Question 22

22. (15 points) The ammonium ion, NH_4^+, is a weak acid with $K_a = 5.60 \times 10^{-10}$. Cobalt (III) ion complexes strongly with ammonia to form $Co(NH_3)_6^{3+}, K_f = 4.60 \times 10^{33}$

a. (10 points) Calculate the pH of 0.840 L of a 0.120M solution of NH_4I to which 0.0150 mol$Co(ClO_3)_3$ has been added.

b. (5 points) For the same solution in part (a), calculate the concentration of the $Co(NH_3)_6^{3+}$ complex.

Part A