><b>Level 3 (5–6 marks)</b> Will cover all aspects of feeding including colostrum, introduction of solids, hay / straw, water and the process of weaning with explanations as to the importance of each. All information in answer is relevant, clear, organised and presented in a structured and coherent format. Specialist terms are used appropriately. Few, if any, errors in grammar, punctuation and spelling.</p> <p><b>Level 2 (3–4 marks)</b> Covers the basics of feeding but ignores either early feeding or weaning, limited explanations as to the importance of each stage. For the most part the information is relevant and presented in a structured and coherent format. Specialist terms are used for the most part appropriately. There are occasional errors in grammar, punctuation and spelling.</p> <p><b>Level 1 (1–2 marks)</b> Covers one aspect of feeding a young animal, little or no explanations of importance. Answer may be simplistic. There may be limited use of specialist terms. Errors of grammar, punctuation and spelling prevent communication of the science.</p> <p><b>Level 0 (0 marks)</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>Relevant points include:</b></p> <ul style="list-style-type: none"> <li>• colostrum – essential young mammals receive this in the first few hours. – High in antibodies for immunity; rich in fat and protein for energy and growth</li> <li>• provide tasty / sweet food in small amounts straight away</li> <li>• if bottle feeding the need for hygiene, correct amounts / temperature</li> <li>• provide clean water</li> <li>• hay and straw to stimulate rumen development</li> <li>• weaning – as soon as the young animal is taking sufficient solid food; start reducing the amounts of milk; increasing the amounts of <b>solid</b> food; eventually removing milk altogether.</li> </ul> <p><b>accept</b> references to the commercial importance of weaning early: importance of mother / offspring bonding.</p>

Question			Answer	Marks	Guidance
12	(b)(i)	15	800 & 14700	1	<b>ignore</b> error carried forward
	(ii)		30880 (30.9 litres)	1	<b>ignore</b> error carried forward
	(iii)		6176 (6.18 kg)	1	<b>ignore</b> error carried forward
	(iv)		15.44	1	
	(v)		it cost too much / takes away the profit from the lamb; it takes a lot of time to feed the lambs / they only make about £4.60 profit	2	
			<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)**

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

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