

Name of the Student: _____

Max. Marks : 19 Marks

Time : 19 Minutes

Mark Schemes

Q1.

Question Number	Answer	Additional guidance	Mark
(i)	<p>recall and substitution into $V = IR$ (1)</p> $5.0 = 0.26 \times R$ <p>rearrangement (1)</p> $(R =) \frac{5.0}{0.26}$ <p>evaluation (1)</p> $19 (\Omega)$	<p>accept substitution and rearrangement in either order</p> $(R =) \frac{V}{I}$ $\frac{5.0}{0.26} \text{ scores 2 marks}$ <p>accept answers that round to $19 (\Omega)$ (e.g. 19.23)</p> <p>accept answer written in table if not written on answer line.</p> <p>award full marks for the correct answer without working</p>	(3)

Question Number	Answer	Additional guidance	Mark
(ii)	<p>a comment that includes the following points</p> <p>idea that resistance increases with potential difference (1)</p> <p>idea that doubling the potential difference does not result in doubling of resistance (1)</p> <p>OR</p> <p>$V = \text{constant} \times R$ is not supported by this data (1)</p> <p>correct processing of data from the table to support either of the above mark points (1)</p>	<p>idea that equal increments of potential difference do not cause equal increments of resistance</p> <p>reverse argument e.g. if student was correct then equal increments of p.d. would cause equal increment of resistance</p> <p>if student was correct then current would be constant</p> <p>ignore simple quoting of data for this mark</p>	(3)

Q2.

Question number	Answer	Additional guidance	Mark
	substitution (1) 0.15×40 evaluation (1) $6(.0) \text{ (V)}$	award full marks for correct answer without working	(2) AO2

Question Number:	Answer	Additional guidance	Mark
(i)	substitution (1) $(P) = 0.12 \times 0.24$ evaluation (1) 0.029 (W)	accept 0.03 (W), 0.0288(W) 0.028 (W) power of ten error is awarded 1 mark award full marks for the correct answer without working	(2) AO 2 1

Question Number:	Answer	Additional guidance	Mark
(ii)	chooses /uses (1) $E = V \times I \times t$ evaluation (1) 1.4 (J)	$E = 0.3 \times 0.13 \times 35$ accept an answer that rounds to 1.4 (J) e.g. 1.365(J) a maximum of 1 mark is awarded in the case of a power of ten error award full marks for the correct answer without working	(2) AO 2 1

Question Number:	Answer	Additional guidance	Mark
(iii)	substitution (1) $(Q) = 0.13 \times 35$ evaluation (1) 4.6 (C)	accept an answer that rounds to 4.6 e.g. 4.55 or in this context allow 4.5 power of ten error is awarded 1 mark award full marks for the correct answer without working	(2) AO 2 1

Q4.

Question number	Answer	Additional guidance	Mark												
	<div><div><div></div></div><table><tr><th>part of plug</th><th>safety feature</th></tr><tr><td>cable grip</td><td>✓</td></tr><tr><td>earth wire</td><td>✓</td></tr><tr><td>fuse</td><td>✓</td></tr><tr><td>live wire</td><td></td></tr><tr><td>neutral wire</td><td></td></tr></table></div>	part of plug	safety feature	cable grip	✓	earth wire	✓	fuse	✓	live wire		neutral wire		<p>Note that the tick next to cable grip is already in the grid</p> <p>more than two additional ticks deduct one mark for each incorrect tick.</p>	(2)
part of plug	safety feature														
cable grip	✓														
earth wire	✓														
fuse	✓														
live wire															
neutral wire															

Q5.

Question Number:	Answer	Additional guidance	Mark
	<p>a comment that makes reference to any three of the following points:</p> <ul style="list-style-type: none">• idea that the current increases with the p.d. /voltage (1)• until (current) reaches a constant value (1)• the current is not directly proportional to p.d. (1)• uses idea that the values do not go up in equal steps / does not show doubling	<p>(staying) at 0.13(A)</p>	<p>(3) AO 3 2a AO 3 2b</p>