

**35** Each of Kirchhoff's two laws presumes that some quantity is conserved.

Which row states Kirchhoff's **first** law and names the quantity that is conserved?

	statement	quantity
<b>A</b>	the algebraic sum of currents into a junction is zero	charge
<b>B</b>	the algebraic sum of currents into a junction is zero	energy
<b>C</b>	the e.m.f. in a loop is equal to the algebraic sum of the product of current and resistance round the loop	charge
<b>D</b>	the e.m.f. in a loop is equal to the algebraic sum of the product of current and resistance round the loop	energy

**36** A cell has an e.m.f. of  $1.5\text{ V}$  and an internal resistance of  $0.2\text{ }\Omega$ . The cell is connected in series with a variable resistor. The current in the circuit is  $0.5\text{ A}$ . The variable resistor is adjusted so that the power dissipated in it is a maximum. The e.m.f. of the cell is  $1.5\text{ V}$ .