

Acid-Base Sample Questions

Properties, Examples of Common Acids, Naming Acids

- 1) Which of the following is NOT a property of acids?
 - A) Acids have a slippery feel.
 - B) Acids have a sour taste.
 - C) Acids turn litmus paper red.
 - D) Acids dissolve many metals.
 - E) All of the above are properties of acids.

- 3) Which of the following statements about a base are TRUE?
 1. Bases are used in the manufacturing of soap.
 2. Bases have a sour taste.
 3. Many bases contain hydroxide, OH⁻, in the chemical formula.
 - A) 1 and 2 only
 - B) 1 and 3 only
 - C) 2 and 3 only
 - D) All of 1, 2, and 3
 - E) Neither 1, 2, or 3

- 4) The Arrhenius definition of an acid is:
 - A) a proton donor.
 - B) a proton acceptor.
 - C) produces H⁺ in solution.
 - D) produces OH⁻ in solution.
 - E) none of the above

- 5) The Bronsted-Lowry definition of a base is:
 - A) a proton donor.
 - B) a proton acceptor.
 - C) produces H⁺ in solution.
 - D) produces OH⁻ in solution.
 - E) none of the above

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

- 16) Acids have a bitter taste.

- 17) Acids turn litmus paper blue.

- 19) Bases feel slippery.

- 20) An Arrhenius base is a proton acceptor.

- 21) Acid solutions are electrolytes.
- 22) Base solutions are electrolytes.
- 23) Diprotic acids are able to donate two hydrogen ions to a base.
- 24) Bases turn litmus paper blue upon contact.

4. What is the difference between the Bronsted-Lowry and Arrhenius definitions of acids and bases?

- a) Bronsted-Lowry definition explains acids and bases in terms of electron pairs.
- b) Arrhenius defined bases as containing OH⁻ and Bronsted-Lowry said that bases have H⁺.
- c) Arrhenius defined bases as containing OH⁻ and Bronsted-Lowry said that bases are proton acceptors.
- d) They are the same definition, just different names.

Name the following acids:

HF _____

HClO₂ _____

H₂Cr₂O₇ _____

H₂Se _____

H₃PO₄ _____

Answers/Key Below:

Rewritten to say "Many bases contain OH⁻ in chem. formulas."

Key

Acid-Base Sample Questions

Properties, Examples of Common Acids, Naming Acids

1) Which of the following is NOT a property of acids?

- A) Acids have a slippery feel.
- B) Acids have a sour taste.
- C) Acids turn litmus paper red.
- D) Acids dissolve many metals.
- E) All of the above are properties of acids.

Bases feel slippery.

Bases taste bitter

Bases turn litmus blue

Acids react with metals

(A)

3) Which of the following statements about a base are TRUE?

- 1. Bases are used in the manufacturing of soap.
- 2. Bases have a sour taste.
- 3. Fertilizer manufacture and cotton processing use bases.

- A) 1 and 2 only
- B) 1 and 3 only
- C) 2 and 3 only
- D) All of 1, 2, and 3
- E) Neither 1, 2, or 3

seems like they "dissolve", but the rxn creates a soluble ion from the solid metal

Acids

(sulfuric, phosphoric, nitric acids - fertilizer)

(sulfuric acid, maleic acid - cotton)

(B)

4) The Arrhenius definition of an acid is:

- A) a proton donor.
- B) a proton acceptor.
- C) produces H⁺ in solution.
- D) produces OH⁻ in solution.
- E) none of the above

(C)

5) The Bronsted-Lowry definition of a base is:

- A) a proton donor.
- B) a proton acceptor.
- C) produces H⁺ in solution.
- D) produces OH⁻ in solution.
- E) none of the above

(B)

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

16) Acids have a bitter taste. (F) Acids taste sour - Bases taste bitter.

17) Acids turn litmus paper blue. (F) Acids turn litmus red/pink - Bases turn litmus blue.

19) Bases feel slippery. (T) *think of soap

20) An Arrhenius base is a proton acceptor. (F) Bronsted-Lowry Base is a proton (H⁺) acceptor
Arrhenius Base = contains OH⁻ & creates OH⁻(aq) in water

- Free-Moving Ions
- 21) Acid solutions are electrolytes. (T) Ex: $\text{HCl}_{(aq)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{H}_3\text{O}^+_{(aq)} + \text{Cl}^-_{(aq)}$
- 22) Base solutions are electrolytes. (T) Ex: $\text{NaOH}_{(s)} \xrightarrow{\text{H}_2\text{O}} \text{Na}^+_{(aq)} + \text{OH}^-_{(aq)}$
- 23) Diprotic acids are able to donate two hydrogen ions to a base. (T) Ex: H_2SO_4
 H_2CrO_4
- 24) Bases turn litmus paper blue upon contact. (T) Acids turn litmus pink/red

4. What is the difference between the Bronsted-Lowry and Arrhenius definitions of acids and bases?

- a) Bronsted-Lowry definition explains acids and bases in terms of electron pairs. ← Lewis Definition
- b) Arrhenius defined bases as containing OH- and Bronsted-Lowry said that bases have H+. No!
- c) Arrhenius defined bases as containing OH- and Bronsted-Lowry said that bases are proton acceptors. Yes?
- d) They are the same definition, just different names.

Name the following acids:

HF	<u>Hydrofluoric Acid</u>
HClO ₂	<u>Chlorous Acid</u>
H ₂ Cr ₂ O ₇	<u>Dichromic Acid</u>
H ₂ Se	<u>Hydroselenic Acid</u>
H ₃ PO ₄	<u>Phosphoric Acid</u>