**Final Exam Twitter Review #5**

FE5-1: Write the electron configuration (longhand) of selenide.

- Answer: 1s2 2s2 2p6 3s2 3p6 4s2 3d10 4p6

FE5-2: How many electrons are in the outermost energy level of an electrically neutral atom of tin?

* Answer: 4 valence e- (Group 14)

FE5-3: Which transition occurs when light with wavelength 434 nm is emitted by hydrogen atom? (Express answer as n=? to n=? from Bohr Model)

* Answer: n=5 to n=2

FE5-4: What is the mass number of the element represented by “X” in the following nuclear reaction: Rn-222 🡪 He-4 + X

* Answer: mass # = 218 (Po-218)

FE5-5: When aluminum and sulfur react, which compound is produced?

* Answer: Al2S3

FE5-6: Which combination of elements would most likely form an ionic compound?  
A) H & O  
B) C & Cl  
C) Na & F  
D) Si & S

* Answer: C) sodium & fluorine

FE5-7: Rank the following bonds (single, double, triple) in order of increasing bond length.

* Answer: Triple, Double, Single

FE5-8: Rank the following bonds (single, double, triple) in order of increasing bond strength.

- Answer: Single, Double, Triple

FE5-9: What is the chemical formula for aluminum sulfate?

* Answer: Al2(SO4)3

FE5-10: What is the IUPAC name for the chemical formula PbO2?

* Answer: Lead (IV) Oxide

FE5-11: What is true about the melting points of ionic and molecular compounds?

* Answer: M.P. of ionic compounds is HIGHER than M.P. of molecular compounds

FE5-12: Which pair is both malleable and able to conduct heat?  
A) bromine & silver  
B) iodine & neon  
C) iron & bromine  
D) silver & iron

* Answer: D) silver & iron

FE5-13: Which group includes elements with the most similar properties?  
A) N, O, F  
B) O, S, Se  
C) Cr, Pb, Xe  
D) Br, Ga, Hg

* Answer: B) O, S, Se

FE5-14: An atom of which element has the strongest attraction for electrons?  
A) Ba  
B) Cs  
C) O  
D) F

* Answer: Electronegativity 🡪 D) F

FE5-15: How many moles of nitrogen gas are in 135 L of nitrogen gas at STP?

* Answer: 6.03 mol N2

FE5-16: Mixture contains NO2, CO2, & SO2. Pressure NO2 is 1.25atm & CO2 is 2.63atm. If total pressure is 11.20atm, what is pressure of SO2?

* Answer: PSO2 = 7.32atm

FE5-17: In a potential energy diagram, if the enthalpy of reactants is greater than enthalpy of products, this exemplifies an \_\_\_ reaction.

* Answer: Exothermic

FE5-18: How does increasing temperature affect the collisions of reactant molecules in a chemical reaction?

* Answer: Reactant molecules collide more frequently

FE5-19: When the following equation is balanced, what coefficient is needed for Fe2O3? Fe + O2 🡪 Fe2O3

* Answer: 2 Fe2O3

FE5-20: When silver nitrate is mixed with sodium chloride, which type of reaction will occur?

* Answer: Double Replacement

FE5-21: How much mass is in a 3.25-mole sample of ammonium hydroxide?

* Answer: 114 g NH4OH

FE5-22: How many moles of magnesium oxide are produced when 7.2 moles of oxygen gas reacts with excess magnesium? \_\_Mg + \_\_O2 🡪 \_\_MgO

* Answer: 14 mol MgO

FE5-23: Why does rxn rate increase as surface area of reactant increases?  
A) Rxn temp >  
B) # particle collisions >  
C) Conc of substance >  
D) Density >

* Answer: B) # particle collisions >

FE5-24: Write the equilibrium expression (K) for the following reaction: \_\_N2(g) + \_\_H2(g) <-> \_\_NH3(g)

* Answer: 1,3,2 🡪 K = [NH3]^2 / [N2] [H2]^3

FE5-25: NH3(g) + HCl(g) <-> NH4Cl(s) : At EQ, a container is opened & NH3 and HCl escape. How is EQ affected? (Include ALL changes/effects)

* Answer: Rxn EQ shifts LEFT to produce more NH3 & HCl

FE5-26: Why is KOH considered to be an Arrhenius base?

* Answer: KOH produces OH- ions in solution

FE5-27: Using a solubility curve, at what temperature will 80 g of KNO3 produce a saturated solution when dissolved in 100 g of water?

- Answer: 50°C

FE5-28: Using a solubility curve, which salt solution (compound) could contain approximately 50 g of solute per 100 g of H2O at 80°C ?

- Answer: Saturated solution of KCl

FE5-29: When NaCl is dissolved in H2O, what happens to the attraction between salt ions (Na+ & Cl-) and the oxygen atoms of H2O?

* Answer: Na+ ions are attracted to negative charge of oxygen atoms

FE5-30: What is the chemical formula for magnesium carbonate?

* Answer: MgCO3

FE5-31: What is true about the melting point of compounds with metallic bonds and ionic bonds?

* Answer: Both tend to have high melting points

FE5-32: Which of the following elements has the greatest atomic radius (H, N, Cl, Cs)?

* Answer: Cs

FE5-33: What volume of NH3 gas at STP is required to react with 15.0 g of NO? \_\_NO + \_\_NH3 🡪 \_\_N2 + \_\_H2O

* Answer: 6,4,5,6 🡪 7.47 L NH3(g)

FE5-34: HCl(aq) + Mg(s) <-> MgCl2(aq) + H2(g) + Heat : What happens to system EQ when temp is decreased? (Include ALL changes & effects)

* Answer: Rxn EQ shifts RIGHT producing more MgCl2 & H2

FE5-35: 2 SO2(g) + 1 O2(g) <-> 2 SO3(g) : What will happen to EQ when concentration of SO3 is increased? (Include ALL changes & effects)

* Answer: Rxn EQ shifts LEFT producing more SO2 & O2

FE5-36: A newly synthesized ionic compound is placed in H2O to make an aqueous solution. The new ionic solution will be able to conduct \_\_\_.

* Answer: Electricity due to ions in solution

FE5-37: What will occur if an electron transitions from n=5 to n=2 in a hydrogen atom? (Refer to Bohr Model on reference sheet)

* Answer: Visible light is emitted (434nm [blue] emitted as energy is released)

FE5-38: When a gamma ray is emitted by an element, what happens to the mass number and the atomic number?

* Answer: Mass # and Atomic # stays the SAME

FE5-39: What is the electron configuration (longhand) of an atom within the third period of the periodic table with six valence electrons?

* Answer: Sulfur 🡪 1s2 2s2 2p6 3s2 3p4

FE5-40: What is the shape of boron trifluoride?

* Answer: Trigonal Planar

FE5-41: What is the percent by mass of oxygen in propanol, CH3CH2CHO?

* Answer: O = 27.6%

FE5-42: How many grams of O2 is needed to react completely with 0.500 moles of C2H2? \_\_C2H2 + \_\_O2 🡪 \_\_CO2 + \_\_H2O

* Answer: 2,5,4,2 🡪 40.0 g O2

FE5-43: How many grams of iron is necessary to produce 1.00 moles of copper? Fe + CuSO4 🡪 FeSO4 + Cu

* Answer: 1,1,1,1 🡪 55.8 g Fe

FE5-44: How many grams of H2O are produced when 116 grams of sodium chloride is formed? \_\_NaOH + \_\_HCl 🡪 \_\_NaCl + \_\_H2O

* Answer: 1,1,1,1 🡪 35.8 g H2O

FE5-45: Volume of gas is 4.00-L at 295 K & constant pressure. For volume of gas to be 3.00-L, what must the Kelvin temperature be equal to?

* Answer: Charles’s Law 🡪 V1/T1 = V2/T2 🡪 V2 = 221 K