

SNC 2D Chemistry Unit Review Sheet

***To review Chapter 5, review your test.

- Explain the law of conservation of mass.
- Identify the following reactions as one of a possible six types of reaction and if it's endothermic or exothermic:
 - thermal energy + $\text{BaO}_2(\text{s}) \rightarrow \text{Ba}(\text{s}) + \text{O}_2(\text{g})$
 - $\text{NH}_3(\text{g}) + \text{HCl}(\text{g}) \rightarrow \text{NH}_4\text{Cl}(\text{s}) + \text{energy}$
 - thermal energy + $\text{C}(\text{s}) + \text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{CH}_3\text{CH}_2\text{OH}$
 - $\text{N}_2\text{H}_4(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{N}_2(\text{g}) + \text{H}_2\text{O}(\text{l}) + \text{thermal energy}$
- Describe each of the 6 types of chemical reactions. Find 2 examples of each type of reaction.
- Balance each of the following skeleton equations and classify the reaction as synthesis, decomposition, single displacement, double displacement, combustion, or neutralization:
 - $\text{Fe} + \text{O}_2 \rightarrow \text{Fe}_2\text{O}_3$
 - $\text{P}_4\text{O}_{10} \rightarrow \text{P}_4 + \text{O}_2$
 - $\text{H}_2\text{SO}_4 + \text{FeS} \rightarrow \text{FeSO}_4 + \text{H}_2\text{S}$
 - $\text{Zn} + \text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
- Translate each of the following word equations, balance them, and classify the reaction as synthesis, decomposition, single displacement, double displacement, combustion, or neutralization.
 - water \rightarrow hydrogen + oxygen
 - potassium bromide + aluminum nitrate \rightarrow potassium nitrate + aluminum bromide
 - nitrogen + hydrogen \rightarrow nitrogen trihydride
 - sulfuric acid + magnesium hydroxide \rightarrow magnesium sulfate + water
 - calcium oxide + water \rightarrow calcium hydroxide
 - sodium carbonate + calcium hydroxide \rightarrow sodium hydroxide + calcium carbonate
 - propane + oxygen gas \rightarrow water + carbon dioxide
- Predict the products of each of the following, write a balanced chemical equation, and state the type of reaction.

a. Pentane (C_5H_{12}) + oxygen \rightarrow	h. Sodium + Oxygen \rightarrow
b. Sodium Phosphate + Iron (II) Nitrate \rightarrow	i. Zinc + Magnesium Hydroxide \rightarrow
c. Magnesium + Sulfuric Acid (H_2SO_4) \rightarrow	j. Aluminum Oxide \rightarrow
d. Calcium + Oxygen \rightarrow	k. Sodium Sulfate + Barium Chloride \rightarrow
e. Octane (C_8H_{18}) + oxygen \rightarrow	l. Propanol ($\text{C}_3\text{H}_7\text{OH}$) + oxygen \rightarrow
f. Sodium Phosphate + Iron (II) Nitrate \rightarrow	m. Calcium + Nitrogen \rightarrow
g. Magnesium + Sulfuric Acid (H_2SO_4) \rightarrow	
- What is an acid? Give 2 examples of acids and name them.
- What is a base? Give 2 examples of bases and name them.
- Distinguish between strong and weak acids by referring to their pH ranges and the extent of their dissociation (ions).
- Distinguish between strong and weak bases by referring to their pH ranges and the extent of their dissociation (ions).
- Which has the greater concentration of H^+ (aq) ions present; an orange with a pH of 3.5 or a solution of $\text{Ca}(\text{OH})_2$ with a pH of 8.9?
- Create a table that summarizes the following properties of acids and bases: taste, feel, reaction to litmus paper, reaction with metals, reaction with carbonates, conduction of electricity, reaction with phenolphthalein.
- Several solutions were tested at room temperature, and their pH values are given below:

i) 7.0	a) Identify each solution as acidic, basic, or neutral.
ii) 2.3	
iii) 4.9	b) Which solution is the MOST acidic? Which solution is the LEAST acidic?
iv) 14.0	
v) 10.3	
- You have a beaker of strong sulfuric acid (H_2SO_4). Explain how you could neutralize it so that it is no longer dangerous.
- What is a salt? Explain how you could make table salt using only an acid and a base.
- Predict the products for the reactions between an acid and a base and balance the equations:

a. $\text{HCl} + \text{Ca}(\text{OH})_2 \rightarrow$	b. $\text{H}_2\text{SO}_4 + \text{KOH} \rightarrow$	c. $\text{HNO}_3 + \text{Mg}(\text{OH})_2 \rightarrow$
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- Explain the chemical composition of an antacid. How does it help to treat heartburn?

Excellent Test Type Questions: Textbook Review

(DO THE QUESTIONS THAT YOU FEEL YOU NEED THE MOST PRACTICE WITH!!)