

Name : \_\_\_\_\_ Date : \_\_\_\_\_

## Conjugate Acid-Base Pairs

Identify the acid (A), base (B), conjugate acid (CA), and conjugate base (CB) for each of the following.

- (a)  $\text{HClO}_4(\text{aq.}) + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{H}_3\text{O}^+(\text{aq.}) + \text{ClO}_4^-(\text{aq.})$
- (b)  $\text{H}_2\text{SO}_3(\text{aq.}) + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{H}_3\text{O}^+(\text{aq.}) + \text{HSO}_3^-(\text{aq.})$
- (c)  $\text{HC}_2\text{H}_3\text{O}_2(\text{aq.}) + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{H}_3\text{O}^+(\text{aq.}) + \text{C}_2\text{H}_3\text{O}_2^-(\text{aq.})$
- (d)  $\text{H}_2\text{S}(\text{g}) + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{H}_3\text{O}^+(\text{aq.}) + \text{HS}^-(\text{aq.})$
- (e)  $\text{HSO}_3^-(\text{aq.}) + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{H}_3\text{O}^+(\text{aq.}) + \text{SO}_3^{2-}(\text{aq.})$
- (f)  $\text{NH}_3(\text{g}) + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{NH}_4^+(\text{aq.}) + \text{OH}^-(\text{aq.})$
- (g)  $\text{HF}(\text{aq.}) + \text{HSO}_3^-(\text{aq.}) \rightleftharpoons \text{F}^-(\text{aq.}) + \text{H}_2\text{SO}_3(\text{aq.})$
- (h)  $\text{HNO}_2(\text{aq.}) + \text{HS}^-(\text{aq.}) \rightleftharpoons \text{NO}_2^-(\text{aq.}) + \text{H}_2\text{S}(\text{aq.})$
- (i)  $\text{HPO}_4^{2-}(\text{aq.}) + \text{H}_2\text{O}(\text{l}) \rightleftharpoons \text{OH}^-(\text{aq.}) + \text{H}_2\text{PO}_4^{2-}(\text{aq.})$
- (j)  $\text{C}_2\text{O}_4^{2-}(\text{aq.}) + \text{HC}_2\text{O}_3\text{O}_2(\text{aq.}) \rightleftharpoons \text{HC}_2\text{O}_4^-(\text{aq.}) + \text{C}_2\text{H}_3\text{O}_2^-(\text{aq.})$

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## Answers

