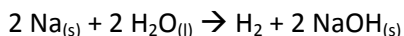


ANSWERS Science Pretest 1.4

ST- PART

1. An investigator goes into a lab after an explosion. Too large a piece of sodium had reacted with water:



- a) He sees white solid on the ceiling. What test can he carry out to reveal that the substance is a base?

He could use pH paper or litmus. The latter will turn blue. Licking the ceiling to test for bitterness is not recommended.

- b) What ion released by NaOH is responsible for its bitter taste?

Hydroxide (OH^-)

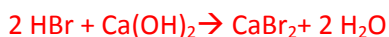
- c) What substance can eliminate NaOH's bitterness?

Acid

- d) Predict what would happen to the conductivity of aqueous sodium hydroxide if we perfectly neutralize NaOH with H_2SO_4 . Explain why the solution will /won't keep conducting electricity.

The product will still conduct electricity because salt and water will form. The ions from the salt (Na_2SO_4) in water will allow electricity to flow through the aqueous solution.

2. What two compounds will form if HBr reacts with $\text{Ca}(\text{OH})_2$? Write a balanced equation.



3. a) From the following list, find the most acidic substance?

HCl

- b) How much more acidic is it compared to the next most acidic substance?

10 times more acidic than battery acid; each pH unit is a factor of 10.

- c) Which is the most basic? NaOH

pH

- 0 - Hydrochloric Acid (HCl) of 1M
- 1.0 - Battery Acid (H_2SO_4 sulfuric acid)
- 2.0 - Lemon Juice
- 2.2 - Vinegar
- 3.0 - Apples
- 4.0 - Wine and Beer
- 4.5 - Tomatoes
- 6.6 - Milk
- 7.0 - Pure Water
- 7.2 to 7.4 - Human Blood

8.3 - Baking Soda (Sodium Bicarbonate)

10.5 - Milk of Magnesia

11.0 - Ammonia

12.4 - Lime (Calcium Hydroxide)

13.0 - Lye

14.0 - Sodium Hydroxide (NaOH)

A Flash FROM YOUR HAPPY PAST

4. Which alkali atom has less than 10 protons? **Li**

5. Convert 12 ppm to g/ml.

12 ppm means 12 mg/L

12 mg (g/1000 mg) = 0.012 g

1 L = 1000 mL

12 mg/L = 0.012g /1000ml = 0.000012 g /ml

6. How many electrons are in an ion of chloride?

Chloride ion = ${}_{17}\text{Cl}^-$:

$E = p - c = 17 - (-1) = 18$

7. How many dots are there in the dot structure of Xe? **8**

8. What is a chemical characteristic property of alcohol? **It's flammable.**