

Question Number	Answer	Mark								
12(a)	<p>Uses ratio of resistances to p.d.s (1) $V = 1.2 \text{ V}$ (1)</p> <p>OR</p> <p>Use of $R = V/I$ (1) $V = 1.2 \text{ V}$ (1)</p> <p><u>Example of calculation</u></p> $V = \left(\frac{55 \text{ k}\Omega}{12 \text{ k}\Omega + 55 \text{ k}\Omega} \right) \times 1.5 \text{ V} = 1.23 \text{ V}$	2								
12(b)	<p>1 mark for each correct reason (1)(1) 1 mark for each explanation (1)(1)</p> <table><tr><th>Reason</th><th>Explanation</th></tr><tr><td>Cell has (internal) resistance</td><td>Terminal/cell p.d. is lower Or lost volts</td></tr><tr><td>Resistance in wires/connections</td><td>Wires/connections have p.d. across them too.</td></tr><tr><td>Voltmeter has a “low” resistance Or voltmeter draws current</td><td>Resistance of parallel combination would be less than 55 kΩ (so p.d. would be lower)</td></tr></table>	Reason	Explanation	Cell has (internal) resistance	Terminal/cell p.d. is lower Or lost volts	Resistance in wires/connections	Wires/connections have p.d. across them too.	Voltmeter has a “low” resistance Or voltmeter draws current	Resistance of parallel combination would be less than 55 kΩ (so p.d. would be lower)	4
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Total for question 12		6								