RECOGNISING ACHIEVEMENT

GCSE

Additional Applied Science A

General Certificate of Secondary Education

Unit **A326/02:** Communication

Mark Scheme for June 2012

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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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1. **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

	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
	no benefit of doubt

	reject
	correct response
	draw attention to particular part of candidate's response
	information omitted

2. 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.

☐
☐
☒
☒
☐

This would be worth 1 mark.

Put ticks (✓) in the two correct boxes.

☐
☐
☑ ✓
☒
☐

This would be worth 0 marks.

Put ticks (✓) in the two correct boxes.

☒
☒
☑ ✓
☑ ✓
☐

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.

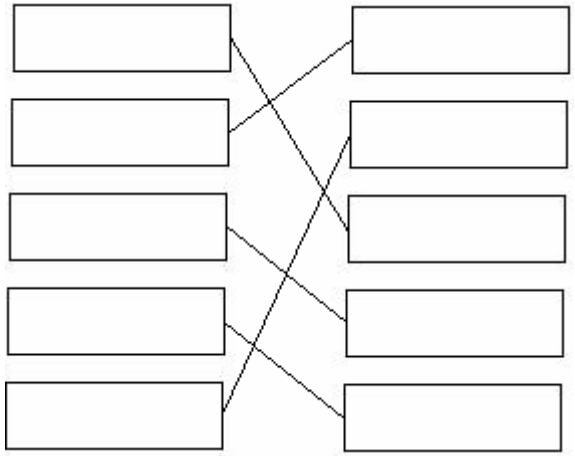
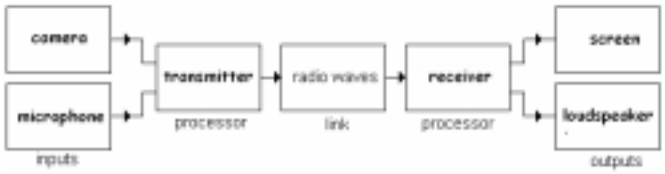
If there is a set of boxes, some of which should be ticked and others left empty, then judge the entire set of boxes.
If there is at least one tick, ignore crosses. If there are no ticks, accept clear, unambiguous indications, e.g. shading or crosses.
Credit should be given for each box correctly ticked. 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.

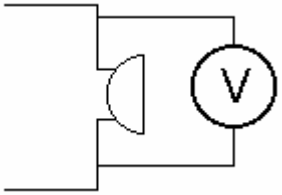
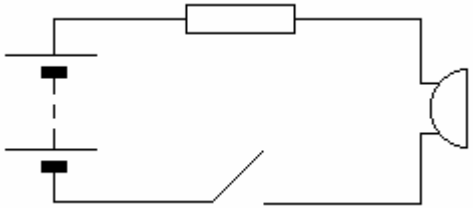
E.g. If a question requires candidates to identify a city in England, then in the boxes

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)			3	five correct for 3 marks four or three correct for 2 marks two or one correct for 1 mark
1	(b)		any of the following, • paid the government / OFCOM • they have a licence • to prevent you listening to two stations at once • stops radio stations interfering with each other	1	
1	(c)		example: eg • DAB • HDTV • hearing aid • telephone / mobile phone effect on lives:	2	**accept** anything realistic which communicates with less noise than previous technology **look for** anything which mentions a sensible advantage or disadvantage in the use of their example both marks are independent
2	(a)	(i)		3	correct pair of inputs (1) processors in correct place(1) correct pair of outputs (1)
2	(a)	(ii)	transmitter	1	**ignore** processor **ecf** if incorrect, accept name of processor before link

Question			Answer	Mark	Guidance
2	(b)		pixels (lit up one after the other) in rows (over the whole frame)	1	**accept** spots / dots for pixels **accept** screen for frame **ignore** megapixels
3	(a)	(i)		3	each correct entry for 1 mark each **accept** timer for processor **not** alarm for buzzer
3	(a)	(ii)	flow of information / signals	1	
3	(b)	(i)		1	look for correct symbol as well as parallel connection
3	(b)	(ii)	0.2 A	1	
3	(c)	(i)		1	appropriate recognisable symbols, in any order **accept** power supply / cell for battery **accept** label for buzzer **accept** variable resistor
3	(c)	(ii)	6 V	1	
4	(a)	(i)	0.05 m	1	
4	(a)	(ii)	reduces diffraction / spreading out of waves; so that signal is strong enough for the satellite (in orbit);	2	**ignore** references to receiving dish
4	(b)			3	each correct entry for 1 mark each **accept** (tele)phone / handset for microphone **accept** encoder / adc for modulator owtte **accept** dish for aerial

Question			Answer	Mark	Guidance
4	(c)	(i)	any **two** of the following, [1] each • speeds up transfer • by removing unnecessary information • fewer bits / smaller file to send • allows smaller storage / more to be stored	2	**ignore** references to bandwidth
4	(c)	(ii)	so that information arrives clearly; undisturbed by noise picked up on the way	2	idea that high snr gives error-free transmission for 1 mark idea that noise gives rise to errors for 1 mark
5	(a)		laser (hazard) danger / be careful / harmful	2	**ignore** hazard **not** electric shock
5	(b)		cuts off electricity supply; when Felix gets a shock / current in Felix / current in earth lead	1 1	
5	(c)	(i)	safer / low voltage / no chance of shock; allows for mobility; works in a power cut	1	any two points for 1 mark
5	(c)	(ii)	any two from: • can run down / unreliable • can leak and cause damage • need recharging • need replacing / buying • more expensive • heavier • less power / voltage / current • can overheat / explode if misused	2	
			Paper Total	36	

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