Bauck's CHEMISTRY Ch. 17 Test Review
This is an optional assignment due the day of the test.

Materials: loose leaf paper, pen and/or pencil   (You will be given a periodic table.)
Test date: _____
Test value: 200 points
Format: multiple choice, short answer essays, neutralization reactions to construct and balance, acid formula writing and naming, short pH problems, [calculator pH problems—honors only]

BACKGROUND INFO:
1. Be able to identify a formula as an **acid, base,** or **salt.** For this review, give an example of each.
2. **Acid**—List characteristics and pH range. Give the names and chemical formulas for the **six major acids** we use in class. (Recognize and be able to crisscross acid formulas.)
3. (Chem IH) **Acid naming** – summarize the acid naming rules and give one example of each rule.
4. **ACID + BASE →** _____ + _____
5. (Chem IH) **Acid anhydrides**—What are they? How do they form? Given an example.
6. (Chem IH) **Basic anhydrides**—What are they? How do they form? Given an example.
7. **Arrhenius method** of identifying acid and base formulas—How does this work? Give an example of each here.
8. **Base**— List characteristics and pH range. (Recognize and be able to crisscross acid formulas.) Give one chemical formula for a base.
9. (Chem 1H) **Bronsted-Lowry method** of identifying acid and base formulas—How does this work? Give example formulas of an acid, base, **conjugate base**, and **conjugate acid** in an equation.
10. (Chem 1H) **Buffer**—What is it? How does it work?
11. (Chem 1H) **Conjugate acid**—What is it?
12. (Chem 1H) **Conjugate base**—What is it?
13. **Dissociation** (into ions)—What is this?
14. **Ions**—give the formulas for the hydrogen, hydroxide, hydronium ions.
15. **Monoprotic** vs. **diprotic** vs. **triprotic** vs. **polyprotic** acids – Compare and contrast. Give an example of a chemical formula for each.
16. **Neutral**—Give characteristics and pH value.
17. **Neutralization**—What is the net ionic equation for all neutralization reactions?
18. **pH**–What does it measure? What is the neutral pH? What is the pH range for an acid? What is the pH range for a base?

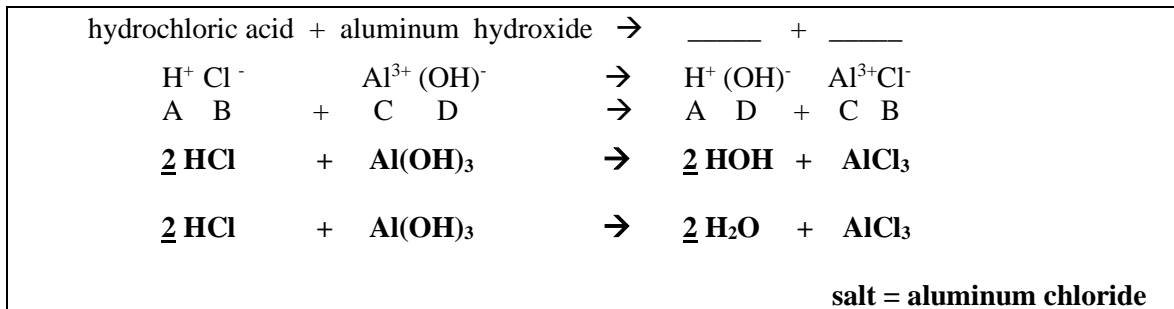These will be given to you for pH problems: $[H^+][OH^-] = 10^{-14}\ M$ $pH + pOH = 14.00$

19. **Salt**—(Be able to recognize and crisscross formulas.) Give one example of a chemical formula for a salt for this review.
20. (Chem 1H) **Salt hydrolysis**—How does it work?
21. **Self-ionization of water**—What is this equation?

MORE →

22. Give an example of a reaction following for the format in the large box below:
    Neutralization reactions (all double displacement):
    a) Predict the products
    b) Write all chemical formulas (crisscross)
    c) Balance the equation
    d) Name the salt formed

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hydrochloric acid + aluminum hydroxide → _____ + _____

| H^+ Cl^- | | Al^{3+} $(OH)^-$ | → | H^+ $(OH)^-$ | | $Al^{3+}Cl^-$ |
| A B | + | C D | → | A D | + | C B |

$\underline{2}$ **HCl** + **Al(OH)₃** → $\underline{2}$ **HOH** + **AlCl₃**

$\underline{2}$ **HCl** + **Al(OH)₃** → $\underline{2}$ **H₂O** + **AlCl₃**

salt = aluminum chloride

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23. Solve the pH problem in the box below:
    Chem 1H **pH math problems** (need a calculator – show all work)

Example: A solution has [OH⁻] of 7.399 x 10⁻¹³ M.
a)   What is [H⁺]?
b)   What is the pH?
c)   What is the pOH?
d)   Is this solution acid, base, or neutral?

Chem I **pH math problems** (do not need a calculator)

Example: A solution has [H⁺] of 1.0 x 10⁻¹³ M.
a)   What is [OH⁻]?
b)   What is the pH?
c)   What is the pOH?
d)   Is this solution acid, base, or neutral?