MARK SCHEME

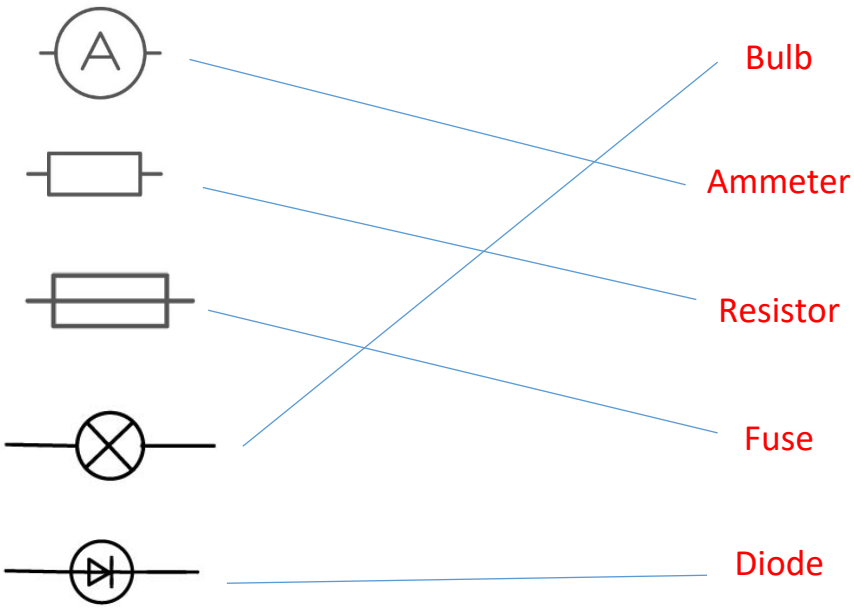
GCSE

COMBINED SCIENCE: TRILOGY

END OF TOPIC TEST

AQA Physics

Q1a All lines correct, three marks.
One incorrect, two marks.
Two incorrect, on mark.



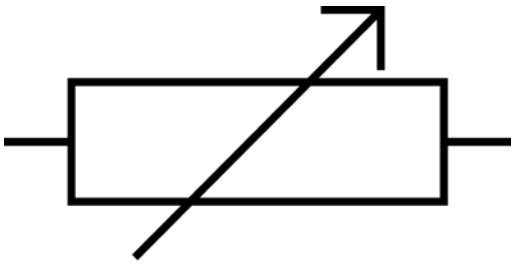
3

Q1b Measures the current. 1

Q1c When current is too big/large/great, the fuse melts/blows 1

Q2a Series 1

Q2b Correct position of ammeter in series 1
Correct position of voltmeter in parallel 1

Q2c	Current measured in Amps (A)	1
	Potential difference measured in Volts (V)	1
Q2d	3V	1
	1.5V + 1.5V = 3V	1
	In a series circuit the potential difference is shared between the bulbs.	1
Q3a	Charge = Current x Time	1
Q3b	5C ÷ 3s	1
	1.67	1
	Amps (A)	1
Q3c		1
Q3d	To vary the current	1
	By changing the resistance	1
Q3e	Ohms (Ω)	1
Q2f	Voltage = Current x Resistance	1
Q2g	Axis labelled (Y – Current, X – Potential difference)	1
	Straight diagonal line from bottom left to top right through the origin.	1
Q2h	Axis labelled (Y – Current, X – Potential difference)	1
	Correct line drawn	1
	Reason given – current only flows in one direction	1
	Due to very high resistance in reverse direction	1
Q3	Suitable equipment listed, e.g. metre ruler, wire, power pack, ammeter, voltmeter, tape, crocodile clips, callipers,	1

Clear description of how the equipment will be used, e.g. measure length with metre ruler, thickness of wire with callipers, ammeter reading, voltage reading 1

Clear description of measurements to be taken, e.g. how resistance will be calculated = V = IR 1

Valid method with clear intervals, range stated, 1

Control variables stated, e.g. material of wire, thickness of wire, temperature of wire, 1

Risks and precautions stated, e.g. burning from hot wire – allow to cool, electricity near water – keep away, electrocution from bare wire -check before switching on. 1

A judgement should be made on the students answer:

1-2 Basic understanding
3-4 Good clear steps
5-6 Scientific, logical, clear method

Q4a One mark for each correct row, in any order.

Colour of Insulation Covering	Name of wire	
Green/yellow	Earth	1
Blue	Neutral	1
Brown	Live	1

Q4b Alternating 1

Q4c Direct – causes current flows in one direction around the circuit 1

Alternating – causes the current to constantly change direction around the circuit 1

Q4d 230V 1
50Hz 1

Q4e Increase voltage 1
Using a step up transformer 1
To reduce the current 1
To reduce the heating effect 1

Q5a E = VQ = 1500 ÷ 6 = 1
250C 1

Both marks awarded for correct answer, with units.

Q5b	Power (of the device)	1
	Time that the device is on for	1