Hydrolysis practice problems

Write the hydrolysis reaction for each substance. At this point, write only the first reaction that occurs, do not bother with any subsequent reactions. Use \rightarrow or <=> as appropriate.

a.
$$NH_3 + H_2O \iff NH_4^+ + OH^-$$

b.
$$HBr \rightarrow H^{+} + Br^{-} \underline{or}$$

 $HBr + H_{2}O \rightarrow H_{3}O^{+} + Br^{-}$

c.
$$CaCO_3 \iff Ca^{2+} + CO_3^{2-}$$

d.
$$CH_3NH_2CI \rightarrow CH_3NH_2^+ + CI^-$$

e.
$$\text{Li}_2\text{SO}_4 \rightarrow 2 \text{Li}^+ + \text{SO}_4^{2-}$$

f.
$$CH_3CH_2COOH \iff CH_3CH_2CO_2^- + H^+ \underline{or}$$

 $CH_3CH_2CH_2COOH + H_2O \iff CH_3CH_2CO_2^- + H_3O^+$

g.
$$CrPO_4 \iff Cr^{3+} + PO_4^{3-}$$

h.
$$(CH_3)_2NH + H_2O <=> (CH_3)_2NH_2^+ + OH^-$$

i.
$$HNO_2 \iff H^+ + NO_2$$
 oi
 $HNO_2 + H_2O \iff H_3O^+ + NO_2$

j.
$$H_3PO_4 \iff H^+ + H_2PO_4$$
 or $H_3PO_4 + H_2O \iff H_3PO_4 + H_2PO_4$ (note: acids ionize one hydrogen at a time! Directions say first rxn only!)

k. CH₄ No reaction. Does not fit into any category. Doesn't even dissolve in water!

I.
$$FeCl_3 \rightarrow Fe^{3+} + 3 Cl^{-}$$

m. Agl
$$\ll$$
 Ag $^+$ + Cl $^-$