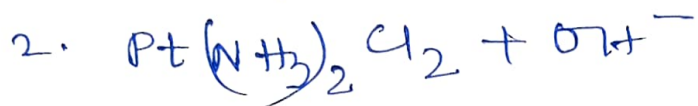
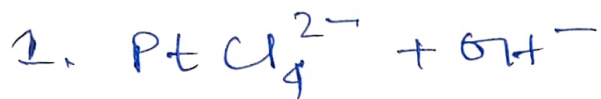


Q1. Explain the influence of ionic strength on the rate constant for each of the following reaction.



Answer: According to Brönsted-Bjerrum equation, for a second order reaction of type  $\text{A}^{Z_A} + \text{B}^{Z_B} \xrightleftharpoons{X^{Z_A+Z_B}} \text{P}$ , the effect of ionic strength in the rate constant of a reaction is given by

$$\log_{10} k = \log_{10} k_0 + 1.018 Z_A Z_B \sqrt{I}$$

for aqueous solution at  $25^\circ\text{C}$ .

Here  $k$  and  $k_0$  are the rate constants in the presence and absence of salt respectively.

$Z_A$  and  $Z_B$  are the charges of the reactants A and B respectively and  $I$  is the ionic strength of the solution.

\* In the first case, the reactants are of same charges and hence rate of the reaction increases with increase in ionic strength of the solution.

\* Answer the second question.