1. Write the equilibrium expression for the following reaction equation: $2NbCl_4$ (g) $\leftrightarrow$ $NbCl_3$ (g) + $NbCl_5$ (g)

2. Calculate the value for the equilibrium constant if the following concentrations are present at equilibrium: $[NbCl_4]$=0.7M; $[NbCl_3]$=0.621M; $[NbCl_5]$=0.621M

3. Calculate the pH of hydrochloric acid solution that has a hydrogen ion concentration of 0.01M.

4.   What is the pOH of a solution with a pH of 5?

5. Calculate the pH of a solution with a hydroxide ion concentration of 0.05M.