

1a	No. [C] Clips are not connected to liquid P [E/R] so P is not needed to complete/close the circuit for electricity to flow through	
1b	Yes. [C] Clips are connected to Q [E/R] it allows electricity to flow through to complete/close the circuit	
2a	Z is a conductor of electricity	
2b	Becomes hotter	
2c	More electrical energy (passing through nichrome wire) converts to more heat energy.	
3a	P: 3 Q: 2	
3b i)	0 If B1/B4 is blown, there will be a [C] gap in the circuit/ circuit is open [E/R] so no electricity can pass through the rest of the bulbs / no other <u>path</u> for electricity to take to complete the circuit	
ii)	3 If B2/B3 is blown,[C] circuit is still closed [E/R] electricity can find another path to complete the circuit	
4a	[C] Iron bar W will be magnetised (or become electromagnet) [E/R] attract Q to it	

4b	[C] Circuit on the left will be opened [E/R] Electricity will no longer flow through the circuit	
4c	To save/conserves electricity/energy	
5a	[C] Circuit is closed [E/R] Electricity flows through circuit/ bulb	
5b	Iron bar is magnetised/ become an electromagnet	
5c	- Circuit is opened - Iron bar loses magnetism/ no more a magnet/ demagnetised - Ball no longer attracted to bar - Ball dropped	
6a	It is an insulator of electricity	Do not accept: Poor conductor of electricity. Poor conductor means still have some ability to conduct
6b	- water fills up container/volume of water increases/ water level rise - wooden block/metal sheet rises - sheet touches/ in contact with rods - closes circuit	
6c	[C] Lower the position of the rods [E/R] Metal sheet will not need to rise as high as before it closes the circuit to activate the water pump/	Comparative must be used
7a	[C] Iron cylinder will be magnetised/ become an electromagnet [E/R] and attract the spring	
7b	Increase the number of coils around iron cylinder Add more batteries in series to the circuit	
7c	[C] Use a stiffer spring [E/R] The stiffer the spring, the more EPE it has when stretched/compressed. So more EPE will be converted to more sound energy	The more the spring can extend, the more elastic potential energy it has. $EPE = \frac{1}{2} kx^2$

		Where x is extension and k is spring constant EPE dependent on extension and type of spring; more difficult to stretch, more the spring constant
8a		
8b	Place/Add the bulb parallel to the first bulb	
8c		