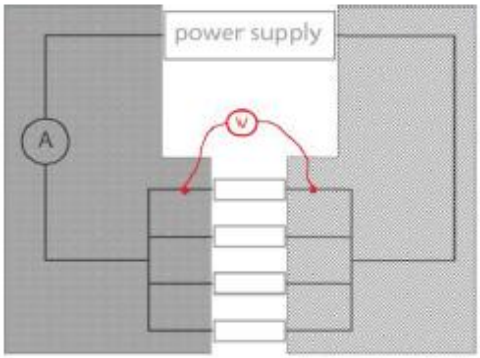
Name of the Student:_____
Max. Marks : 18 Marks **Time : 18 Minutes**

Mark Schemes

Q1.

Question	Answer	Additional guidance	Mark
(i)	voltmeter in parallel with resistors (1)	 one voltmeter connection in each shaded region	**(1)** **AO1.2**

Question	Answer	Additional guidance	Mark
(ii)	36(.4) (mA) (1)	allow 36 to 37 inclusive may be seen in table in Figure 12	**(1)** **AO3.2**

Question	Answer	Additional guidance	Mark
(iii)	substitution into $V = IR$ (1) $6(.00) = 9.1 (\times 10^{-3}) \times R$ rearrangement (1) $(R =) \frac{6(.00)}{9.1 (\times 10^{-3})}$	allow substitution and rearrangement in either order accept 18.2/2 or 27.3/3 or (36 to 37)/4 in place of 9.1 allow substitution of correct values into a visible, incorrectly rearranged algebraic equation for this mark only $(R =) \frac{V}{I}$	**(3) AO2.1**
	evaluation (1) 660 (Ω)	 allow values that round to 660 e.g. 659.3 award full marks for the correct answer without working. value rounding to 660 to any other power of 10 scores 2 marks	

Question	Answer	Additional guidance	Mark
(iv)	an explanation linking: (total) resistance increases (1)		**(3) AO3.2**
	(because) current decreases (1) (and) voltage stays the same (1)	fewer paths for the current resistance calculations supporting increasing resistance	

Q2.

Question	Answer	Additional guidance	Mark
	substitution (1) (current =) $\frac{1.2}{4(.0)}$ evaluation (1) (current =) 0.3(0) (A)	 award full marks for the correct answer without working	**(2)** **AO2.2**

Q3.

Question number	Answer	Additional guidance	Mark
	substitution into $P = V \times I$ (1) $2600 = 230 \times I$ rearrangement (1) $I = P \div V$ evaluation (1) 11 (A)	Substitution and re-arrangement in either order $I = 2600 \div 230$ for 2 marks allow answers that round to 11 award full marks for correct answer without working allow $I = 2.6 \div 230$ for 1 mark allow 0.011 (A) for 2 marks max if no other marks scored, award 1 mark for 2.6 kW = 2600 W	**(3)**

Q4.

Question number	Answer	Additional guidance	Mark
i	substitution (1) $(I = \frac{P}{V}) = \frac{1.9\ (\times 10^3)}{230}$ (1) evaluation (1) 8.3 (A)	 8.3 / 8.26 (A) award full marks for correct answer without working award one mark for 8.26×10^{-3} / 0.0083	**(2)** **AO2**

Question number	Answer	Additional guidance	Mark
ii	choice and substitution (1) $E = I \times V \times t$ = 7.4 x 230 x 120 evaluation (1) 200000 (J)	 accept 204000 / 204240 award full marks for correct answer without working award 1 mark for 3400 / 3404 (J) (using 2 minutes as time)	**(2)** **AO2**

Q5.

Question Number	Answer	Additional guidance	Mark
	2.5(A)	Accept $2\frac{1}{2}$ (A)	**(1)**