

Name : _____ Date : _____

Conjugate Acid-Base Pairs

1] Classify the following as Brønsted-Lowry acids, bases, or both.

- (a) Cl^- _____ (c) HSO_3^- _____ (e) H_2O _____
(b) HCOOH _____ (d) HSO_4^- _____ (f) H_3O^+ _____

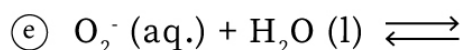
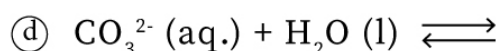
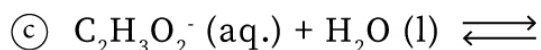
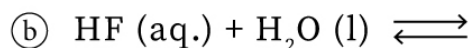
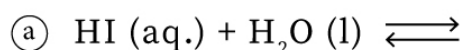
2] Write the formula of the conjugate base for each of the following acids.

- (a) HClO _____ (c) HS^- _____ (e) NH_4^+ _____
(b) NH_3 _____ (d) H_3O^+ _____ (f) H_3CCOOH _____

3] Write the formula of the conjugate acid for each of the following bases.

- (a) F^- _____ (c) HSO_3^- _____ (e) NH_3 _____
(b) SO_4^{2-} _____ (d) HPO_4^{2-} _____ (f) CH_3NH_2 _____

4] Complete the equation for the reaction of each of the following with water. Then, indicate whether each reaction can be explained by Arrhenius, Brønsted-Lowry, or both.



Conjugate Acid-Base Pairs

Answers

1] Classify the following as Brønsted-Lowry acids, bases, or both.

- (a) Cl^- Base (c) HSO_3^- Both (e) H_2O Both
 (b) HCOOH Acid (d) HSO_4^- Both (f) H_3O^+ Acid

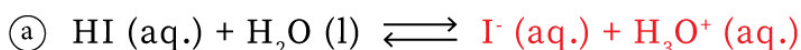
2] Write the formula of the conjugate base for each of the following acids.

- (a) HClO ClO^- (c) HS^- S^{2-} (e) NH_4^+ NH_3
 (b) NH_3 NH_2^- (d) H_3O^+ H_2O (f) H_3CCOOH H_3CCOO^-

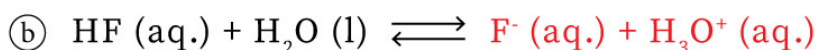
3] Write the formula of the conjugate acid for each of the following bases.

- (a) F^- HF (c) HSO_3^- H_2SO_3 (e) NH_3 NH_4^+
 (b) SO_4^{2-} HSO_4^- (d) HPO_4^{2-} H_2PO_4^- (f) CH_3NH_2 CH_3NH_3^+

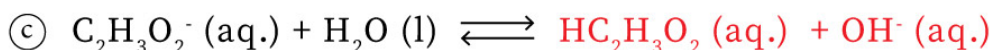
4] Complete the equation for the reaction of each of the following with water. Then, indicate whether each reaction can be explained by Arrhenius, Brønsted-Lowry, or both.



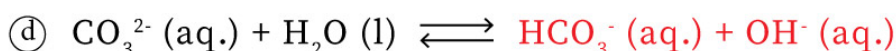
Brønsted-Lowry and Arrhenius acid



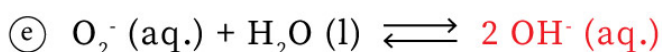
Brønsted-Lowry and Arrhenius acid



Brønsted-Lowry base only



Brønsted-Lowry base only



Brønsted-Lowry base only