

## P5 Electric circuits revision questions

1	What voltage is uk mains supplied at ?	230V														
2	Uk mains supply operates at 50Hz a.c. What does this mean ?	Current that alternates direction 50 times a second														
3	Sketch a graph of current vs time for a d.c supply.	Straight horizontal line above x (time) axis														
4	What colour is the live wire in a UK mains plug ?	Yellow/ green stripes														
5	The peak voltage of mains electricity is 325V. Between which two values does the live wire change between ?	-325V and +325V														
6	Why is the earth pin on a mains plug longer than the other two pins ?	So the appliance is earthed before being connected to the mains														
7	Which wire is connected through a fuse in a plug ?	Live														
8	Why might an appliance not need an earth wire ?	It has an insulated plastic case														
9	A fuse has a 13A rating. What does this mean?	It will melt if more than 13A flows through ( at mains volts)														
10	A 12W bulb is used for 2 minutes. How much electrical energy has been transferred ?	$E = pt = 12 \text{ J/s} \times (2 \times 60) \text{ s} = 1440 \text{ J}$														
11	How is an appliance made safe when the live wire touches the metal case ?	Current will flow through Earth wire and live wire. High current will melt the fuse. Appliance cut off.														
12	What would happen if a 5A fuse were fitted to a 10A device ?	Fuse would blow – it would not work														
13	What current will flow if a 1500W mains (230V) washing machine was in operation ?	$C = P/ V = 1500\text{W} / 230\text{V} = 6.5 \text{ A}$														
14	If each KWh of electricity costs 12p. How much will it cost to run a 2000W heater for 3 hours ?	$\text{KW} \times \text{h} = 2 \times 3 = 6. \quad 6 \times 12\text{p each} = 72\text{p}$														
15	Write in the correct unit next to each quantity															
	<table border="1"> <tr> <td>Charge</td> <td>Coulombs C</td> </tr> <tr> <td>Current</td> <td>Amps A</td> </tr> <tr> <td>Time</td> <td>Seconds s</td> </tr> <tr> <td>Resistance</td> <td>Ohms <math>\Omega</math></td> </tr> <tr> <td>Potential difference</td> <td>Volts V</td> </tr> <tr> <td>Power</td> <td>Watts W</td> </tr> <tr> <td>Energy</td> <td>Joules J</td> </tr> </table>	Charge	Coulombs C	Current	Amps A	Time	Seconds s	Resistance	Ohms $\Omega$	Potential difference	Volts V	Power	Watts W	Energy	Joules J	
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16	Why is it better to transport electricity across the National grid at high voltage and low current ?															
	Cables get less hot															
	Less energy lost as heat															
	More energy delivered as electricity / more efficient delivery of electricity															
17		<p>What is the frequency of this a.c supply ? 60 Hz</p>														