* Electric current, p.d. and resistance *

Q-1) What is current?

> Electric current is the rate of flow of ~~electrons~~ electric charges. past a point

$$I = Q/t \quad \text{unit} = \text{Amps} \Rightarrow A$$

coulamb (c)

(s)

+ ——————→ -

conventional current.

←——— e^-

Q-2) What is electric charge?

> $$Q = I \times t$$

The unit of charge is coulomb (c)

One Coulomb is the charge which flows at a time of 1 second when the current is 1A.

Charge on 1 electron = 1.6×10^{-19}

Q-3) Difference between e.m.f and p.d.

e.m.f	p.d.
> emf is the amount of **chemical** energy converted to **electrical** energy per unit charge.	p.d. is the **electrical** energy converted to **other forms** of energy (eg: heat) per unit charge.
> it's an **input** to the circuit	it's an **output** to the circuit.
> sum of all p.d	$V = \dfrac{\text{work done (energy)}}{\text{charge}}$

Q-4) What is the Ohm's law?

> $$V = IR \quad \text{voltage is proportional to current.}$$

Q-5) What is power?

> Power is the rate at which energy is transferred.

$$P = I \times V$$
$$P = V^2/R$$
$$P = I^2 R$$

energy transferred $= P \times t = I \times V \times t$.

* Power $= \dfrac{\text{energy transferred}}{\text{time taken}}$.

$P = \dfrac{V \times Q}{t}$ $\longrightarrow Q = I \times t$.

$P = \dfrac{V \times I \times t}{t}$

$P = IV$.