Start here.

a) ~~mercury cell~~ diaphram cell
Salt and water are mixed together to make brine. The brine travels across an electrolysis cell and releases chlorine gas as it decomposes. ~~The secondary remaining products that are there~~ ~~The sodium amalgam is then~~ ~~which is decomposed again with water to crea~~
The sodium amalgam then meets with hydroxide after water has been decomposed to make hydrogen gas and hydroxide. This hydroxide then meets with the sodium amalgam to create sodium hydroxide

b) The electrolysis of ~~molten~~ sodium hydroxide ~~is~~ occurs in the presences of oxygen causing ~~a~~ sodium ~~hydroxide~~ oxide to ~~a~~ be a product.

~~$2NaOH + O_2 \longrightarrow Na_2O_{(s)} + H_2O_{(l)}$~~

$2NaCl + O_2 \longrightarrow Na_2O_{(s)} + Cl_2O$

The electrolysis of aqueous sodium is done ~~in~~ so that no air is available to it

$NaCl_{(aq)} \rightarrow Na_{2(g)} + Cl_{(g)}$

~~$Na^+ \longrightarrow Na$~~

$Na^+ + e^- \rightarrow Na$

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c) i) ~~SO~~

$$2SO_2 + O_2 \rightleftharpoons 2SO_3$$

$$K = \frac{[SO_3]^2}{[SO_2]^2[O_2]}$$

$$K = \frac{[0.3]^2}{[0.5]^2[0.2]}$$

$$= \frac{0.209}{[0.25][0.2]}$$

$$= 1.8$$

ii) As there has been a disruption in the conditions of the equilibrium. This is as the reaction has been left at room temperature which has allowed for the temperature to fluctuate. This cause the shift as the reaction is endothermic ~~so~~ if the room has gotten hotter.

You may ask for an extra Writing Booklet if you need more space.

Start here.

d) i) Hydrochloric acid

ii) The reaction could ~~occur~~ be carried out in a ~~shot~~ school by only the teacher having the concentrated HCl. This is to avoid getting it on a students skin or clothes. If this were to occur then excess HCl should be wiped off ~~or~~ before rinsing ~~away~~ under ~~a tap~~ a tap.

e) Limestone is important in the Solvay process as it provides the reactants to obtain the ~~calc~~ product of CO_3^-. There are several environmental problems associated with the use of limestone as a source. This is as limestone is not a renewable source. This is as limestone rocks take many years to form. Then To obtain the limestone to is another environmental impact as it involves open cut mining. This means that the entire surrounding landscape has to be destroyed to obtain the limestone as well as the use of many power guzzling trucks to dig and transport the limestone.

The Solvay process involves ~~a~~ obtaining its products by completing several reactions to obtain the final product. These products can be harmful to the environment if not properly disposed of.

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