

Additional Applied Science A

General Certificate of Secondary Education **A326/02**

Unit 5: Communication

Mark Scheme for June 2010

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Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Question		Expected Answers	Marks	Additional Guidance
1	a	any three sensible factor-reason pairs, (1) each for example: <ul style="list-style-type: none"> • cost - won't sell if it's expensive; • size - must be small enough to be carried easily; • power source - batteries for portability; • range - must reach all parts of house & garden; • sound quality - so that you can hear clearly; • frequency - to stay within OfCom regulations; • reliability - must take a bashing from children; • controls - must be easy for children to use; • rechargeable battery - makes it cheaper to run • colourful - appeals to child • volume control - so that loudness can be changed 	[3]	not weight or power output look out for repeats use the reason to clarify the factor.
	b		[2]	correct pattern = 2 marks one or two mistakes = 1 mark a mistake = an incorrect or missing line
	c	(B)ECFAD(G)	[2]	EC as the first two for [1] FAD as the last three for [1]
Total			[7]	
2	a	5 V	[2]	correct answer (accept from 5.2 V to 4.8 V) = 2 marks 10.4 to 9.6 V or 2.6 to 2.3 V = 1 mark
	b	16.66 / 16.7	[1]	accept 1/0.06, not just 17
Total			[3]	

Question		Expected Answers	Marks	Additional Guidance	
3	a		[2]	each correct entry (owtte) (1) allow light instead of LED for [1] allow finger/push (owtte) for switch [1]	
	b	i	Morse / ASCII / USTTY / RTA / UTF	[1]	allow BCD, hexadecimal, octal allow description of Morse code
		ii	alarm bells / whistles / car horns / bugles / sirens / ships whistles / ring tones / doorbells ...	[1]	allow practical example which uses sound to convey meaning - including human voices.
Total			[4]		
4	a	JCB42;(1) radio connection means no wires;(1) batteries means no need for mains sockets.:(1)	[3]	accept MWB58 with battery for [1] accept OCR12 with radio wave for [1] ignore references to mass, print time or USB cable	
	b	i	digital is discreet values / one of two values;(1) analogue is any value;(1)	[2]	award [1] if wrong way round accept square wave diagram for digital and sine wave diagram for analogue
		ii	any of the following for (1) each fast (transfer of information); high quality / low interference or noise; can be encrypted (for security); can be compressed (to speed up transfer); can be easily stored (in printer memory); allows different sorts of digital devices; allows information to be edited/manipulated	[2]	
Total			[7]		

Question		Expected Answers	Marks	Additional Guidance	
5	a		[3]	loudspeaker as output for [1] aerial as input for [1] tuner anywhere before demodulator for [1]	
	b	i	processor	[1]	
		ii	information enters and leaves in electrical form	[1]	accept input and output blocks act as transducers (owtte)
	c	i	medium wave/frequency / MW / MF / AM	[1]	
		ii	200 m	[2]	200 000 000 m for [1] 300 m for [1] accept evidence of dividing speed by frequency (1)
	d	i	(information coded by) changing amplitude/size of (radio) wave	[1]	accept diagram of an am waveform
		ii	range/spread of frequencies (for each channel)	[1]	
Total			[10]		
6	a	optical fibre / metal wire (1) infrared or light / electric current (1) any practical advantage that the link has over the other two e.g. optical fibre is secure / fast, wire is cheap / easy (1)	[3]	not a link through radio waves	
	b	any device which transfers information into electrical form for their example e.g. microphone, keyboard; (1) any device which converts electrical information into another sort for their example e.g. loudspeaker, monitor, printer (1)	[2]	allow ecf incorrect 6a if no 6a, accept input and output devices for any communication system for [1]	
	Total			[5]	

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