Chemistry Review #2

Balancing Equations, Types of Reactions, and Acids and Bases

True/False

1. In a neutralization reaction, an acid is added to a base to produce a salt and water.
2. A single displacement reaction occurs when an element and a compound react, producing a new element and compound.
3. Hydrochloric acid is the acid used in car batteries.
4. A neutralization reaction is an example of a double displacement reaction.
5. Most cleaning products are bases.

Fill in the blanks.

6. The products of a combustion reaction are always _____ and _____.
7. Acids taste _____. Bases taste _____.
8. Acids have a pH of _____ and bases have a pH of _____.

Balance the following chemical equations and classify each reaction as: *synthesis, decomposition, single displacement, double displacement, neutralization,* or *combustion*.

Type of Reaction

9. _____K + _____Br_2 → _____KBr _____
10. _____SiO_2 + _____HF → _____SiF_4 + _____H_2O _____
11. _____$Al_2(SO_4)_3$ + _____$Ca(OH)_2$ → _____$Al(OH)_3$ + _____$CaSO_4$ _____
12. _____Au_2S_3 + _____H_2 → _____Au + _____H_2S _____
13. _____$C_7H_6O_2$ + _____O_2 → _____CO_2 + _____H_2O _____
14. _____C_2H_5OH + _____O_2 → _____CO_2+ _____H_2O _____
15. _____H_3PO_4 → _____$H_4P_2O_7$ + _____H_2O _____

16. _____Zn + _____HCl → _____$ZnCl_2$ + _____H_2 _____

17. _____H_2 + _____O_2 → _____H_2O _____

18. _____$Pb(NO_3)_2$ + _____$NaCl$ → _____$NaNO_3$ + _____$PbCl_2$ _____

Write a balanced chemical equation using chemical symbols and states of matter for each of the following word equations. Classify each reaction as: *synthesis, decomposition, single displacement, double displacement, neutralization,* or *combustion*.

19. Iron metal and chlorine gas react to form solid iron(III) chloride.

    balanced equation: _____

    type of reaction: _____

20. Liquid hydrogen peroxide (H_2O_2) breaks down into liquid water and oxygen gas.

    balanced equation: _____

    type of reaction: _____

21. Hydrogen gas and nitrogen monoxide gas react to form water vapor and nitrogen gas.

    balanced equation: _____

    type of reaction: _____

22. Aqueous potassium iodide reacts with aqueous lead(II) nitrate to form aqueous potassium nitrate and solid lead(II) iodide.

    balanced equation: _____

    type of reaction: _____

23. Methane gas, CH_4, is burned.

    balanced equation: _____

    type of reaction: _____