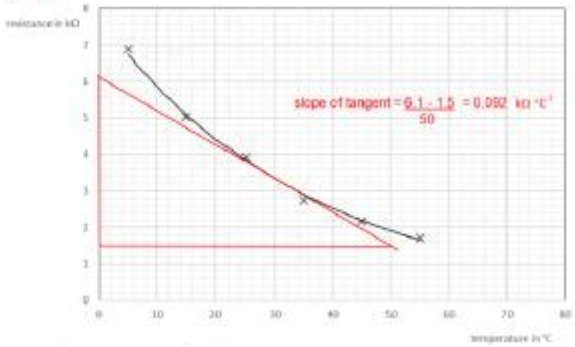
Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic : 10_Electricity

Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Mark Schemes

Q1.

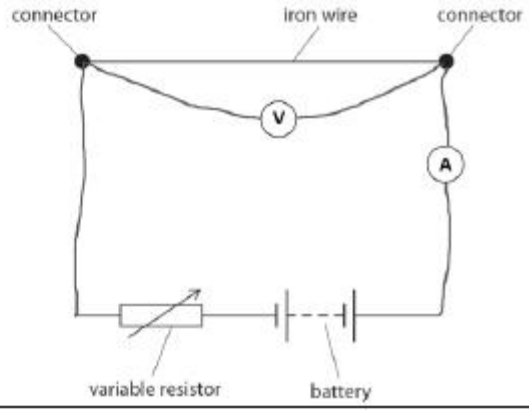
Question number	Answer	Additional guidance	Mark
(i)	A description to include as temperature increases resistance decreases (1) non-linear / decreasing gradient (1)	 ORA allow exponential / inversely proportional in this context curve gets less steep as temperature increases ignore negative correlation unqualified quoted values are insufficient	(2) AO3.1

Question number	Answer	Additional guidance	Mark
(ii)	uses a right-angled triangle to calculate slope with a line of grazing incidence at $\theta = 30°C$ (1)  evaluation (1) (-) 0.092 (kΩ / °C) unit (1) kΩ / °C or kΩ °C^{-1}	tangent seen and used, drawn between θ = 25 and 35 °C accept for 2 marks either between 0.087 and 0.097 (kΩ / °C) or between 87 and 97 (Ω / °C) kohm/K or kohm K^{-1}	**(3) AO3.2**

Q2.

Question number	Answer	Additional guidance	Mark
	a diagram of a circuit including **all** of the following: power supply / cell(s) / battery identifiable resistance wire an ammeter a voltmeter (1) plus any **two** from ammeter in series (1) voltmeter in parallel (1) indication of tapping off / using 50cm of resistance wire (1)	accept symbols accept ohmmeter with resistance wire only ignore lamp(s) / additional resistors allow ohmmeter (across wire) instead of ammeter and voltmeter for 1 mark e.g. (crocodile) clips	**(3)** **AO2.2**

Q3.

Question number	Answer	Additional guidance	Mark
	voltmeter connected in parallel with the iron wire / any part of the iron wire (1) ammeter connected in series with the iron wire (1) example:  	accept any recognisable symbols. accept symbol drawn over connecting wire do not credit the same type of meter shown in contradictory positions	**(2)** **AO1**

Q4.

Question Number	Answer	Acceptable answers	Mark
(i)	Substitution (1) $2900 = 230 \times \text{current}$ Transposition (1) $\frac{2900}{230}$ Evaluation (1) 13 (A)	Award full marks for correct answer with no working Allow substitution and transposition in either order Ignore powers of ten errors until evaluation Allow numbers which round up to 13	**(3)**

Question Number	Answer	Acceptable answers	Mark
(ii)	Substitution (1) $97 = 2.9 \times \text{time} \times 17$ Transposition (1) $\frac{97}{2.9 \times 17}$ OR $\frac{97}{49.3}$ Evaluation (1) 2.0 (h)	Award full marks for correct answer with no working Allow substitution and transposition in either order Ignore powers of ten errors until evaluation Allow $\frac{97}{17} = 5.7$ for 1 mark Allow numbers which round up to 2.0	**(3)**

Q5.

Question Number:	Answer	Mark
(i)	C 6.0 joules per coulomb **The only correct answer is C** ***A*** *is not correct because 1 volt is 1 joule per coulomb* ***B*** *is not correct because 1 volt is 1 joule per coulomb* ***D*** *is not correct because 1 volt is 1 joule per coulomb*	**(1)** AO 1 1

Question Number:	Answer	Additional Guidance	Mark
(ii)	recall and substitution (1) $42 = \frac{200 \times t}{(1000)}$ rearrangement (1) $t = \frac{42\ (\times 1000)}{200\ (\times 60)}$ evaluation (1) (t =) 3.5 (minutes)	accept substitution and rearrangement in either order 2.1 to any power of 10 or 3.5 to any power of 10 scores 2 marks 3 minutes 30 seconds award full marks for correct answer without working	**(3)** AO 1 1 AO 2 1

Question Number:	Answer	Additional Guidance	Mark
(iii)	recall and substitution (1) (E =) 42 x 6.0 evaluation (1) (energy =) 250 (J)	(using E = VIt) (E =) 6.0 x 200 (x 10^{-3}) x 2.10 (x 10^{2}) accept 252 (J) award full marks for correct answer without working	**(2)** AO 1 1 AO 2 1