

## **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 2017**

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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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**Abbreviations, annotations and conventions used in the detailed Mark Scheme.**

/	= alternative and acceptable answers for the same marking point
(1)	= separates marking points
not	= answers which are not worthy of credit
reject	= answers which are not worthy of credit
ignore	= statements which are irrelevant
allow	= answers that can be accepted
( )	= words which are not essential to gain credit
—	= underlined words must be present in answer to score a mark
ecf	= error carried forward
AW	= alternative wording
ora	= or reverse argument

**Annotations: the following annotations are available on SCORIS.**

✓	= correct response
×	= incorrect response
bod	= benefit of the doubt
nbod	= benefit of the doubt <b>not</b> given
ECF	= error carried forward
^	= information omitted
I	= ignore
R	= reject

Highlighting is also available to highlight any particular points on the script.

The following questions should be annotated with ticks to show where marks have been awarded in the body of the text:

Expected Answers			Marks	Additional Guidance
1	a		3	3 marks - All four correct 2 marks – Two correct 1 mark – One correct
1	b	Three from: As temperature increases more seeds germinate OWTTE; <u>Enzymes</u> work better in warmer temperatures; At high temperatures the number of seeds germinating decreases/ no seeds germinate; <u>Enzymes</u> are denatured/destroyed	3	<b>R</b> enzymes are killed
2	a	Slug	1	
2	b	Two from: Lack of water; Too much water; Lack of nutrients; Lack of sun/sunlight/light; Correct pH; Incorrect temperature	2	<b>I</b> weather <b>I</b> reference to food <b>I</b> poor soil <b>A</b> Named nutrient
3	a	Rooster Booster	1	
3	b	Organic Growmore	1	
3	c	Grow Green; Low in phosphorus	2	
3	d	See LOR markscheme	6	
4	a	Predatory mite eats the red spider mite	1	<b>A</b> kills them <b>R</b> reference to competition
4	b	Use chemical control/pesticide	1	<b>A</b> named example of a pesticide
4	c	B – Pest resistance	1	
5	a	White (flowers)	1	
5	b	<u>Purple flowers</u>	1	
6		A Provide extra bedding for a nest C Provide plenty of food and water	2	
7	a	Cat	1	
7	b	Two million	1	

7	c	Any suitable example	1	Bearded dragon, snake, gecko, goldfish, tortoise, terrapin etc
7	d	One from: Laying eggs; For meat; Breeding	1	I food A racing A companionship A rescue
7	e	See LOR markscheme	6	
8	a	£5	1	
8	b	Crumble; Eats less food than with pelets; Puts on more/most mass	3	
	c	Any two from: Only used three hens/one hen for each feed type/ should have used more hens; Each feed might contain different levels of nutrients; Each hen might have been kept in different conditions/ should have been kept in the same conditions/ hens should be kept separate; One hen might be healthier/less healthy than the others; Might be different breeds/ size/age; Repeat experiment;	2	
	d	Grit is stored in the gizzard; Grit grinds up pellets/mash does not need to be ground up	2	
9		See LOR markscheme	6	
		Total	50	

Question	Answer	Marks	Guidance
3	<p><b>[Level 3]</b> A description of a range of sources of organic matter <b>and</b> a detailed description of how organic matter improves soil 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 a source of organic matter <b>and</b> a description of how organic matter can improve soil 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 a source of organic matter <b>or</b> a description of how organic matter can improve soil 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 an overlap targeted at grades D/C</b></p> <p><b>Indicative scientific points may include:</b></p> <p>Sources of organic matter:</p> <ul style="list-style-type: none"> <li>• Humus from naturally decaying organisms/example of organism</li> <li>• FYM from a range of livestock</li> <li>• Garden compost from plant material and organic household waste</li> </ul> <p>How organic matter improves the soil:</p> <ul style="list-style-type: none"> <li>• Nutrients</li> <li>• Named nutrients released</li> <li>• Maintenance of crumb structure</li> <li>• Description of crumb structure</li> <li>• Importance of crumb structure to include improved drainage, water retention and aeration</li> <li>• Neutralises alkaline soil</li> <li>• Encourages worms</li> </ul>

Question	Answer	Marks	Guidance
7e	<p><b>[Level 3]</b> A full description, with reasons, of the important features of a named show animal, including correct scientific terminology 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 features of a named show animal with reasons. 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 a feature of a named show animal. 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>• conformation / correct shape/ correct markings</li> <li>• So that is conforms to the breed specifications</li> <li>• Temperament</li> <li>• Docile so it does not harm owner, judge or other animals</li> <li>• Not easily stressed by travelling or being shown</li> <li>• Healthy</li> <li>• Does not spread disease to other animals</li> <li>• Well-presented/groomed OWTTE</li> </ul>

Question	Answer	Marks	Guidance
9	<p><b>[Level 3]</b> A full description of how to set up an incubator <b>and</b> a range of advantages of artificial incubation. 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 how to set up an incubator <b>and</b> an advantage of artificial incubation. 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 aspects of setting up an incubator <b>or</b> an advantage of artificial incubation. 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> <p>Setting up an incubator:</p> <ul style="list-style-type: none"> <li>• Cleaning before use</li> <li>• Correct temperature 36 – 38<sup>o</sup>C</li> <li>• Thermometer</li> <li>• Water to maintain humidity</li> <li>• Fertile eggs</li> <li>• Eggs can freely move on a rocker or be turned by hand</li> <li>• Room where it cannot be knocked but is accessible</li> <li>• Ventilation control</li> </ul> <p>Advantages of artificial incubation</p> <ul style="list-style-type: none"> <li>• Can incubate lots of eggs at once</li> <li>• Do not need a broody hen/violent</li> <li>• Incubator is more reliable/broody hen could abandon eggs</li> <li>• Artificial incubators can be used all year round</li> <li>• Encourages the hens to lay more eggs</li> <li>• Less chance of egg damage</li> </ul>

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