

Additional Applied Science A

General Certificate of Secondary Education

Unit **A326/01**: Communication

Mark Scheme for June 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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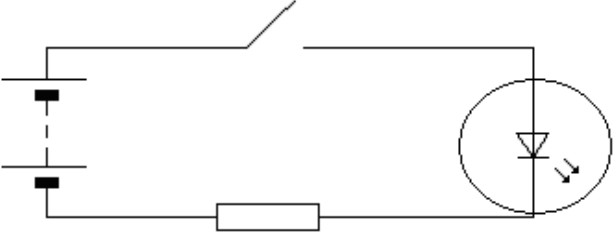

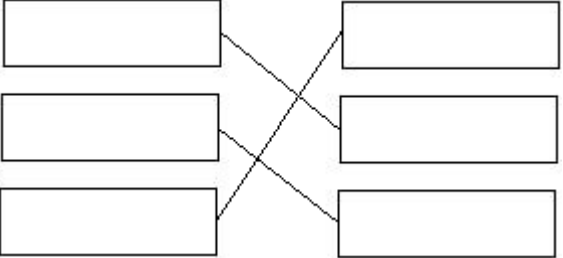
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1. Annotations

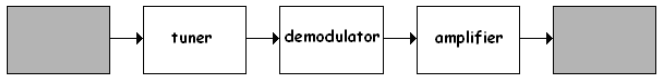
Used in the detailed Mark Scheme:

| 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 |

| Question | | Expected Answers | Marks | Rationale |
|----------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | a |  | 1 | |
| | b |  | 2 | each correct block for 1 mark |
| | c |  | 2 | correct pattern for 2 marks one or two correct links for 1 mark |
| | d | <p>example e.g. traffic lights, semaphore, facial expressions, alphabet, hazard symbols, alphabet... how it works e.g. red for stop, flag positions for letters, smiles and frowns, writing notes ...</p> | 2 | look for any communication which involves seeing accept simple description of use for 2 marks not morse code with flashing lights / binary code |
| | | | 7 | |

| Question | | Expected Answers | Marks | Rationale | | | | | |
|----------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------------------------------------------------------------------------------------|---|--|---|---|-------------------------------------------------------|
| 4 | a | <pre> graph LR camera --> modulator microphone --> modulator modulator --> copper_cable[copper cable] copper_cable --> demodulator demodulator --> screen demodulator --> loudspeaker </pre> | 2 | demodulator correct pattern for 1 mark screen and loudspeaker in any order correct for 1 mark | | | | | |
| | b | DCB | 1 | correct pattern for 1 mark | | | | | |
| | c | <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td> </td></tr> <tr><td> </td></tr> <tr><td>✓</td></tr> <tr><td> </td></tr> <tr><td>✓</td></tr> </table> | | | ✓ | | ✓ | 2 | correct pattern for 2 marks one mistake for 1 mark |
| | | | | | | | | | |
| | | | | | | | | | |
| ✓ | | | | | | | | | |
| | | | | | | | | | |
| ✓ | | | | | | | | | |
| | | | 5 | | | | | | |

| Question | | Expected Answers | Marks | Rationale |
|----------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5 | a | has only two values / doesn't have a continuous range of values / is pulsed / on or off / high or low | 1 | accept straight lines / blocks not up and down |
| | b | 5 V | 1 | |
| | c | one line drawn: from 1.00 s;(1) to 1.0 Hz; (1) | 2 | apply ecf from incorrect period to frequency so, for example, 0.25 s to 4.0 Hz for 1 mark more than one line: 0.25 s to 4.0 Hz, 0.50 s to 2.0 Hz etc. for 1 mark |
| | d | any two of the following for (1) each: <ul style="list-style-type: none"> • can carry video or text or sound • can be compressed (for rapid transmission) • can be encrypted (for secrecy) • easily stored • easily edited / manipulated | 2 | accept explanation of quality e.g. better signal-to-noise ratio, clearer, less noise/interference ... not faster / further / easier / cheaper |
| | | | 6 | |

| Question | | Expected Answers | Marks | Rationale |
|--------------------|---|---------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6 | a | i SD99 (pocket) fits into pocket; least weight; uses batteries / no wires to mains | 1 | needs any one reason from the list for the mark ignore cost and power no ecf from incorrect radio |
| | | ii LH56 because it runs off the mains | 1 | needs the reason for the mark ignore references to power or FM |
| | b | i  | 2 | any two in the correct order for 1 mark any one box correct for 1 mark all boxes correct for 2 marks |
| | | ii flow of information (through the system) owtte | 1 | accept signal / waves / data / pulses instead of information not current / voltage / power reject references to flowcharts / order of operations ... |
| | | | 5 | |
| Paper Total | | | 36 | |

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