

ACIDS and BASES
Worksheet 2

1. Classify each of the following substances as an acid or a base according to the Arrenius Definition:

- a.) HNO_3 (aq)
- b.) KOH (aq)
- c.) $\text{Ca}(\text{OH})_2$ (aq)
- d.) HCl (aq)
- e.) NaOH (aq)

2. Classify each of the following substances as an acid, a base, or amphoteric substance according to the Bronsted-Lowry Definition:

- a.) NH_4^+
- b.) H_3O^+
- c.) H_2SO_4
- d.) H_2O

3. Give the name of the conjugate base of each of the following acids:

- a.) HCN
- b.) HSO_4^-
- c.) HF
- d.) HNO_2

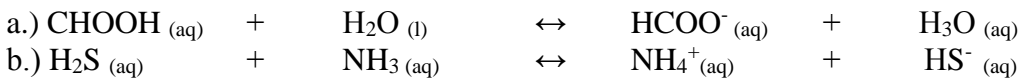
4. Give the name of the conjugate acid of each of the following bases:

- a.) NH_3
- b.) HCO_3^-
- c.) HS^-
- d.) Br^-

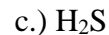
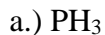
5. Give the name of the conjugate partner of each of the following acids or bases:

- a.) SO_4^{2-}
- b.) HI
- c.) S^{2-}
- d.) HNO_3

6. In each of the following acid-base reactions, identify the acid and base on the left, and their conjugate partners on the right:



7. Identify the following as a Lewis Acid or Lewis Base:



ACIDS and BASES
Worksheet 1 Answers

1. Classify each of the following substances as an acid or a base according to the Arrenius Definition:

- a.) ACID
- b.) BASE
- c.) BASE
- d.) ACID
- e.) BASE

2. Classify each of the following substances as an acid, a base, or amphoteric substance according to the Bronsted-Lowry Definition:

- a.) ACID
- b.) ACID
- c.) ACID
- d.) AMPHOTERIC

3. Give the name of the conjugate base of each of the following acids:

- a.) CN⁻
- b.) SO₄⁻²
- c.) F⁻
- d.) NO₂⁻

4. Give the name of the conjugate acid of each of the following bases:

- a.) NH₄⁺
- b.) H₂CO₃
- c.) H₂S
- d.) HBr

5. Give the name of the conjugate partner of each of the following acids or bases:

- a.) HSO₄⁻
- b.) I⁻
- c.) HS⁻
- d.) NO₃⁻

6. In each of the following acid-base reactions, identify the acid and base on the left, and their conjugate partners on the right:

- a.) CHOOH (aq) = ACID
- H₂O (l) = BASE
- HCOO⁻ (aq) = C.B.
- H₃O (aq) = C.A.

- b.) H₂S (aq) = ACID
- NH₃ (aq) = BASE
- NH₄⁺ (aq) = C.A.
- HS⁻ (aq) = C.B.

7. Identify the following as a Lewis Acid or Lewis Base:

- a.) PH_3 = L.B.
b.) BCl_3 = L.A.
c.) H_2S = L.B.