

Current, Charge, Potential Difference & Power Question Paper

Level	International A Level
Subject	Physics
Exam Board	Edexcel
Topic	DC Electricity
Sub Topic	Current, Charge, Potential Difference & Power
Booklet	Question Paper

Time Allowed:	27 minutes
Score:	/22
Percentage:	/100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

1 Which of the following is an SI base unit?

- A ampère
- B coulomb
- C current
- D volt

(Total for Question 1 = 1 mark)

2 A student has been asked to carry out an experiment to determine the internal resistance of a 1.5 V cell. The circuit will contain the following components: the cell, a switch, a variable resistor, an ammeter and a voltmeter.

(a) Draw a circuit diagram of the circuit.

(1)

(b) State why this experiment is considered to be low risk.

(1)

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(c) The teacher says that the resistance of the variable resistor should **not** be reduced to zero.

Suggest why.

(1)

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(Total for Question 2 = 3 marks)

- 3 A student is asked to investigate how resistance varies with potential difference for a 12 V, 24 W bulb.

Write a plan for an experiment to do this using standard laboratory apparatus and a graphical method.

You should:

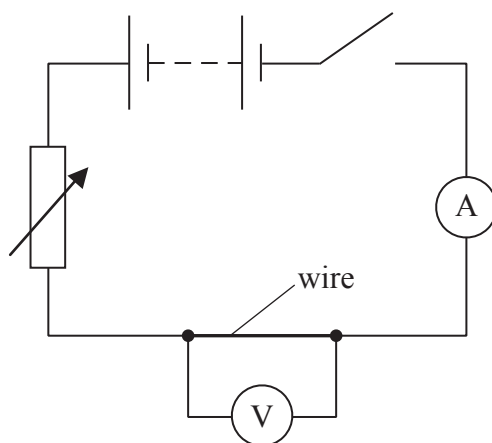
- (a) draw a circuit diagram of the circuit to be used, (2)
- (b) state the quantities to be measured, (1)
- (c) explain your choice of measuring instrument for **two** of these quantities, (4)
- (d) comment on whether repeat readings are appropriate in this case, (1)
- (e) explain how the data collected will be used and sketch the expected graph, (3)
- (f) identify the main sources of uncertainty and/or systematic error, (1)
- (g) comment on safety. (1)

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4 The circuit below is to be used to determine the resistance of a length of wire.



(a) Explain why the voltmeter should have a very high resistance.

(3)

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(b) Explain why the variable resistor has been included in the circuit.

(2)

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(Total for Question 4 = 5 marks)