CP9 Electricity and Energy

Current, Charge and Energy

State the equation that links charge, current and time.

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State the unit of charge ………………………………………….

Calculate the charge when an object is on for 2 minutes and uses 13A

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Current and Potential Difference

Describe what happens to the current if the potential difference is increased.

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State the voltmeter reading on voltmeter P …………………………………………………………………………………………

Current and Potential Difference

Draw a series circuit with a cell, bulb, ammeter and a voltmeter to measure the potential difference across the bulb.

Describe how to measure current and potential difference in a circuit

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Identify the ammeter reading on

X ……………………………………………………..

Y ………………………………………………………

Z ……………………………………………………..

Electric Circuits

Draw a labelled diagram of an atom to identify the protons, electrons and neutrons.

Draw a series circuit containing a battery, 2 bulbs and an ammeter

Draw a parallel circuit containing a battery and 2 bulbs.

Describe how current flows in a series circuit

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Describe how current flows in a parallel circuit

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More about resistance

Describe how resistance of an LDR changes with an increasing light intensity.

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Sketch graphs of potential difference (X axis) against current (Y axis) for the following components

Diode:

Fixed resistor

Filament lamp

Explain what happens to the resistance of the filament lamp when the temperature increases

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More about resistance

Draw circuit symbols for the following components:

Diode Variable resistor

Filament lamp Thermistor

LDR

Resistance



1. Calculate the current flowing through resistor X which has a resistance of 10Ώ.

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1. Calculate the resistance of resistor Y

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Describe what happens to the total resistance when the resistors in the diagram above are placed in parallel

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Resistance

State the equation that links resistance, current and potential difference

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State the unit of resistance ……………………………………..

Current, Charge and Energy

Calculate the time taken for 33C of charge and a current of 6A.

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State the equation that links potential difference, charge and energy transferred.

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Calculate how much energy is transferred when 10C of charge flows through a potential difference of 5V

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Calculate the energy transferred when an appliance is used for 5 minutes from the mains (230V) with a current of 5A.

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Electrical Safety

Label the three wires in a plug



Identify the potential difference between:

Earth and Live wire …………………….

Live and neutral wire …………………..

Neutral and earth ………………………..

Transferring energy by electricity

Describe the difference between direct and alternating current

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State the frequency of mains supply ………………………

State the potential difference of the mains supply ………………………………………………………………………………

Transferring Energy

Explain why a resistor gets hot when current flows through it

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Explain how resistance can be reduced in wires

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***Equation given in exam:***

***Energy transferred = Current x Potential difference x time***

Calculate the energy transferred when a 9V battery supplies 0.2A of current to an appliance for 5 minutes.

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Calculate the time taken to transfer 3000J to a lamp with a current of 0.8A when it is connected to a 230V supply

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Transferring energy by electricity

Describe the energy transfers in a mains operated hairdryer

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Describe the energy transfer of a battery operated heated gloves

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Power

State the three equations to calculate power

1.
2.
3.

Calculate the power of a kettle connected to a 230V supply and 13A of current is required.

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Calculate the resistance when 3A flows through and 8kW of power is transferred

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Electrical Safety

Describe why earth wires are needed in plugs

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Explain how fuses make circuits safe

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Explain the advantage of circuit breakers over fuses

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