

Unit 11 Homework

Acid/Base Nomenclature

- Which of the following is paired **INCORRECTLY**?
 - Hydrobromic acid, HBr
 - Sulfuric acid, H_2SO_4
 - Nitric acid, HNO_2
 - Perchloric acid, HClO_4
- Which of the following is the correct formula for **Iodic acid**?
 - HI
 - HIO
 - HIO_2
 - HIO_3
- What is the name of the acid whose formula is **$\text{HC}_2\text{H}_3\text{O}_2$** ?
 - Acetic acid
 - Carbonic acid
 - Oxalic acid
 - Dicarboxylic acid
- Which of the following acids is an exception to the following generality to naming acids? "The prefix **hydro-** is used when an acid is binary (containing only 2 elements)"
 - H_2SO_3
 - HBr
 - HCN
 - HBrO_4
- What number is the variable **X** in the formula for phosphoric acid, H_xPO_4 ?
 - 1
 - 2
 - 3
 - 0

Acid Base Theory

Use the following choices to answer the next two (2) questions. Choices maybe used once, more than once, or not at all

- HI
- NH_3
- HSO_3^-
- H_2CO_3

- Which of the following could **NOT** act as **Brønsted–Lowry acid**?
 - NH_4^+
 - OH^-
 - H_2O
 - H_2SO_4

Use the next answer choices to answer the next two (2) questions. Choices maybe used once, more than once, or not at all.

- Is a Lewis base
- Is the conjugate base of H_2SO_3
 - BF_3
 - H_2SO_4
 - HCl
 - HI

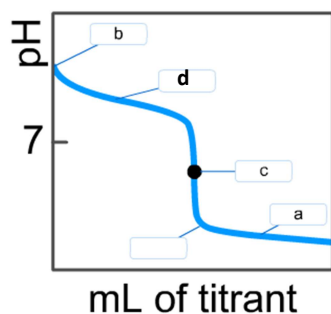
- Which of the following is an example of a Lewis acid?
- Which is **NOT** an Arrhenius acid?

The pH Scale

- All of the following will be acidic EXCEPT:
 - H_2SO_4
 - HCl
 - NH_3
 - $\text{HC}_2\text{H}_3\text{O}_2$
- A solution of $\text{Ca}(\text{OH})_2$ has a concentration of $5.0 \times 10^{-4}\text{M}$, what is the pH of this solution?
 - 5.0×10^{-4}
 - 1.0×10^{-3}
 - 3.0
 - 11.0
- A solution of NaOH has a pH of 9.0, what is the concentration of NaOH in solution?
 - 1×10^{-9}
 - 1×10^{-5}
 - 9
 - 5
- A solution of H_2SO_4 has pH of 2.5, what is the pOH of the solution?
 - 2.5
 - 11.5
 - 3.2×10^{-3}
 - 3.2×10^{-12}
- The strong base $\text{Ca}(\text{OH})_2$ is neutralized by the weak acid hydrocyanic acid, HCN . The resulting salt, $\text{Ca}(\text{CN})_2$ is:
 - Basic
 - Acidic
 - Neutral
 - There is insufficient information to determine the nature of the salt

Neutralization Reactions

A weak base, NH_3 , is titrated with a known concentration of HCl , a strong acid, to produce the following titration curve. Use the following titration curve to answer the next three (3) questions.



- The point when the moles of acid are equivalent to the moles of base, and moles of salt
- The point where the MOST acid has been added
- Why is the pH when the base has been neutralized not 7.0?
 - The pH probe is broken
 - NH_4Cl is a basic salt
 - NH_4Cl is an acidic salt
 - Too much acid was added
- What indicator is pink in basic solutions, but clear in acidic solutions?
 - Phenolphthalein
 - Methylene blue
 - Litmus
 - Methyl yellow
- If 25mL of hydrobromic acid, HBr , with an unknown concentration is neutralized by 12.5mL of strontium hydroxide, $\text{Sr}(\text{OH})_2$, with a concentration of 0.01M, what is the concentration of the acid?
 - 0.005
 - 0.01
 - 0.02
 - 0.10

Oxidation & Reduction

Use the following choices to answer the next three (3) questions. Choices maybe used once, more than once, or not at all.

- a. -2
- b. 0
- c. +1
- d. +7

4. In the reaction below, which of the following is true?



- a. ClO^- is the oxidizing agent
- b. ClO^- is the reducing agent
- c. OH^- is the oxidizing agent
- d. ClO^- is both the oxidizing agent & reducing agent

- 1. Oxidation state of an atom of I in $\text{I}_2(\text{s})$
- 2. Oxidation state of Mn in the MnO_4^- ion
- 3. Oxidation state of O in SO_3

5. Which of these half reactions represents oxidation?

- a. $\text{Pb}^{4+} \rightarrow \text{Pb}^{2+}$
- b. $\text{MnO}_4^- \rightarrow \text{Mn}^{2+}$
- c. $\text{Br}_2 \rightarrow \text{BrO}_3^-$
- d. $\text{O}_{2(\text{s})} \rightarrow \text{O}_{2(\text{l})}$

Unit 11 Homework

Name: _____

Nomenclature

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
5. (A) (B) (C) (D)

Acid-Base Theory

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
5. (A) (B) (C) (D)

pH

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
5. (A) (B) (C) (D)

Neutralization

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
5. (A) (B) (C) (D)

RedOx

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
5. (A) (B) (C) (D)