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

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

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	voltmeter should be moved (1) (to be) in parallel with the resistor X (1)	voltmeter is in wrong place / (re)connect the voltmeter allow 'voltage' for 'voltmeter' in this context allow across X or equivalent statement answers may be seen on the diagram	**(2)**

Q2.

Question number	Answer	Additional guidance	Mark
(i)	A description including as the potential difference (voltage) increases so does the current (1) idea of gradient of graph decreasing as V increases (1)	 positive correlation at a decreasing rate non-linear not directly proportional	**(2)** **AO3**

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Question number	Answer	Additional guidance	Mark
(ii)	Award one mark for each row of the table voltage / V | current in mA point P | 1(.00) | 20 point Q | 3.4 ±0.1 | 43 ±1	ignore any units added in the boxes	(2) AO2

Question number	Answer	Additional guidance	Mark
(iii)	substitution (1) $(R=)\frac{4.5}{51(\times 10^{-3})}$ evaluation (1) 88.(2) (Ω)	0.088(2) or 8.8(2) or 0.88(2) or 0.09 seen scores 1 mark 0.088(2) kΩ or 0.09 kΩ scores 2 marks award full marks for correct answer without working	(2) AO2

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Question number	Answer	Additional guidance	Mark
(iv)	an explanation linking any three of: identification of resistance increasing (1) heating (of the filament) (1) because of more collisions (1) of electrons (with ions / atoms / other electrons) (1)	 temperature increases	(3) AO1

Q3.

Question number	Answer	Additional guidance	Mark
	a description including two from: put the coil in the water (1) (electric) current in the wire/coil (1) thermal energy transferred (in the wire) (1)	 allow electricity for electric current heat(energy) in wire / temperature of wire increases/ produces heat/ gives energy/ to heat the water	(2)

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Q4.

Question number	Indicative content	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. 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. • Chemical energy stored in battery • Transferred to KE in motors • Transferred to GPE as it rises • Thermal energy wasted (at each stage) • Energy transferred to surroundings (at each stage)	(6)

Level	Mark	Descriptor
	0	• No rewardable material.
Level 1	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)
Level 2	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)
Level 3	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)

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Summary for guidance			
Level	**Mark**	**Additional Guidance**	**General additional guidance – the decision within levels** e.g. - 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 Isolated fact e.g. a description of least one energy store **or** interpretation of diagram without mentioning energy stores or types	Possible candidate responses Chemical energy stored in the battery **or** energy transferred from the battery to the motors and then to the blades. Some energy is lost at each stage.
Level 2	3–4	Additional guidance Description of at least one energy transfer	Possible candidate responses KE (of blades) is transferred to GPE (as the drone rises) **or** (thermal) energy is transferred to the surroundings
Level 3	5–6	Additional guidance Description of two or more energy transfers	Possible candidate responses Chemical energy in the battery is transferred to KE of the blades **AND** Thermal energy is wasted in the motors when they turn.

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