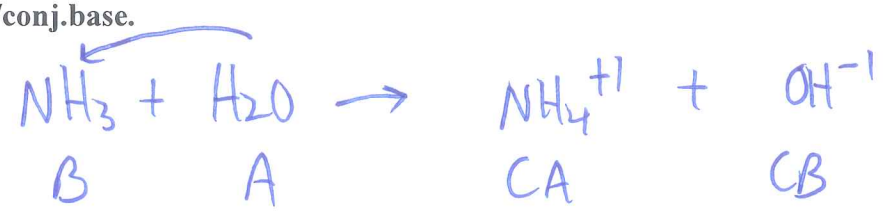
Chemistry – Ch.19 Quiz

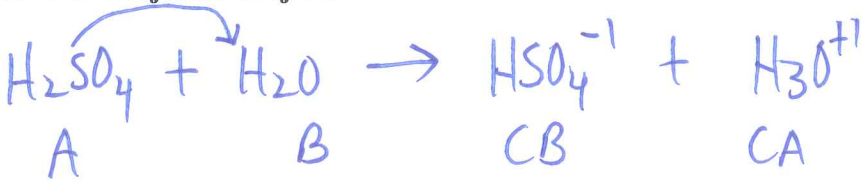
40

Name: CALVIN
Date:
Hour:

1) **Write a rxn between Ammonia (NH_3) and water. Identify the acid/base and conj.acid/conj.base.**



2) **Write a reaction between Sulfuric acid (H_2SO_4) and water. Identify the acid/base and conj.acid/conj.base.**



3) ***TO THE LEFT of each letter:*** **Classify each as an acid (A) or base (B)**

A a. HCl mono
B b. Na(OH)
A c. $H_2(SO4)$ di
A/B d. H_2O mono/di
B e. $Mg(OH)_2$
A f. CH_3COOH mono
A g. $H(NO_3)$ mono
A h. $H_3(PO_4)$ tri
B i. Li(OH)

4) **Go back to #3 and *TO THE RIGHT* of each acid, label it as (monoprotic, diprotic, triprotic)**

5) **Write out a neutralization reaction between Sodium Hydroxide and Hydrochloric acid.**

6) **Label each with "Concentrated/dilute" and "weak/strong" and "acid/base"**

a. **12 M $H_2(SO_4)$** conc., strong, acid

b. **0.1 M HCl** dilute, strong, acid

c. **0.5 M Na(OH)** dilute, strong, base

d. **14 M $H(NO_3)$** conc., strong, acid

e. **$1x10^{-3}$M $Ba(OH)_2$** dilute, strong, base

f. **2 M Ammonia** dilute, weak, base

g. **1.2 M acetic acid** dilute, weak, acid

COMMON ACIDS AND BASES

Strong Acids		Strong Bases	
HCl	hydrochloric acid	NaOH	sodium hydroxide
HNO_3	nitric acid	KOH	potassium hydroxide
H_2SO_4	sulfuric acid	$Ba(OH)_2$	barium hydroxide
Weak Acids		**Weak Bases**	
CH_3COOH	acetic acid	NH_3	ammonia
H_2CO_3	carbonic acid	CH_3NH_2	methyl amine
H_3PO_4	phosphoric acid		

BONUS

Correctly spell a word you know that has 4 or more syllables (must be a word that can be found in dictionary). Extra points *possible* for extra syllables.

Resonate

Chemistry Ch.19 ~ Quiz

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D 1) A water solution is neutral if ____ .
   a) it contains no Hydronium ions
   b) it contains no ionized water molecules
   c) it contains no Hydronium or Hydroxide ions
   d) the concentrations of Hydronium and Hydroxide ions are equal

C 2) Which of the following is the pH range indicator that is useful in studying a *neutralization* reaction?
   a) 1.2 to 3.0 b) 3.1 to 4.6 c) 6.0 to 7.6 d) 9.5 to 11.0

B 3) Acids have a taste that is:
   a) sweet b) sour c) bitter d) salty

C 4) Bases have a taste that is:
   a) sweet b) sour c) bitter d) salty

C 5) Bases feel:
   a) rough b) moist c) slippery d) dry

A 6) What acid is found in vinegar?
   a) acetic acid b) nitric acid c) phosphoric acid d) hydrochloric acid

C 7) Which acid is found in fertilizer?
   a) acetic acid b) sulfuric acid c) nitric acid d) hydrochloric acid

D 8) Which acid reacted with Zinc in class to produce Hydrogen gas?
   a) acetic acid b) sulfuric acid c) nitric acid d) hydrochloric acid

D 9) Which is a binary acid?
   a) acetic acid b) sulfuric acid c) nitric acid d) hydrochloric acid

C 10) 12M HNO_3 acid is:
   a) concentrated, weak b) dilute, weak c) concentrated, strong d) dilute, strong

B 11) Protons are important to the definition of acid/base for:
   a) Arrhenius b) Bronsted-Lowry c) Lewis

C 12) Electron pairs are important to the definition of acid/base for:
   a) Arrhenius b) Bronsted-Lowry c) Lewis

A 13) Arrhenius acids increase the concentration of:
   a) Hydronium $[H_3O^{+1}]$ b) Hydroxide $[OH^{-1}]$

B 14) The conjugate base of HNO_3 is:
   a) $H_2(NO_3)_2$ b) NO_3^{-1}

True or False – Mark 'T' or 'F' → make the statement TRUE if false!

T 15) *Amphoteric* means a substance (like water) can act as an acid or a base

T 16) A strong acid and a strong base will react to form a salt and water.

F 17) Acids make litmus paper turn ~~blue~~ Red.

T 18) Ammonia is a base.

T 19) pH goes with Hydronium (H_3O^{+1}) and pOH goes with Hydroxide (OH^{-1})

20) Write any THREE things from your note card here:

Reasonable

21) Give THREE examples of an acid/base indicator:

phenolphthalein, universal/rainbow indicator, pH paper, litmus paper, red cabbage juice, etc...

22) Aqueous solutions of bases **have a bitter taste. Aqueous solutions of** acids **have a sour taste. **However, taste should NEVER be used to evaluate a chemical substance.**

23) Sodium Hydroxide, sometimes called 'lye' is used in some drain cleaners. Write a formula for this compound and indicate whether it is an acid or a base.

NaOH Base

24) Give the pH of:

a) Weak acid	b) Strong base	c) Strong acid	d) Weak base	e) Neutral
≈ 6.5	≈ 14	≈ 1	≈ 75	≈ 7

25) Write TWO more things from your notecard not asked on the quiz:

Reasonable

Go VIKINGS!!

40

Nombre: CALVIN
Hora:
Fecha:

Chemistry pH quiz

Circle best answer

1) Arrhenius acids increase the (*Hydronium, Hydroxide*) concentration.
2) Bronsted-Lowry (*acids, bases*) act as proton donors.
3) Bronsted-Lowry (*acids, bases*) act as proton acceptors.
4) Lewis acids (*accept, donate*) electron pairs.
5) Acids have a pH of (*above 7, below 7*).
6) Bases have a pH of (*above 7, below 7*)
7) A strong acid is (*concentrated, dissociates completely*).
8) A substance with a pOH of 2 will be (*acidic, basic, neutral*).
9) (*phenolphthalein, universal indicator*) was used in the titration lab.
10) (*phenolphthalein, universal indicator*) was used in class to make different colors in the beaker as we added ~~"A" and~~ "B" alternately.
11) The pH will be neutral when [Hydronium] is (*greater than, less than, equal to*) [Hydroxide]

Short Answer

12) amphoteric is the term that applies to water's ability to act as an acid or a base.
13) "pH" stands for: power of Hydronium
14) Complete chart:

	Acid	Base
Arrhenius	↑ $[H_3O^+]$	↑ $[OH^-]$
Bronsted-Lowry	proton donor	proton acceptor
Lewis	electron pair acceptor	electron pair donor

15) Write down the quote of the day OR word of the day from yesterday.

Resonate

16) Find the pH, pOH and Hydronium of 3.72×10^{-12}M [Hydroxide]

pH = 2.57 $\quad [H_3O^+] = 2.7 \times 10^{-3}$ M

pOH = 11.4 $\quad [OH^-] = 3.72 \times 10^{-12}$ M

17) Write four facts about:

Acids

Reasonable

Bases

Reasonable

18) Determine [Hydronium] if pOH is 9.12. Is this an acid or base?

$[H_3O^+] = 1.32 \times 10^{-5}$ M

Acid

19) Determine the pOH, Hydroxide and pH if the [Hydronium] is 3.4×10^{-3}M

pH = 2.47 $\quad [H_3O^+] = 3.4 \times 10^{-3}$ M

pOH = 11.5 $\quad [OH^-] = 2.94 \times 10^{-12}$ M

Bonus:

Can you read this? If no, draw a hippopotamus

Reasonable

Chemistry Ch.19 T/F/Bonus ~ Quiz

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/20

F 1) A 12 on the pH scale would be considered a strong acid.

T 2) pH paper is an example of an acid/base indicator.

T 3) Acids have a taste that is sour.

T 4) Bases have a taste that is bitter.

T 5) Bases feel slippery.

F 6) Hydrochloric acid is found in vinegar.

F 7) The pH scale goes from 1-14.

T 8) In class we have used Hydrochloric acid and Zinc to produce Hydrogen gas.

T 9) A pH of 7 is considered neutral.

T 10) 12M Nitric acid is considered a strong acid.

T 11) The Bronsted-Lowry definition of acids/bases emphasizes the role of protons.

T 12) Electron pairs are important to the definition of acid/base according to Lewis.

F 13) Arrhenius acids increase the concentration of Hydroxide (OH^{-1}).

T 14) Ammonia is a weak base.

T 15) Bass guitars have the low tones.

T 16) Amphoteric refers to items that can act as an acid or a base.

T 17) A 2 on the pH scale would be considered a strong acid.

F 18) A 6M solution of acid would become less concentrated if you let some water evaporate.

T 19) Na(OH) is found in drain cleaner. This is a strong base.

F 20) Acetic acid is an example of a weak base.

Go Vikings!!

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