Edexcel GCSE Physics

Topic 10.32-10.42 - Mains Electricity

Flashcards

What does AC mean?

What does AC mean?

Alternating Current.

This is current which is constantly changing between a negative and a positive maximum.

What does DC mean?

What does DC mean?

Direct Current.

This is current which takes a constant value.

Is mains electricity an AC supply or a DC supply?

Is mains electricity an AC supply or a DC supply? What do each of these stand for?

Mains electricity is an AC supply.

What is meant by the frequency of a supply?

What is meant by the frequency of a supply?

This is the rate at which an AC current changes.

What is the frequency and voltage of the UK mains electricity supply?

What is the frequency and voltage of the UK mains electricity supply?

- Frequency: 50 Hz
- Voltage: 230V

What type of current do batteries and cells supply?

What type of current do batteries and cells supply?

Direct current.

What is the power rating of an appliance?

What is the power rating of an appliance?

It shows how much energy a device converts per second.

What wires does a typical domestic appliance have?

What wires does a typical appliance have?

1. Live wire
2. Neutral wire
3. Earth wire

What colour is the live wire?

What colour is the live wire?

Brown

What colour is the neutral wire?

What colour is the neutral wire?

Blue

What colour is the earth wire?

What colour is the earth wire?

Green and yellow (striped)

Explain when the Earth wire does and doesn’t carry a current.

Explain when the Earth wire does and doesn’t carry a current.

- Under normal circumstances, no current flows through the Earth wire
- Current flows when a fault occurs in the appliance (such as a surge or the casing becoming live)

What potential is the neutral wire at?

What potential is the neutral wire at?

0 Volts

State the potential difference between the live and earth wires.

State the potential difference between the live and earth wires.

230 Volts

What is the purpose of the neutral wire?

What is the purpose of the neutral wire?

To complete the circuit by connecting the appliance back to the mains supply.

For metal appliances, where is the Earth wire connected to? Why?

For metal appliances, where is the Earth wire connected to? Why?

- Earth wire is connected to the metal casing of the appliance
- If live wire becomes touches the casing, the current will flow through the Earth wire, preventing electrocution

How does a fuse stop a device from getting damaged?

How does a fuse wire stop the device from getting damaged?

When the current becomes too high the fuse wire will melt and break, therefore stopping current from flowing to the appliance and preventing damage.

Why is it important to connect a fuse or switch to the live wire?

Why is it important to connect a fuse or switch to the live wire?

When the switch is turned off, or when the fuse breaks, it will break the circuit and stop current running through the wire. This provides a method to stop current flowing into the appliance.

Why is it dangerous to have a connection between the earth wire and the live wire?

Why is it dangerous to have a connection between the earth wires and the live wire?

In can result in a current surge, causing electrical shocks.