

## **GCSE**

### **Environmental and Land Based Science**

Unit **B682/01**: Plant Cultivation and Small Animal Care (Foundation Tier)

General Certificate of Secondary Education

### **Mark Scheme for June 2016**

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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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Expected Answers			Marks	Additional Guidance
1	a	4 (1) 2 5 3	3	All 4 responses correct = 3 2 responses correct = 2 1 response correct = 1
1	b	September –March/ Autumn/ Winter; When the plant/roots are dormant/not growing	2	
2	a	Any two from: Organic natural/inorganic artificial Organic release nutrients slowly/ inorganic release nutrients quickly Organic contain micronutrients/ inorganic don't Organic contain variable/unknown quantities of nutrients/ inorganic contain fixed/known quantities Organic stimulate soil microbes Organic improve soil structure Organic are heavier to apply	2	Do not need a comparison <b>A</b> inorganic is artificial or chemical <b>A</b> organic is cheaper
2	b	Manure/name example	1	Dried blood, hoof and horn, bone meal, wood ash, kelp, (garden) compost
2	c	Plot 5	1	
2	d	2.9kg	2	Two marks for the correct answer One mark for correct total 14.5kg or correct workings
2	e	Any one from: They were eaten (by pests)/ disease The students missed the potatoes when they dug them up The plot was in the shade Too many weeds stopped the potato from growing Too much/ too little water	1	<b>I</b> fertiliser washed away in the rain
2	f	(no) Yield (in Plot 1) inorganic is higher than organic; Inorganic 1.46kg and organic 1.43kg	2	

Expected Answers			Marks	Additional Guidance
3		See LOR markscheme	6	
4		Any two from: Go mouldy/rotten/decay; Dry out/shrivel up; Taste/smell changes; Texture/soft; Colour	2	
5		Biological pest control uses living organisms; Non biological control uses pesticides/ chemicals	2	<b>I</b> biological is natural
6	a	See LOR markscheme	6	
	b	Any three from: Broiler was heavier at the start Broiler grew/ increased in mass faster Broiler heavier at end Any comparative data	3	eg. 644g compared to 242g
6	c	608	1	
	d	Any two from: Use more chickens Compare using different breeds of layers and broilers Weigh the chickens every day Weigh the chickens for a longer period of time Repeat the investigation	2	<b>A</b> relevant comment about gender
	e	Any three from: Select hens that lay a lot of eggs; Select offspring that lay a lot of eggs; Continue over many generations; reference to using males with proven record ie ones whose progeny have been shown to be good layers	3	
7		See LOR markscheme	6	

Expected Answers			Marks	Additional Guidance
8	a	Hopping around	1	
	b	More time sleeping; Less time eating/hopping/other named activity; More time scratching.	2	
	c	The rabbit is ill; The rabbit has (external) parasite/suitable named example; Pregnant	2	<b>A</b> no food provided <b>A</b> weather if qualified <b>A</b> different time of day
		Total	50	

Question	Answer	Marks	Guidance
3	<p><b>[Level 3]</b> A description of a range of signs of ill health in plants <b>and</b> an explanation of the causes. Quality of written communication does not impede communication of the science at this level. (5-6 marks)</p> <p><b>[Level 2]</b> A description of some of the signs of ill health in plants <b>and</b> an explanation of the causes. <b>OR</b> A full description of most of the signs of ill health in plants. Quality of written communication partly impedes communication of the science at this level. (3-4 marks)</p> <p><b>[Level 1]</b> A description of some of the signs of ill health in plants <b>or</b> an explanation of the causes. 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 C</b></p> <p><b>Indicative scientific points may include:</b></p> <ul style="list-style-type: none"> <li>• Wilting</li> <li>• Due to lack of water</li> <li>• Signs of nutrient deficiency/poor growth</li> <li>• Due lack of named nutrient</li> <li>• Signs of pest damage/named pest damage</li> <li>• Due to presence of named pest</li> <li>• Signs of fungal disease</li> <li>• Due to fungi/named fungal disease</li> <li>• Signs of viral infection</li> <li>• Due to virus/name viral disease</li> <li>• Signs of overwatering</li> <li>• Due to too much water</li> </ul>

Question	Answer	Marks	Guidance
6a	<p><b>[Level 3]</b> A full description of all aspects of weighing the small mammal. Quality of written communication does not impede communication of the science at this level. (5-6 marks)</p> <p><b>[Level 2]</b> A description of most of the aspects of weighing a small mammal. Quality of written communication partly impedes communication of the science at this level. (3-4 marks)</p> <p><b>[Level 1]</b> A description of some of the aspects of weighing a small mammal. 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>• Wearing PPE</li> <li>• Washing hands</li> <li>• Zeroing the scales</li> <li>• Calibrating the scales</li> <li>• Description of how to handle animal</li> <li>• Description of how to keep the animal calm/safe</li> <li>• Suitable scales</li> <li>• Suitable units/resolution</li> <li>• Suitable container for holding the animal</li> <li>• Note down the weight</li> <li>• Identification of animals</li> <li>• Repeat readings/ find a mean</li> <li>• Put back in the pen</li> </ul>

Question	Answer	Marks	Guidance
7	<p><b>[Level 3]</b> A full description of digestion to include all the major organs <b>and</b> their function. Quality of written communication does not impede communication of the science at this level. (5-6 marks)</p> <p><b>[Level 2]</b> A description of digestion to include some of the major organs <b>and</b> their function. Quality of written communication partly impedes communication of the science at this level. (3-4 marks)</p> <p><b>[Level 1]</b> A description of digestion to include an organ involved <b>and</b> its function. 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 C</b></p> <p><b>Indicative scientific points may include:</b></p> <ul style="list-style-type: none"> <li>• Mechanical digestion in the mouth by the teeth</li> <li>• Saliva to moisten or break down the food</li> <li>• Acid in stomach</li> <li>• to kill microbes</li> <li>• Break down of food in stomach/small intestines/saliva to digest food</li> <li>• By enzymes</li> <li>• Absorption of digested food/named substances</li> <li>• In the small intestine</li> <li>• Bacterial action in caecum to digest cellulose</li> <li>• Production of soft faeces at night and reingestion</li> <li>• Absorption of products of cellulose digestion/gain more nutrients</li> <li>• Absorption of water in the large intestine</li> </ul>



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