

Additional Applied Science A

General Certificate of Secondary Education

Unit **A334/01**: Agriculture and Food

Mark Scheme for January 2011

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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/reject	=	answers which are not worthy of credit
ignore	=	statements which are irrelevant - applies to neutral answers
allow/accept	=	answers that can be accepted
(words)	=	words which are not essential to gain credit
<u>words</u>	=	underlined words must be present in answer to score a mark
ecf	=	error carried forward
AW/owtte	=	alternative wording
ORA	=	or reverse argument

Question		Expected Answers	Marks	Additional Guidance										
1	(a)	large amounts of milk; (1) very creamy milk; (1) matures quickly; (1)	[3]											
	(b)	D E (A) C	[2]	DEAC selected in any order = 1 mark DEAC in the correct order = 2 marks										
	(c)	(i) <table border="1"> <tr> <td>fertilisation...</td> <td><input type="checkbox"/></td> </tr> <tr> <td>formation...</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>birth...</td> <td><input type="checkbox"/></td> </tr> <tr> <td>embryo....</td> <td><input type="checkbox"/></td> </tr> </table>	fertilisation...	<input type="checkbox"/>	formation...	<input checked="" type="checkbox"/>	birth...	<input type="checkbox"/>	embryo....	<input type="checkbox"/>	[1]	2 or more ticks = 0 marks		
fertilisation...	<input type="checkbox"/>													
formation...	<input checked="" type="checkbox"/>													
birth...	<input type="checkbox"/>													
embryo....	<input type="checkbox"/>													
		(ii) <table border="1"> <tr> <td>time of birth</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>better chance of pollination</td> <td><input type="checkbox"/></td> </tr> <tr> <td>better chance of fertilisation</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>parents at random</td> <td><input type="checkbox"/></td> </tr> <tr> <td>no males or sperm</td> <td><input type="checkbox"/></td> </tr> </table>	time of birth	<input checked="" type="checkbox"/>	better chance of pollination	<input type="checkbox"/>	better chance of fertilisation	<input checked="" type="checkbox"/>	parents at random	<input type="checkbox"/>	no males or sperm	<input type="checkbox"/>	[2]	3 ticks deduct 1 from total 4 or 5 ticks = 0 marks
time of birth	<input checked="" type="checkbox"/>													
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parents at random	<input type="checkbox"/>													
no males or sperm	<input type="checkbox"/>													
	(d)	pregnant; (1) uterus; (1) surrogate; (1) born; (1)	[4]											
Total			[12]											

Question		Expected Answers	Marks	Additional Guidance								
2	(a)	temperature below 5° C <input type="checkbox"/> carbon dioxide present <input type="checkbox"/> bright light <input type="checkbox"/> oxygen present <input checked="" type="checkbox"/> water present <input checked="" type="checkbox"/>	[2]	3 ticks deduct 1 mark 4/5 ticks = 0 marks								
	(b)	compost is neutral/ pH7/not acidic/pH too high/ wrong pH;	[1]	reject pH is high								
	(c)	more minerals/more nutrients/ neutral pH/no or fewer pests/ no or fewer diseases;	[1]	accept right amount/ a lot of minerals/ nutrients reject right/ perfect conditions								
	(d)	any two from warmer/ better temperature;(1) protected from wind; (1) protected from frost/ snow; (1) protected from <u>heavy</u> rainfall; (1) protected from animals/birds/pests/ predators/insects; (1) increase humidity; (1)	[2]	accept protected from <u>bad weather</u> accept controls water								
	(e)	<table border="1"> <tbody> <tr> <td>attracts insects</td> <td><input type="checkbox"/></td> </tr> <tr> <td>kills insects</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>protects insects</td> <td><input type="checkbox"/></td> </tr> <tr> <td>provides minerals</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>	attracts insects	<input type="checkbox"/>	kills insects	<input checked="" type="checkbox"/>	protects insects	<input type="checkbox"/>	provides minerals	<input type="checkbox"/>	[1]	
attracts insects	<input type="checkbox"/>											
kills insects	<input checked="" type="checkbox"/>											
protects insects	<input type="checkbox"/>											
provides minerals	<input type="checkbox"/>											

Question		Expected Answers	Marks	Additional Guidance
	(f)	any three from wash/ clean/ remove soil; (1) cut off leaves; (1) weigh/ use scales; (1) select specified number (5 or more); (1) divide by specified number/ find average weight; (1)	[3]	
		Total	[10]	

Question		Expected Answers	Marks	Additional Guidance								
3	(a)	<table border="1"> <tr> <td>fertilisation...</td> <td></td> </tr> <tr> <td>pollination...</td> <td>✓</td> </tr> <tr> <td>germination...</td> <td></td> </tr> <tr> <td>seed dispersal....</td> <td></td> </tr> </table>	fertilisation...		pollination...	✓	germination...		seed dispersal....		[1]	more than 1 tick = 0 marks
		fertilisation...										
		pollination...	✓									
		germination...										
seed dispersal....												
(b)	(i)	shows $15/100 \times 12$; (1) 1.8;	[2]	2 marks for correct answer accept 18 or 0.18 for 1 mark								
	(ii)	most...apple; least...oil seed rape;	[1]	both required								
(c)	(i)	sugar/ glucose on left of equation; alcohol + carbon dioxide on right of equation, in any order;	[2]									
	(ii)	to kill (unwanted) bacteria/ yeasts/ microorganisms/ microbes; to sterilise wort; to concentrate wort / evaporate water;	[1]									
	(iii)	so added yeast will not be killed/ safe to add yeast/so yeast can cause fermentation;	[1]	accept best temperature for yeast								
	(iv)	D / inspecting froth;	[1]									
Total			[9]									

Question			Expected Answers	Marks	Additional Guidance
4	(a)	(i)	don't have thick wool for ticks / fleas to get hold/ hide in/ get in;	[1]	
		(ii)	no stress on sheep AND ...don't have to pay for shearing or ...no time lost in shearing or ...no need to cut off wool; (1) OR accept a good explanation for one reason; eg do not need fleeces cut off so money not wasted since it costs more to shear than to sell the fleece; (1)	[1]	reject cheaper/ saving money
	(b)	(i)	gathered harvest... wool/milk; whole organism harvest.... meat/ lamb/ leather;	[1]	both answers required
		(ii)	Milk Development Council/ British Potato Council/ Meat and Livestock Commission/ADAS; carry out research/ promote product/ finds new markets/ give advice;	[2]	reject sells products/ gives money accept the second answer even if the title is too vague
			Total	[5]	
			Paper Total	[36]	

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