

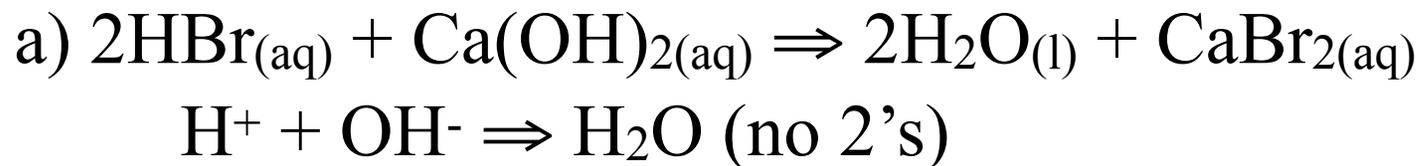
4.31 Of these three solutions, (b) 0.2M HI will have the largest concentration of solvated protons because it is a strong acid. In contrast, solution (a) LiOH is a strong base and will therefore release OH<sup>-</sup> ions into solution, rather than protons; while solution (c) CH<sub>3</sub>OH is an alcohol and will not dissociate at all in water.

4.32 Of these three solutions, (c) 0.100M Ba(OH)<sub>2</sub> will be the most basic. While solution (a) 0.60M NH<sub>3</sub> has a greater concentration, it is a weak base which does not extensively ionize water. While solution (b) 0.150M KOH is a more concentrated strong base, it is monobasic. In contrast, solution (c) is dibasic and will result in a 0.200M OH<sup>-</sup> concentration.

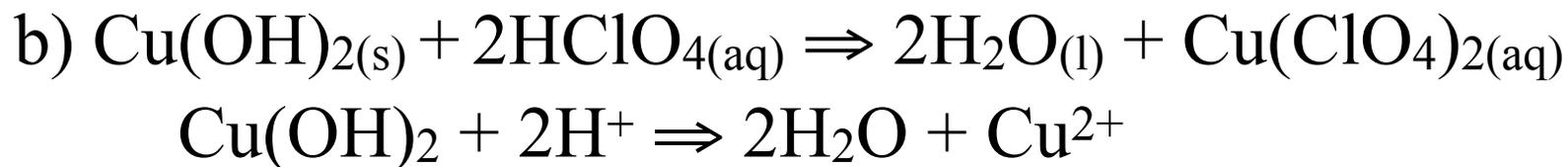
- 4.35
- a) HF - weak acid - exists as a mixture
  - b) CH<sub>3</sub>CN - weak base - exists as a mixture
  - c) NaClO<sub>4</sub> - salt - exists as ions
  - d) Ba(OH)<sub>2</sub> - base - exists as ions

- 4.37 a)  $\text{H}_2\text{SO}_3$  - weak electrolyte  
b)  $\text{C}_2\text{H}_5\text{OH}$  - nonelectrolyte  
c)  $\text{NH}_3$  - weak electrolyte  
d)  $\text{KClO}_3$  - strong electrolyte  
e)  $\text{Cu}(\text{NO}_3)_2$  - strong electrolyte

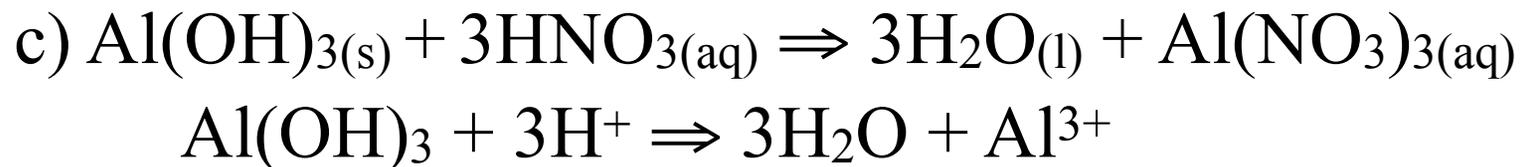
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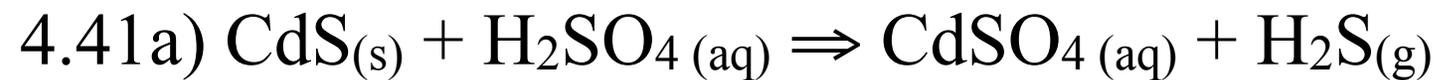


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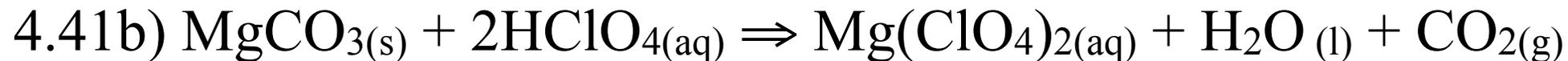


4.39





The gas is  $\text{H}_2\text{S}$



The gas is  $\text{CO}_2$