Chemistry Study Guide Answers

1. Using the periodic table, how many protons, neutrons, and electrons are in an atom of cobalt? P = 27 E = 27 N = 32

*Electrons =protons, protons = atomic number, neutrons = atomic mass - protons

2. Which particles are located in the nucleus of the atom? Protons & neutrons

3. What is a molecule? Be able to identify one from a list. <u>Smallest particles of a substance with the same properties</u> of the substance (ex. H₂O, O₂, N₂, CO₂)

4. Use the periodic table to explain how elements form bonds. <u>Ex. Group 16 ionically bonds with group 2, Group 17 ionically bonds with Group 1</u>

5. On the periodic table, what are groups and periods? <u>Groups are the columns and share similar properties, periods</u> are rows across the table

6. What kind of bond is NaCl? lonic CO2 Covalent N2 Covalent

7. Which group forms acids with H⁺ ion? <u>Halogens (Group 17)</u>

8. How many valence electrons are in a Group 1 element? 1 Group 13? 3

9. How do positive and negative ions form? Positive ions form when an atom loses an electron, negative ions form when an atom gains an electron

10. In the equation, (**REACTANT**) $P_4 + O_2 \rightarrow P_2O_3$ (**PRODUCT**), if there are 20 g of P_4 and 15 g of O_2 , how many grams of P_2O_3 will form? <u>35g</u>

11. How many atoms of each element are in the compound Na₃PO₄? Na = 3, P = 1, O = 4

12. Identify each equation as balanced or unbalanced. Balance the unbalanced equation.

 $N_2 + H_2 \rightarrow 2NH_3$ Unbalanced

 $2NaF + Br_2 \rightarrow 2NaBr + F_2$ Balanced

13. If a substance has a pH less than 7, it is an <u>acid</u>. If pH is more than 7, it is a <u>base</u>.

14. What type of ions form from acids and bases? <u>Acids: H⁺ : Bond to nonmetals- (halogens: group 17)</u> <u>Base: OH⁻ :</u> <u>bond to metals-(group 1 & 2)</u>

15. Identify each substance as an acid or base: KOH <u>Base</u> HCI <u>Acids</u>, HNO₃ <u>Acids</u> Mg(OH)₂ <u>Base</u> H₂SO₄ <u>Acids</u>

16. Use periodic table to predict the type of bond that will form. Na and F <u>lonic</u> C and O <u>covalent</u> S and O <u>covalent</u>, Be and Cl <u>lonic</u>

17. Identify the equations for photosynthesis and respiration.

Photosynthesis: $H_2O + CO_2 + energy \longrightarrow C_6H_{12}O_6 + O_2$ Respiration: $C_6H_{12}O_6 + O_2 \longrightarrow H_2O + CO_2 + energy$

18. Identify the following molecules: H₂0= water, CO₂= carbon dioxide, C₆H₁₂O₆= sugar/glucose, O₂= oxygen molecule

19. In a closed system, how will the mass before the chemical reaction compare to the mass after the reation according to the Law of Conservation of mass? It will be the same Why does this not always occur in an open system? If a gas forms it can be lost in the air if it is not trapped

20. What is the difference between the atomic # and the atomic mass? **Mass = protons + neutrons & Atomic #= protons only**

BE SURE TO REVIEW OLD MATERIAL: ANALYZING DATA, NEWTON'S LAWS, GLOBAL WARMING/GREEENHOUSE GASES, RENEWABLE & NONRENEWABLE RESOURCES, AC & DC CURRENT, MOTION GRAPHS, EARTH'S MOTION(POSITION DURING EACH SEASON & HOW HOURS OF SUNLIGHT CHANGE), CORIOLIS AFFECT