Explain in brief the determination of Chromium (VI) in the sample sol^n

The reaction involved here is.

$$K_2Cr_2O_7 + 7H_2O \rightarrow K_2SO_4 + Cr_2(SO_4)_3 + 7H_2O + 3(O)$$

$$6FeSO_4 + 3H_2SO_4 + 3(O) \rightarrow 3Fe_2(SO_4)_3 + 3H_2O$$

$$K_2Cr_2O_7 + 6FeSO_4 + 7H_2SO_4 \rightarrow K_2SO_4 + 3Fe_2(SO_4)_3 + 7H_2O$$

→ In the determination of chromium (VI) it makes it all to react ferrous ammonium sulphate with it and undergo redox titration.

→ Diphenyl amine is used as an indicator. It gives violet colour in oxidised form and colourless in reduced form.

→ The end point is bluish green to bluish violet.

→ Phosphoric acid is used to remove Fe^{3+} from the sol^n.

~~In a beaker~~

Standard sol^{n} of $K_2Cr_2O_7$ is taken in a burrette.

→ 20 ml of Fe(II) sol^{n} is taken in a standard pipett and 40 ml of distilled water is taken in a conical flask.

→ ~~2 - 3 drops~~ of 5 ml of $^{1:1}H_2SO_4$ and 3 ml of phosphoric acid is added

→ 2 drops of Diphenyl amine is also added.

Now this is titrated until the violet green colour changes to violet colour. and the readings are recorded