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

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

Mark Schemes

Q1.

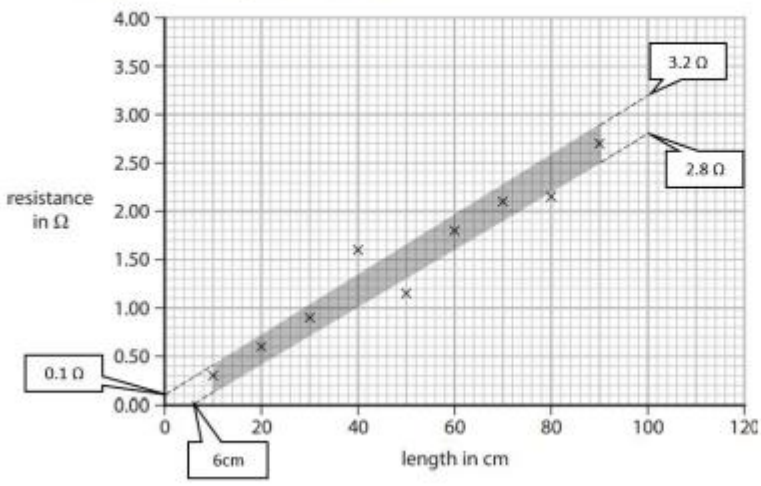
	Answer	**Acceptable answers**	**Mark**
(i)	D variable resistor		**(1)**
(ii)	B in parallel with the lamp		**(1)**
(iii)	A description including • resistance changed (1) • reduced/decreased/lowered (1) **OR** • voltage/p.d /EMF (of supply) changed (1) • increased /turned up/higher(1)	remove (variable) resistor /component X (2) number of batteries/number of cells add another cell/battery/battery pack/power pack/power supply (2)	**(2)**

Q2.

Question Number	Answer	Acceptable answers	Mark
	Conversion to correct units: 120 seen anywhere (1) Substitution: 0.08 x 120 (1) Evaluation: 9.6 (C) (1) accept 10 C	Allow full marks for correct answer with no working seen. 0.08 x 2 gains 1 mark for sub of their time into correct eq'n 0.16 (C) gains 2 marks (only mistake is not converting time to seconds) accept any power of 10 error for 2 marks e.g. 960 (C)	**(3)**

Q3.

Question number	Answer	Additional guidance	Mark
(i)	one from: metre rule / metre stick / ruler / (measuring) tape / crocodile clip / other clip / wire cutters / pliers / sliding contact jockey / more (iron) wire	 accept scissors ignore additional electrical devices such as ohmmeter / multimeter	**(1)** **AO3**

Question number	Answer	Additional guidance	Mark
(ii)	(ii) Figure 4 shows a graph of the results.  	accept any straight line within the shaded range shown judge by eye. ignore extrapolation	**(1)** **AO2**

Question number	Answer	Additional guidance	Mark
(iii)	any number between 2.7 and 3.3 inclusive	allow ecf from (ii) ±0.1 Ω	**(1)** **AO2**

Question number	Answer	Additional guidance	Mark
(iv)	explanation linking any **two** from: (variable) resistor increases the resistance (of the circuit) (1) (therefore) keeps the current constant / small(er) (1) because **current** increases temperature of the (iron) wire (1)	accept flow of electrons / charge for current reduces current / limits the current ignore slows the current / charge accept current heats up (iron) wire accept for two marks: adjust variable resistor to keep current constant / small	**(2)** **AO1**

Q5.

Question Number	Answer	Mark
	Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme.	**(6)**
	The indicative content below is not prescriptive and candidates are not required to include all the material which is indicated as relevant. Additional content included in the response must be scientific and relevant. • the batteries store energy as chemical energy • the energy is transferred to electrons to make them flow/move • the current is a flow of electrons • the electrons flow through the metal/filament • the electrons collide with the ions in the lattice • the collisions make the ions vibrate more • the increased vibrations makes the lattice/filament hotter • the heat energy is dissipated to the surroundings • the ions give out/emit light	

Mark	Descriptor
0	• No rewardable material.
1–2	• Demonstrates elements of physics understanding, some of which is inaccurate. Understanding of scientific ideas lacks detail. (AO1) • Presents an explanation with some structure and coherence. (AO1)
3–4	• Demonstrates physics understanding, which is mostly relevant but may include some inaccuracies. Understanding of scientific ideas is not fully detailed and/or developed. (AO1) • Presents an explanation that has a structure which is mostly clear, coherent and logical. (AO1)
5–6	• Demonstrates accurate and relevant physics understanding throughout. Understanding of the scientific ideas is detailed and fully developed. (AO1) • Presents an explanation that has a well-developed structure which is clear, coherent and logical. (AO1)

Level	Mark	Additional Guidance	**General additional guidance** Eg - At each level, as well as content, the scientific coherency of what is stated will help place the answer at the top, or the bottom, of that level.
	0	No rewardable material.	
Level 1	1–2	Additional guidance unlinked statements	Possible candidate responses Particles move through the wire Batteries store energy Lamp gives off heat

Level 2	3–4	Additional guidance Limited explanation **linking** facts about particles OR **linking** facts about energy transfers	Possible candidate responses Electrons move through the wire/lamp OR The particles moving in the wire are electrons OR Particles collide in the wire OR Chemical energy (stored) in battery OR Energy dissipated / {released as light or thermal} energy in surroundings OR Energy is transferred electrically (from battery to lamp)
Level 3	5–6	Additional guidance Detailed explanation about particles AND energy transfers. (one may be stronger than the other but both should feature for level 3)	Possible candidate responses one from electrons move through the wire/lamp OR the charged particles are electrons OR particles collide in the wire AND one from chemical energy (stored) in battery OR energy dissipated / {released as light or thermal} energy in surroundings