

Spring Test #1 – Review – Chunk #1, 2, 3

1. LDF, Dipole-Dipole, Hydrogen "bond"
2. H₂, O₂, CO₂
CO, H₂S, HF
H₂O, NH₃
3. DNA and proteins
4. HB, LDF, HB, HB, DP-DP, LDF, DP-DP
5. LDF, DP-DP, HB
Ionic, Covalent
6. When the electrons are not evenly distributed around a molecule
7. See your notes!
8. P, P, NP, NP, NP, P, NP
9. If you don't know it is bent you would think it is non-polar. Once you know it is bent you know it is polar

10. CH_4 (LDF) < CH_3OCH_3 (DP-DP) < CH_3OH (HB)
11. $\text{CH}_3\text{CH}_2\text{OH}$ because it has H-bond, the other only has DP-DP
12. See your “argument from evidence!”
13. Any ionic substance like NaCl has ionic lattice, any metal like Fe has metallic bonds, and graphite and diamond have network covalent
14. Very very high!
15. Graphite and diamond
16. When you have the same substance at the end just a different form (ice and water)
17. When you make brand new substances/molecules
18. A physical trait – big/small, color, etc
19. The way something behaves chemically – “it can burn” or “it can react with oxygen” etc

20. Melting, boiling, ripping, smashing, cutting
21. Melting, freezing, condensing, vaporizing, deposition, sublimation
22. color change, order change, precipitate forms, light is emitted, temperature change
23. MEMORIZE YOUR IONS!!!!

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SPRING BENCHMARK #1 Review Problems – CHUNK #2

KEY

Q#	Balance the following equations using the smallest whole numbers possible.	Type
1	$2 \text{Mg(s)} + \text{O}_2\text{(g)} \rightarrow 2 \text{MgO(s)}$	Synth
2	$2 \text{C}_8\text{H}_{18}\text{(g)} + 25 \text{O}_2\text{(g)} \rightarrow 16 \text{CO}_2\text{(g)} + 18 \text{H}_2\text{O(g)}$	Comb.
3	$2 \text{Cu(s)} + \text{H}_2\text{O(g)} \rightarrow \text{H}_2\text{(g)} + \text{Cu}_2\text{O}$	SR
4	$2 \text{AgCl(aq)} + \text{H}_2\text{S(aq)} \rightarrow \text{Ag}_2\text{S(s)} + 2 \text{HCl(aq)}$	DR
5	$\text{CaCO}_3\text{(s)} \rightarrow \text{CaO(s)} + \text{CO}_2\text{(g)}$	Decomp.
6	$8 \text{Cu(s)} + \text{S}_8\text{(s)} \rightarrow 8 \text{CuS(s)}$	Synth.
7	$\text{H}_2\text{S(aq)} + 2 \text{NaOH(aq)} \rightarrow 2 \text{H}_2\text{O(l)} + \text{Na}_2\text{S(aq)}$	DR
8	$\text{Al}_2\text{(SO}_4\text{)}_3 + 3 \text{Ca(OH)}_2 \rightarrow 2 \text{Al(OH)}_3 + 3 \text{CaSO}_4$	DR
9	$2 \text{Al} + 6 \text{HCl} \rightarrow 2 \text{AlCl}_3 + 3 \text{H}_2$	SR

Q#	Predict the products, balance the equation, then classify the type of reaction:	OR Type
10	$\underline{3} \text{Na} + \underline{\quad} \text{FeBr}_3 \rightarrow \text{Fe} + \underline{3} \text{NaBr}$	SR
11	$\underline{2} \text{NaOH} + \underline{\quad} \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \underline{2} \text{H}_2\text{O}$	DR
12	$\underline{\quad} \text{C}_2\text{H}_4\text{O}_2 + \underline{2} \text{O}_2 \rightarrow \underline{2} \text{CO}_2 + 2\text{H}_2\text{O}$	Comp.
13	$\underline{\quad} \text{NH}_3 + \underline{\quad} \text{H}_2\text{O} \rightarrow \text{NH}_5\text{O}$	Synth.
14	$\underline{\quad} \text{PbSO}_4 + \underline{2} \text{AgNO}_3 \rightarrow \text{Ag}_2\text{SO}_4 + \text{Pb}(\text{NO}_3)_2$	DR
15	$\underline{2} \text{PBr}_3 \rightarrow \underline{2} \text{P} + \underline{3} \text{Br}_2$	Decomp.

16	$\underline{6}$ HBr + $\underline{2}$ $\overset{(III)}{\text{Fe}} \rightarrow \underline{2}$ FeBr ₃ + $\underline{3}$ H ₂	SR
17	$\underline{2}$ KMnO ₄ + $\underline{\quad}$ ZnCl ₂ → $\underline{2}$ KCl + Zn(MnO ₄) ₂	DR
18	$\underline{\quad}$ MnO ₂ + $\underline{\quad}$ Sn(OH) ₄ → SnO ₂ + Mn(OH) ₄	DR
19	$\underline{7}$ O ₂ + $\underline{\quad}$ C ₅ H ₁₂ O ₂ → $\underline{5}$ CO ₂ + $\underline{6}$ H ₂ O	Comb.
20	$\underline{\quad}$ H ₂ O ₂ → H ₂ + O ₂	Decomp
21	$\underline{\quad}$ PtCl ₄ + $\underline{\quad}$ Cl ₂ → PtCl ₆	Synth

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SPRING BENCHMARK #1 Review Problems – CHUNK #3

Write and balance the following

1 Beryllium chloride reacts with silver nitrate and make beryllium nitrate and silver chloride

$$\underline{1} \text{BeCl}_2 + \underline{2} \text{AgNO}_3 \rightarrow \underline{1} \text{Be}(\text{NO}_3)_2 + \underline{2} \text{AgCl}$$

2 C₃H₈O burns in oxygen. Carbon dioxide and water are produced.

$$\underline{2} \text{C}_3\text{H}_8\text{O} + \underline{9} \text{O}_2 \rightarrow \underline{6} \text{CO}_2 + \underline{8} \text{H}_2\text{O}$$

Use the following information to identify the type of reaction, name predicted products, and to write a balanced skeleton equation

Q#	Type	Reactants	Names of Predicted Products
3	D	potassium chlorate	potassium chloride + oxygen
	Balanced Skeleton Eq.	$2 \text{K}(\text{ClO}_3) \rightarrow 2 \text{KCl} + 3 \text{O}_2$	
4	DR	aluminum nitrate + sodium hydroxide	Aluminum Hydroxide, sodium nitrate
	Balanced Skeleton Eq.	$\underline{1} \text{Al}(\text{NO}_3)_3 + \underline{3} \text{Na}(\text{OH}) \rightarrow \underline{1} \text{Al}(\text{OH})_3 + \underline{3} \text{Na}(\text{NO}_3)$	
5	D	ammonium nitrite	nitrogen + water
	Balanced Skeleton Eq.	$(\text{NH}_4)(\text{NO}_2) \rightarrow \text{N}_2 + \underline{2} \text{H}_2\text{O}$	

6	DR	iron(III) bromide + ammonium sulfide	Iron(III) sulfide + Ammonium bromide
	Balanced Skeleton Eq.	$2 \text{FeBr}_3 + 3 (\text{NH}_4)_2\text{S} \rightarrow \text{Fe}_2\text{S}_3 + 6 (\text{NH}_4)\text{Br}$	
7	S	calcium oxide + diphosphorus pentoxide	calcium phosphate
	Balanced Skeleton Eq.	$3 \text{CaO} + \text{P}_2\text{O}_5 \rightarrow \text{Ca}_3(\text{PO}_4)_2$	
8	SR	aluminum + copper (II) chloride	Aluminum Chloride, Copper
	Balanced Skeleton Eq.	$2 \text{Al} + 3 \text{CuCl}_2 \rightarrow 2 \text{AlCl}_3 + 3 \text{Cu}$	
9	SR	bromine + magnesium iodide	Iodine + magnesium bromide
	Balanced Skeleton Eq.	$\text{Br}_2 + \text{MgI}_2 \rightarrow \text{I}_2 + \text{MgBr}_2$	
10	D	sodium bicarbonate	sodium oxide + carbon dioxide + water
	Balanced Skeleton Eq.	$2 \text{NaHCO}_3 \rightarrow \text{Na}_2\text{O} + 2 \text{CO}_2 + \text{H}_2\text{O}$	
11	S	aluminum + oxygen	Aluminum oxide
	Balanced Skeleton Eq.	$4 \text{Al} + 3 \text{O}_2 \rightarrow 2 \text{Al}_2\text{O}_3$	
12		iron (II) + silver acetate	
	Balanced Skeleton Eq.	$\text{Fe} + 2 \text{Ag}(\text{C}_2\text{H}_3\text{O}_2) \rightarrow 2 \text{Ag} + \text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_2$	