

Additional Applied Science A

General Certificate of Secondary Education

Unit **A334/02**: Agriculture and Food (Higher 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.

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









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Annotations

Used in the detailed Mark Scheme:

Annotation	Meaning
/	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
words	underlined words must be present in answer to score a mark
ecf	error carried forward
AW/owtte	alternative wording
ORA	or reverse argument

Available in scoris to annotate scripts

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
	draw attention to particular part of candidate's response

Annotation	Meaning
	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.

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

This would be worth 1 mark.

Put ticks (✓) in the two correct boxes.

<input type="checkbox"/>
<input type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

This would be worth 0 marks.

Put ticks (✓) in the two correct boxes.

<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>
<input type="checkbox"/>

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

Edinburgh	
Manchester	
Paris	
Southampton	

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).

Edinburgh			✓			✓	✓	✓	✓	
Manchester	✓	x	✓	✓	✓				✓	
Paris				✓	✓		✓	✓	✓	
Southampton	✓	x		✓		✓	✓		✓	
Score:	2	2	1	1	1	1	0	0	0	NR

Question			Answer	Mark	Guidance
1	(a)	(i)	C	1	
		(ii)	idea of genetic differences/ different breeds/ sheltered or not/ pests/ kept in shelter or not/ different ages/ different metabolisms	1	
	(b)		fertiliser; supplies minerals/nutrients; for plant growth; increases yield; helps water retention; avoids buying fertiliser; so farmer can be organic; used as fuel;	2	any two reject contains chemicals/ fertilises plants
	(c)		yeast; alcohol/bread; fungi; cheese;	2	microorganism and food must match accept bacteria; yoghurt
			Total	6	

Question			Answer	Mark	Guidance
2	(a)	(i)	shows $20/100 \times 12$; (1) 2.4	2	two marks for correct answer accept 24 or 0.24 for 1 mark
		(ii)	most...apple; least...oil seed rape;	1	both required
	(b)	(i)	sugar/glucose on left of equation; alcohol on right of equation;	2	
		(ii)	to kill (unwanted) bacteria/yeasts/microorganisms/microbes; to sterilise wort; to concentrate wort;	1	
		(iii)	so added yeast will not be killed/safe to add yeast/so yeast can cause fermentation	1	
		(iv)	D	1	
		(v)	more carbon dioxide/gas produced; bottle could explode;	2	
Total				10	

Question		Answer	Mark	Guidance
3	(a)	prevent contamination; prevent spread of disease;	2	
	(b)	turbidity; biomass;	2	accept correct descriptions
	(c) (i)	lag; exponential/log; stationary; decline;	2	three or four correct = 2 two correct = 1
	(ii)	new cells/individuals produced balanced by death owtte	1	
	(d)	sugar level dropped/used up; alcohol levels rose/produced; anaerobic respiration ; sugar converted into alcohol;	3	any three
	(e)	continuous (culture)	1	
Total			11	

Question		Answer	Mark	Guidance
4	(a)	use its sperm; to fertilise large female pig; to get more pigs like him; breed its largest offspring; continue/repeat for many generations;	2	any two
	(b) (i)	collection/extraction of sperm; storage of sperm; insertion of sperm;	3	
	(ii)	fertilised egg/ egg fertilised by IVF (outside body); placed in uterus/womb of surrogate/another mother pig;	2	
	(iii)	sperm put near egg/inside female; at correct time; good quality of sperm selected;	2	any two
		Total	9	
		Paper Total	36	

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