Essential Pre-Uni Physics C4.5

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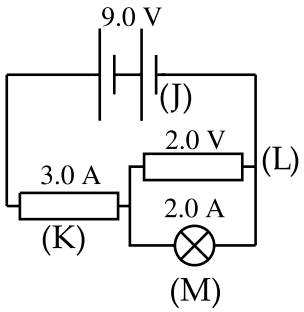

Figure 1: Circuit diagram

Part A Current in (J)

What is the current in (J)?

Part B Voltage across (K)

What is the voltage across (K)?

Part C Current in (L)

What is the current in (L)?

Part D Voltage across (M)

What is the voltage across (M)?

Essential Pre-Uni Physics C1.8

A Level

Conventional domestic $13\ \mathrm{A}$ sockets are connected with copper cables with a cross sectional area of $2.5\ \mathrm{mm}^2$. Copper has a resistivity of $1.5 \times 10^{-8}\ \Omega\,\mathrm{m}$. What is the resistance of $20\ \mathrm{m}$ of cable to 2 significant figures?

Essential Pre-Uni Physics C6.3

A Level

A small battery is powering a powerful lamp. The terminal p.d. is $11.3\,\mathrm{V}$, and the current flowing is $10.2\,\mathrm{A}$. Assuming that the battery has an internal resistance of $2.4\,\Omega$, calculate the e.m.f. of the battery.

Essential Pre-Uni Physics C5.8

GCSE C C C A Level C C C

A thermistor has a resistance of $800\,\Omega$ at a temperature of $16\,^{\circ}\mathrm{C}$. It is wired in series with a fixed resistor and a $9.0\,\mathrm{V}$ battery. A high-resistance voltmeter is connected to give a 'temperature' reading.

[Note: For this thermistor the resistance decreases as the temperature increases.]

Part A Connecting the voltmeter

a) If the voltage reading is to go up when the temperature increases, should the voltmeter be connected in parallel with the thermistor or the fixed resistor?

- ○ Fixed resistor
- ○ Thermistor

Part B Resistance of the fixed resistor

b) If the voltmeter needs to read $3.0\,\mathrm{V}$ when the temperature is $16\,^{\circ}\mathrm{C}$, what is the resistance of the fixed resistor to 2 significant figures?

Essential Pre-Uni Physics C2.2

A Level

Data:

- Magnitude of the charge on the electron = 1.60×10^{-19} C

How many electrons flow past a point each second in a $5.0\,\text{mA}$ electron beam?

Essential Pre-Uni Physics C5.5

GCSE A Level

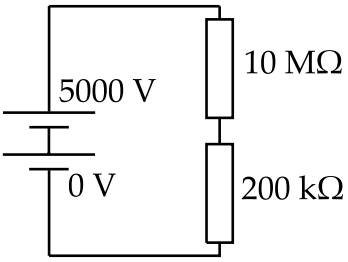

Figure 1: Circuit diagram

What is the voltage across the lower resistor in this circuit to 2 significant figures?

Essential Pre-Uni Physics C3.5

A Level

Data: Magnitude of the charge on the electron = 1.60×10^{-19} C

How long does it take for a current of 6.0 A to deliver 1.5×10^{17} Cu^{2+} ions in a solution? Assume these ions are the only charged particles moving.

Essential Pre-Uni Physics C1.2

A Level

Figure 1: Two different resistor arrangements

Part A Combination (C)

What is the resistance of combination (C)? Answer to 2 significant figures.

Part B Combination (D)

What is the resistance of combination (D)? Answer to 2 significant figures.