**Chemical Reactions**

Name and date submitted (3 pts):

Instructions: Using this form as a template, create space in the document below and write or type your answers. KEEP THE SAME NUMBERING!

(32 questions)

1. What symbol should you use to indicate the following:
   1. A gas (show both symbols used)
   2. A liquid
   3. A solid
   4. A precipitate (a solid which settles-out in aqueous solution)
   5. An aqueous solution
   6. Heat must be supplied
   7. A catalyst must be supplied
   8. A reversible reaction
2. Indicate whether each reaction is a Single Replacement, Double Replacement, Synthesis, or Decomposition reaction:
   1. A + B → AB
   2. AB + CD → AD + BC
   3. A + BC → AC + B
   4. AB → A + B
   5. Fe + S → FeS(s)
   6. 2H2O(l) → 2H2(g) + O2(g)
   7. CuSO4 + Fe → FeSO4 + Cu
   8. CaSO4 + 2NaOH → Na2SO4 + Ca(OH)2
3. Balance the following equations:
   1. FeS + HCl → FeCl2↓ + H2S↑ (making rotten-egg gas, H2S)
   2. HC2H3O2 + NaHCO3 → NaC2H3O2 +CO2↑ + H2O (vinegar & baking soda experiment)
   3. H2 + O2 → H2O (burning hydrogen in a fuel cell)
   4. Fe + O2 → Fe2O3 (the rusting of iron)
   5. H2O2 → H2O + O2↑ (making oxygen gas from hydrogen peroxide)
   6. CH4 + O2 → CO2↑ + H2O (burning of natural gas)
   7. Zn + HCl → ZnCl2↓ + H2↑ (dissolving zinc in hydrochloric acid)
   8. Al + H2SO4 → Al2(SO4)3 + H2↑ (dissolving aluminum in sulfuric acid)
   9. CaCO3 + HCl → CaCl2↓ + CO2↑ + H2O (putting Tums Antacid in your stomach)
   10. CaO + H2O → Ca(OH)2↓ (“slaking” lime in water)
   11. NaCl + NaHSO4 → HCl + Na2SO4 (making hydrochloric acid from salt)
   12. Ca(OH)2 + Na2CO3 → NaOH + CaCO3↓ (make caustic soda from lime)
   13. Al + Fe2O3 → Fe + Al2O3 + heat (the explosive “Thermite” reaction)
   14. Fe + HCl → FeCl2↓ + H2↑ (dissolving steel wool in hydrochloric acid)
   15. Ca3(PO4)2 + H2SO4 → H3PO4 + CaSO4 (making phosphoric acid fertilizer)
   16. NaCl + H2SO4 + MnO2 → Na2SO4 + MnCl2 + H2O + Cl2↑ (making chlorine gas)