OCR
Oxford Cambridge and RSA

GCSE

Environmental and Land Based Science

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

General Certificate of Secondary Education

Mark Scheme for June 2015

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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.

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

These are the annotations, (including abbreviations), including those used in scoris, which are used when marking

Annotation	Meaning of annotation
BP	Blank Page – this annotation **must** be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
	Tick
	Cross
	Unclear
BOD	Benefit of doubt
EE	Effective evaluation
L1	Level 1
L2	Level 2
L3	Level 3
L4	Level 4
NAQ	Not answered question
OFR	Own figure rule
SEEN	Noted but no credit given
TV	Too vague
^	Omission

1. 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.

E.g.

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

Put ticks (✓) in the two correct boxes.	Put ticks (✓) in the two correct boxes.	Put ticks (✓) in the two correct boxes.
☐	☐	☒
☐	☐	☒
☒	✓	✓
☒	☒	✓
☐	☐	☐
This would be worth 1 mark.	This would be worth 0 marks.	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, e.g. 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, e.g. 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

Edinburgh	
Manchester	
Paris	
Southampton	

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

Edinburgh			✓			✓	✓	✓	✓	
Manchester	✓	×	✓	✓	✓				✓	
Paris				✓	✓		✓	✓	✓	
Southampton	✓	×		✓		✓	✓		✓	
Score:	**2**	**2**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**NR**

Question			Answer	Mark	Guidance
1			A) Space/light/water/nutrients any one B) Compost C) Roots D) Watered/labelled any one	4	accept room ignore soil/peat accept stem
2			If the leaf is damaged it can grow a new one if the stem is damaged it will die.	1	accept examples of the stems importance
3			D (If the number of pests increases, the population of wasps increases)	1	
4	a	i	Fairly constant rate of use	1	allow same at the start and at the end/ goes down a little then back up
	a	ii	Increased from 48 (range 47-49) to 90	1	allow increased by 42
4	b		Because of alternatives available, cost (explained), environmental considerations (explained), running out/non-renewable	1	
5	a		£48	1	
5	b		25g/m2	1	
6	a		250g or 625g (0.625kg) (allowed if traditional ratios not percentages used for calculation)	2	1 mark for correct calculation with incorrect answer.
6	b		Nitrogen is needed for the rapid leaf growth in spring; grass grows less in autumn	1	
6	c		Sandy soils leach nutrients more than clay soils therefore need more nutrients.	1	allow clay soils have more nutrients than sandy

Question			Answer	Mark	Guidance
7			Cloches placed over rows of seeds or young plants; Cloches used to warm soil before seed sowing/planting; Allow plants to be grown earlier; later in the season; protect plants from cold; heavy rain; Cloches protect against some pests e.g. birds.	4	Any 4 points accept raises humidity, provides shelter.
8	a		Growing plants in water /nutrient solution (rather than compost)	1	
8	b		Plants can be grown anywhere; better control over plant growth; better suited to low labour/ICT systems; water and nutrients are conserved; less pest and disease problems; no peat is used (environmentally better). **Any 3.**	3	

Question			Answer	Mark	Guidance
9			**[Level 3]** Describes in details most operations needed to maintain permanent planting and explains the reasons for most of these operations. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks) **[Level 2]** Describes some of the operations needed to maintain permanent planting and explains the reasons for some of these operations. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks) **[Level 1]** Describes a limited number of maintenance operations needed to maintain permanent planting. Quality of written communication impedes communication of the science at this level. (1 – 2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	6	**This question is targeted at grades up to E** **Indicative scientific points may include:** **Descriptions of** • watering • feeding • weed control • pruning allow tidy up bushes • hoeing allow turn the soil • removing litter • dead heading • pest control • regulate pH • replanting • reduce overcrowding **Use the L1, L2, L3 annotations in Scoris; do not use ticks.**

Question			Answer	Mark	Guidance
10			**[Level 3]** Explains what foods are given, what they contribute to a balanced diet and their role in maintaining health with possible discussion of the impact of deficiency of some of these components. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks) **[Level 2]** Explains some of the components of a balanced diet and their role in maintaining health. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks) **[Level 1]** Describes the main components of a balanced diet Quality of written communication impedes communication of the science at this level. (1 – 2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	6	**This question is targeted at grades up to C** **Indicative scientific points may include:** • role of carbohydrates • role of protein • role of lipids • role of fibre • role of water • role of vitamins (A,C and D) • role of minerals (Ca and Fe) • Impact of deficiencies • effect of excesses of fat and/or carbohydrates • the differences in dietary requirements for different classes of animals(ruminant or omnivore) • the differences in dietary requirements for animals at different stages in their lifecycles • production and maintenance rations • bulk, concentrate, succulent and roughage • need for a balanced diet **Use the L1, L2, L3 annotations in Scoris; do not use ticks.**

Question			Answer	Mark	Guidance
11			Likely to be draughty – leading to chills Likely to be damp – leading to pneumonia Sheet steel – danger from cuts Unsecure – animals could escape Loose materials – animals could eat danger of collapse - injury to the animals	3	Any 3
12			succulent pellets calf-rearing mix hay	4	
13			The pig is kept outside Low stocking density	2	allow plenty of room /only 1 pig

Question			Answer	Mark	Guidance
14			**[Level 3]** Describes most of the signs of an animal being on heat and explains why it is important that the farmer recognises this. Quality of written communication does not impede communication of the science at this level. (5 – 6 marks) **[Level 2]** Describes a range of the signs of an animal being on heat. Quality of written communication partly impedes communication of the science at this level. (3 – 4 marks) **[Level 1]** Describes at least one sign of an animal on heat. Quality of written communication impedes communication of the science at this level. (1 – 2 marks) **[Level 0]** Insufficient or irrelevant science. Answer not worthy of credit. (0 marks)	6	**This question is targeted at grades up to E** **Indicative scientific points may include:** **Signs of heat** • mounting other cows • being mounted by other cows • standing to boar • enlarged/red vulva • discharge from vulva • sniffing each other's rears • increased vocalisation • increased restlessness • moody aggressive behaviour **Allow:** • description of mechanical/computerised systems to detect oestrus. **Reasons for its importance** • missed heat means waiting till the next oestrus • lack of young being produced • lost milk production • knowing when to serve/ put the male in • AI the animal • lack of heat may mean the animal is barren • recognition of puberty in heifers • knowing when the animal is likely to next be on heat **Use the L1, L2, L3 annotations in Scoris; do not use ticks.**

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