

Q1. (2018)

a)

06.2	any two from: <ul style="list-style-type: none"> $I_1 = I_2 + I_3$ $I_2 = I_3$ $I_1 = 2I_2$ $I_1 = 2I_3$ 	allow 1 mark for each correct description given in words	2	AO2 6.2.2
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b)

06.4	Level 3: Relevant points (reasons / causes) are identified, given in detail and logically linked to form a clear account.	5–6	AO3
	Level 2: Relevant points (reasons / causes) are identified, and there are attempts at logically linking. The resulting account is not fully clear.	3–4	AO2
	Level 1: Points are identified and stated simply, but their relevance is not clear and there is no attempt at logical linking.	1–2	AO2
	No relevant content	0	
	Indicative content <ul style="list-style-type: none"> resistance of LDR changes when light intensity changes when light intensity increase resistance of LDR decreases overall resistance of circuit decreases potential difference across total resistance remains unchanged current in ammeter increases potential difference across fixed resistor increases potential difference across LDR decreases reading on the voltmeter decreases potential difference is shared between the components in series the lower the resistance of the LDR the smaller the share of the potential difference reading on the voltmeter decreases 		6.2.1.1 6.2.1.4

Q2. (2019)

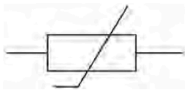
a)

04.1	less than 20 Ω		1	AO2/1 6.2.2	A
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b)

04.2	the resistance of the lamp is added to the total resistance of the resistors in parallel	allow resistors in series add up	1	AO3/1a 6.2.2	E
	the resistors in parallel have a total resistance of less than 10 ohms	allow resistors in parallel have a smaller resistance than the lowest value resistor	1		E

c)

04.3			1	AO1.1 AO1 in isolation 6.2.1.1	E
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d)

04.4	the current increased		1	AO1.1 AO1 in isolation	E
	(because) the resistance (of the thermistor) decreased	allow because the resistance of the circuit decreased	1	6.2.1.4 6.2.1.3	

e)

04.5	the resistor			AO2.2	E
	the potential difference across the resistor becomes 0V		1	6.2.2 6.2.1.1 6.2.1.3	
	because there is a short circuit across the resistor	allow because there is no current in the resistor allow switch has no resistance	1	WS 3.6	
		If neither of the first two marking points awarded, allow 1 mark for p.d. decreases because there is less current in the resistor or p.d. decreases because components in parallel have less resistance or p.d. decreases because there is an alternative route for the current			
	the lamp				
	the potential difference across the lamp increases	allow the potential difference across the lamp will be the same as the battery	1		
	because the current increases	allow because the resistance of the circuit decreases allow because there is less p.d. across the resistor	1		

Q3. (2021)

05.4	voltmeter: the reading is the same in both circuits		1	AO2 6.2.2
	ammeter: the reading in circuit B is twice the reading of circuit A	allow 1 mark for the reading in circuit B is bigger than circuit A	2	

Q4. (2023)

02.2	the total resistance must be less than 20 Ω	allow the total resistance cannot be more than 20 Ω	1	AO2
	because the total resistance of the resistors (in parallel) is less than the resistance of the smallest resistor	allow the total resistance of the resistors (in parallel) is less than either resistor	1	AO1 6.2.2 6.2.1.3 RPA15

Q5. (2024)

a)

03.1	correct symbol for voltmeter connected across LED		1	AO1 6.2.1.4 6.2.1.1
	correct symbol for ammeter in series with LED		1	RPA16

b)

03.2	change the number of cells in the battery	allow use batteries with different potential differences allow adjust the variable resistor allow adjust the potential difference across the power supply	1	AO1 6.2.1.4 RPA16
	reverse the connections to the LED / battery	allow reverse the connections to the power supply	1	