Unit 5 – Chemical Reactions Twitter Review Questions

U5-1: What fundamental law of chemistry requires that chemical equations be balanced?

- Answer: Law of conservation of Mass/Matter

U5-2: What is used (from reference table) to determine if a single replacement reaction will occur or not?

- Answer: Activity Series of Metals/Halogens

U5-3: What is used (from reference table) to determine if a double replacement reaction will occur or not?

- Answer: Solubility Rules

U5-4: Identify two (2) examples of a physical property.

- Answer: Hardness & Density

U5-5: Identify two (2) indicators of a physical change.

- Answer: Dissolving & phase changes

U5-6: Identify two (2) examples of a chemical property.

- Answer: Color change & Effervescence

U5-7: Identify two (2) indicators of a chemical change.

- Answer: Precipitate formed & Formation of gas

U5-8: One key indicator that a double replacement reaction has occurred is when a solid _____ is produced.

- Answer: Precipitate

U5-9: What must ALL chemical changes produce?

- Answer: A new substance

U5-10: Identify as PC or CC:
A) Burning wood
B) Crumpling aluminum foil
C) Heating sugar into caramel
D) Sublimation of dry ice into CO2

- Answer: A) CC B) PC C) CC D) PC

U5-11: Identify as a physical or chemical property:
A) Color
B) Color change
C) Odor
D) Odor produced

- Answer: A) P B) C C) P D) C

U5-12: Balance the following: Fe + O2 --> Fe2O3

- Answer: 4,3,2

U5-13: Balance the following: Fe(OH)3 --> Fe2O3 + H2O

- Answer: 2,1,3

U5-14: Balance the following: Al + FeO --> Al2O3 + Fe

- Answer: 2,3,1,3

U5-15: Balance the following: H3PO4 + Ca(OH)2 --> Ca3(PO4)2 + H2O

- Answer: 2,3,1,6

U5-16: Balance the following: C10H8 + O2 --> CO2 + H2O

- Answer: 1,12,10,4

U5-17: In order for the reaction 1 Zn + 2 CuNO3 --> 1 Zn(NO3)2 + 2 Cu to occur, what must be true?

- Answer: Zn must be ABOVE Cu on the Activity Series of Metals chart

U5-18: In order for the reaction 1 CaCl2 + 2 AgNO3 --> 1 Ca(NO3)2 + 2 AgCl to occur, what must be true?

- A precipitate must be formed via solubility rules

U5-19: Identify the seven (7) diatomic molecules and each of their formulas.

- Answer: Br_2 ; I_2 ; N_2 ; Cl_2 ; H_2 ; O_2 ; F_2

U5-20: Identify reaction type: _2_Na + _1_Cl2 --> _2_NaCl

- Answer: Synthesis

U5-21: Identify reaction type: _2_Na + _2_H2O --> _2_NaOH + _1_H2

- Answer: S-R

U5-22: Identify reaction type: _2_C4H10 + _13_O2 --> _8_CO2 + _10_H2O

- Answer: Combustion

U5-23: Identify reaction type: _2_HgO --> _2_Hg + _1_O2

- Answer: Decomposition

U5-24: Identify reaction type: _1_BaCl2 + _1_Na2SO4 --> _2_NaCl + _1_BaSO4

- Answer: D-R

U5-25: Predict product(s) only: CH4 + O2 --> ?

- Answer: $CO_2 + H_2O$

U5-26: Predict product(s) only: MgO + H2O --> ?

- Answer: $Mg(OH)_2$

U5-27: Predict product(s) only: HCl + NaOH --> ?

- Answer: $NaCl + H_2O$

U5-28: Predict product(s) only: CaCO3 --> ?

- Answer: $CaO + CO_2$

U5-29: Predict product(s) only: Zn + HCl --> ?

- Answer: $ZnCl_2 + H_2$

U5-30: _?_AgNO3 + _?_K3PO4 --> ?
A) Predict Product(s):
B) Complete balanced coefficients (in order):

- Answer: A) $KNO_3 + Ag_3PO_4$ B) 3,1,3,1

U5-31: _?_Cl2 + _?_AlBr3 --> ?
A) Predict Product(s):
B) Complete balanced coefficients (in order):

- Answer: A) $AlCl_3 + Br_2$ B) 3,2,2,3

U5-32: _?_NaClO3 --> ?
A) Predict Product(s):
B) Complete balanced coefficients (in order):

- Answer: A) $NaCl + O_2$ B) 2,2,3

U5-33: _?_Al + _?_Br2 --> ?
A) Predict Product(s):
B) Complete balanced coefficients (in order):

- Answer: A) $AlBr_3$ B) 2,3,2

U5-34: _?_C6H6 + _?_O2 --> ?
A) Predict Product(s):
B) Complete balanced coefficients (in order):

- Answer: A) $CO_2 + H_2O$ B) 2,15,12,6

U5-35: Word --> Balanced Chem: Aqueous strontium bromide reacts w/ aqueous potassium sulfate to produce strontium sulfate precipitate & aqueous potassium bromide.

- Answer: 1 $SrBr_2$ (aq) + 1 K_2SO_4 (aq) → 1 $SrSO_4$ (s) + 2 KBr (aq)

U5-36: Convert to FULL word eqn:
A) _?_Pb(NO3)2 (aq) + _?_KBr (aq) --> _?_PbBr2 (s) + _?_KNO3 (aq)

- Answer: 1 mole aqueous lead (II) nitrate reacts with 2 moles aqueous potassium bromide to produce 1 mole lead (II) bromide precipitate and 2 moles aqueous potassium nitrate.

U5-37: Word --> Balanced Chem: Metallic aluminum reacts with aqueous silver nitrate to produce aqueous aluminum nitrate and metallic silver.

- Answer: 1 Al (s) + 3 $AgNO_3$ (aq) → 1 $Al(NO_3)_3$ (aq) + 3 Ag (s)

U5-38: Convert to word eqn:
A) _?_Al (s) + _?_HCl (aq) --> _?_AlCl3 (aq) + _?_H2 (g)

- Answer: 2 moles metallic aluminum reacts with 6 moles aqueous hydrochloric acid to produce 2 moles aqueous aluminum chloride and 3 moles hydrogen gas.

U5-39: Determine the Net Ionic Equation of the following:
A) _?_MgCl2 ( ) + _?_NaOH ( ) --> _?_NaCl ( ) + _?_Mg(OH)2 ( )

- Answer: 1 Mg^{2+} (aq) + 2 OH^{-1} (aq) → 1 $Mg(OH)_2$ (s)

U5-40: Determine the Net Ionic Equation of the following:
A) _?_FeCl3 ( ) + _?_Li3PO4 ( ) --> _?_LiCl ( ) + _?_FePO4 ( )

- Answer: 1 Fe^{3+} (aq) + 1 PO_4^{3-} (aq) → 1 $FePO_4$ (s)

U5-41: Determine the Net Ionic Equation of the following:
A) _?_Mg ( ) + _?_Fe(NO3)2 ( ) --> _?_Mg(NO3)2 ( ) + _?_Fe ( )

- Answer: 1 Mg (s) + 1 Fe^{2+} (aq) → 1 Mg^{2+} (aq) + 1 Fe (s)

U5-42: The product of a synthesis reaction is Mg(OH)2. If one of the reactants is H2O, what is the other reactant?

- Answer: MgO (complex synthesis rxn)

U5-43: _?_Ba(NO3)2 + _?_Al2(SO4)3 --> _?_Al(NO3)3 + _?_BaSO4
A) When balanced, how many oxygen atoms are present in the reactant side?

- Answer: 30 oxygen atoms

U5-44: Which set of reactants will react?
A) Ag and NaNO3 / Al and NiCl2
B) Sr and FeBr3 / Co and CaCO3

- Answer: A) Al and $NiCl_2$ B) Sr and $FeBr_3$

U5-45: Which set of reactants will react?
A) Cd and AgNO3 / Ag and Mg(ClO3)2
B) Sn and CaCl2 / Rb and Ba3P2

- Answer: A) Cd and $AgNO_3$ B) Rb and Ba_3P_2