






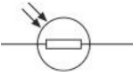


Question	Answers	Extra information	Mark	AO / Specification reference
01.1	Lamp —  LED —  Diode —  Fuse — 	one mark for two lines correct two marks for three lines correct three marks for four lines correct	3	AO1 6.2.1.1
01.2			1	AO1 6.2.1.1
01.3	an electric charge of two coulombs flows per second		1	AO1 6.2.1.2
02.1	one mark for 'A' in correct place one mark for 'V' in correct place one mark for resistor labelled correctly one mark for variable resistor labelled correctly		4	AO1 4.2.1.1
02.2			1	AO1 4.2.1.2
02.3			1	AO1
02.4	the rate of flow of charge/charge flowing per second		1	AO1
02.5	resistance = $\frac{\text{potential difference}}{\text{current}}$ or potential difference = current x resistance	allow $R = \frac{V}{I}$ or $V = IR$	1	AO1 4.2.1.3

Question	Answers	Extra information	Mark	AO / Specification reference
02.6	$\text{resistance} = \frac{\text{potential difference}}{\text{current}}$ $R = \frac{6}{0.3}$ $= 20$	accept 20 with no working for the two calculation marks	1 1 1	AO2 4.2.1.3
03.1	light dependent resistor/LDR		1	AO1 6.2.1.4
03.2			1	AO1 6.2.1.1
03.3	high		1	AO2 6.2.1.4
03.4	to record the measurements over a long period of time/to be able to store data on a computer/display the data on a computer		1	AO3
04.1	circuits A and C are parallel circuits	no mark if more than one box ticked	1	AO1 4.2.2
04.2	A, C B, D B, D	both letters needed for the mark in each case letters can be in any order	1 1 1	AO2 4.2.2
04.3	no the bulbs will be the same brightness because they are in a series circuit/current is the same everywhere in a series circuit		1 1 1	AO2 4.2.2

Question	Answers	Extra information	Mark	AO / Specification reference
05.1	a lamp		1	AO1 6.2.1.4
05.2	increases		1	AO2 6.2.1.4
05.3	hotter more harder		1 1 1	AO3 6.2.1.4
06.1	the diode only allows a current to flow in one direction the diode has been connected so that the current cannot flow through it		1 1	AO3 6.2.1.4
06.2	potential difference = current × resistance		1	AO1 6.2.1.3
06.3	1.5 = 0.12 × resistance resistance = $\frac{1.5}{0.12}$ = 12.5 Ω = 13 Ω		1 1 1	AO2 6.2.1.3
07.1	average = $\frac{236+212+200+206}{4}$ = 213.5 (A)		1	AO2 6.1.3
07.2	number of solar cells/number of hours of daylight/clouds		1	AO3 6.1.3

Question	Answers	Extra information	Mark	AO / Specification reference
07.3	number of power stations = $\frac{1000}{200}$ = 5		1 1	AO2 6.1.3
07.4	Example answer: both solar power stations and hydroelectric power stations use a lot of land so destroy/change habitats of animals and plants hydroelectric power stations involve flooding areas neither produce carbon dioxide when in use so do not contribute to climate change.		4	AO3 6.1.3
08.1	independent = length		1	AO2 6.2.1.3
08.2	dependent = resistance		1	AO2 6.2.1.3
08.3	control – one from: <ul style="list-style-type: none"> • temperature • cross-sectional area/diameter • type of wire 		1	AO2 6.2.1.3
08.4	one mark for length on x-axis and resistance on y-axis one mark for straight line through the origin		2	AO2 6.2.1.3
08.5	a correct suggestion, e.g., the wire did not stay the same temperature/there was a systematic error in one of the measuring instruments			AO3 6.2.1.3
09.1	A or ampere		1	AO1 6.2.1.4

Question	Answers	Extra information	Mark	AO / Specification reference
09.2	the first measurement of current for a potential difference of 8 V/0.39 A in first column		1	AO3 6.2.1.4
09.3	$\frac{0.12+0.13+0.14}{3} = 0.13$		1	AO2 6.2.1.4
09.4	one mark for correct points plotted: (0, 0), (2, 0.13), (10, 0.62), (12, 0.72) one mark for straight line of best fit		2	AO2 AO3 6.2.1.4
09.5	line should have a steeper gradient than the original line		1	AO3 6.2.1.4
10.1	it stays the same		1	AO2 6.1.1.1
10.2	B		1	AO2 6.1.1.1
10.3	B		1	AO2 6.1.1.1