Subject: CHEMISTRY	**Grade: 7**

Chapter: 10 (Acids and Alkalis)

T.B Question 6.

a) What are the raw materials for the process?

Ans: Sulfur, air and water.

b) Draw a flow diagram of this process and write the word equations.

Ans:

diagram pg-135

Equations:

i) Sulfur + Oxygen ------→ Sulfur dioxide

$S + O_2 \longrightarrow SO_2$

ii) Sulfur dioxide Oxygen + Oxygen -------→ Sulfur trioxide

$SO_2 + O_2 \longrightarrow SO_3$

iii) Sulfur trioxide + Water --------→ Sulfuric acid

$SO_3 + H_2O \longrightarrow H_2SO_4$

c) What is the catalyst used in the process?

Ans: Vanadium (v) oxide, V_2O_5

d) In the last step, why don't we dissolve the sulfur trioxide in water?

Ans: If we use water to absorb the sulfur trioxide in stage 3, a fine mist of H_2SO_4 would be formed. This can't be condensed and would pollute the air.

e) Draw a spider diagram showing the uses of sulfuric acid .

Ans:

H_2SO_4

T.B Question 10. Here is a list of some soluble salts.

Sodium nitrate, $NaNO_3$
Potassium chloride, KCl
Magnesium sulfate, $MgSO_4$
Calcium chloride, $CaCl_2$
Lead nitrate, $Pb(NO_3)_2$

a) Choose a pair of salts you could mix to make the insoluble salts:

i) Lead nitrate

Ans: Lead nitrate and Potassium chloride

ii) Calcium sulfate

Ans: Calcium chloride and Magnesium sulfate

b) How would you collect a pure sample of each salt?

Ans: To collect a pure sample of each salt we have to centrifuge it. After centrifuging, the solid is packed at the bottom. The solution above can be poured off. The precipitate is then washed and dried.

c) Write word, symbol and ionic equation for each salts.

Ans:

i) Lead chloride

word equation:

Lead nitrate + Potassium chloride ------→ Lead chloride + Potassium nitrate

Symbol equation:

$$Pb(NO_3)_2 + KCl \text{ -----}\rightarrow PbCl_2 + KNO_3$$

Ionic equation:

$$Pb^{2+} + Cl^{-} \text{ -------}\rightarrow PbCl_2\downarrow$$

iii) Calcium sulfate

Calcium chloride + Magnesium sulfate ----→Calcium sulfate + Magnesium chloride

Symbol equation:

$$CaCl_2 + MgSO_4 \text{ --------}\rightarrow CaSO_4 + MgCl_2$$

Ionic equation:

$$Ca^{2+} + SO_4{}^{2-} \text{ ----------}\rightarrow CaSO_4\downarrow$$