Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Mark Schemes

Q1.

Question	Answer	Additional guidance	Mark
	substitution (1) $P = 9.0 \times 230$ evaluation (1) 2100 (W)	 allow values that round to 2100 (W) e.g. 2070 (W) award full marks for the correct answer without working	**(2)** **AO2.1**

Q2.

Question Number	Answer	Additional guidance	Mark
	substitution (1) (Q=)0.9 x 50 evaluation (1) 45 unit (1) coulomb	 award 2 marks for the correct answer without working If no substitution seen 4.5 or 450 scores 1 mark only independent mark C, c, As Accept recognisable spellings of coulomb	**(3)**

Q3.

	Answer	Acceptable answers	Mark
	substitution (1) 10/0.44 or 250/11 evaluation (1) 23 (ohms)	give full marks for correct answer, no working 22.7(ohms),22.73 (ohms), 22.72(ohms) Ignore excessive decimal places.	**(2)**

Q4.

Question number	Answer	Additional guidance	Mark
(i)	Substitution and evaluation (1) 15 (Ω)		**(1)** **AO2**

Question number	Answer	Additional guidance	Mark
(ii)	select / recall (1) (power =) V x I or (power =) I^2 x R or (power =) $\frac{V^2}{R}$ substitution and evaluation (1) (power =) 1.4 (W)	 (power =) 4.5 x 0.3 0.3^2 x 15 $\frac{4.5^2}{15}$ allow 1.3(5) (W) award full marks for the correct answer without working	**(2)** **AO2**

Q5.

Question number	Answer	Additional guidance	Mark
	substitution (1) 1.56 = 0.45 x R rearrangement and evaluation (1) (R =) 3.5 (ohms)	alternative method rearrangement (1) (R =) $\frac{V}{I}$ **or** (R=) $\frac{1.56}{0.45}$ (substitution and) evaluation (1) (R =) 3.5 (ohms) allow values that round to 3.5 e.g. 3.46(666) 3.47 etc award full marks for the correct answer without working	**(2)** **AO2**

Q6.

Question number	Answer	Additional guidance	Mark
(i)	substitution (1) (charge) = 0.46 x 30 evaluation (1) (charge) = 14 (C)	 any number that rounds to 14 e.g. 13.8 award full marks for the correct answer without working	**(2)** **AO2**

Question number	Answer	Additional guidance	Mark
(ii)	substitution (1) (energy transferred) = 0.46 x 6.0 x 60 evaluation (1) (energy transferred) = 170 (J)	 allow (energy transferred) = 0.46 x 6.0 x 1 or (energy transferred) = 0.46 x 6.0 x 30 any number that rounds to 170 e.g. 165.6 or 166 allow answers that round to 2.8 or 83 e.g. 2.76 or 82.8 for 1 mark only award full marks for the correct answer without working	**(2)** **AO2**

Q7.

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

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

Q8.

Question number	Answer	Additional guidance	Mark
	substitution (1) 0.15 x 40 evaluation (1) 6(.0) (V)	award full marks for correct answer without working	**(2)** **AO2**