Unit 7 – Stoichiometry Twitter Review Questions

U7-1:
A) Limiting reactant determines _____ amount of product that can be produced.
B) Limiting reactant is _____ consumed within a reaction.

- Answer: A) maximum B) fully/completely

U7-2: If a reaction produces a % yield of greater than 100%, what is the most plausible explanation for this? (Looking for a specific word)

- Answer: Contains impurities

U7-3: If % yield of a reaction is 85.0% and you wish to actually obtain 5.50 grams of product, what theoretical yield should you plan for?

- Answer: 6.47 g of product

U7-4: What is the RATIO of moles of hydrogen gas used TO moles of ammonia (NH3) produced in the following reaction: __N2 + __H2 → __NH3

- Answer: 3 mol H_2 : 2 mol NH_3

U7-5: If 10.5 moles of sodium chloride react with 12.0 moles of silver nitrate, determine the L.R. (Write balanced equation first)

- Answer: 1 NaCl + 1 $AgNO_3$ → 1 $NaNO_3$ + 1 AgCl L.R. = NaCl

U7-6: Calculate the molar mass of glucose, C6H12O6. (Use correct units)

- Answer: 180.156 g/mol $C_6H_{12}O_6$

U7-7: 5.25 moles HBr should react with Ca(OH)2. If 2.50 moles calcium bromide are actually produced, what was theoretical yield in moles?

- Answer: 2.63 mol $CaBr_2$

U7-8: On heating 7.21g hydrated lithium perchlorate, 4.78g anhydrous salt remain.
A) What's the hydrate formula?
B) What's the hydrate name?

- Answer: A) $LiClO_4 \bullet 3H_2O$ B) Lithium Perchlorate Trihydrate

U7-9: The empirical formula of a compound is CH4N. Its molecular mass is 60.104 g/mol. What is the molecular formula (MF)?

- Answer: MF = $C_2H_8N_2$

U7-10: The empirical formula of a compound is PBr5. It's molecular mass is 430.47 g/mol. What is the molecular formula (MF)?

- Answer: MF = PBr_5

U7-11: The molecular formula of a compound is C10H8.
A) What's the molecular mass? (Include correct units)
B) What's the empirical formula?

- Answer: A) Molecular Mass = 128.164 g/mol $C_{10}H_8$ B) EF = C_5H_4

U7-12: In a reaction where ethylene (C2H4) combusts, 3.25 g of oxygen reacts completely. What is the theoretical mass of water?

- Answer: Theoretical Yield = 1.22 g H_2O

U7-13: In a reaction where ethylene (C2H4) combusts, how many grams of ethylene should react to produce 4.50 grams of CO2?

- Answer: 1.43 g C_2H_4

U7-14: __NH3 + __O2 → __NO + __ H2O
A) 3.25 g NH3 are allowed to react with 3.50 g O2. Identify L.R.
B) How many grams of NO are produced?

- Answer: A) L.R. = O_2 B) Theoretical Yield = 2.63 g NO

U7-15: Reaction: __C6H6 + __Br2 → __C6H5Br + __HBr
A) How many grams of C6H5Br are produced if 42.1 g C6H6 reacts with 73.0 g Br2?

- Answer: A) Theoretical Yield = 71.6 g C_6H_5Br

U7-16: Reaction: __C6H6 + __Br2 → __C6H5Br + __HBr
A) What is the % yield if the actual yield of C6H5Br is 63.6 g?

- Answer: A) % Yield = 88.7%

U7-17: The reaction of 2.20 g P4 with 4.25 g Cl2 experimentally produces 4.28 g PCl5. Calculate the % yield.

- Answer: % Yield = 85.8%

U7-18: How many moles are in 9.03 x 10^24 atoms of mercury?

- Answer: 15.0 mol Hg

U7-19: How many grams are in 8.20 x 10^22 molecules of N2I6?

- Answer: 108 g N_2I_6

U7-20: How many moles are in 2.55 grams of lead (IV) chlorate?

- Answer: 0.00471 mol $Pb(ClO_3)_4$

U7-21: Determine the percent composition of iodine in nickel (II) iodide.

- Answer: 81.2% Iodine

U7-22: Determine the empirical formula of a compound that is 70.0% iron and 30.0% oxygen.

- Answer: E.F. = Fe_2O_3

U7-23: A 1.98 gram sample of hydrated cobalt (II) chloride is heated to an anhydrous salt of 1.55 grams.
A) What's the hydrate formula?

- Answer: A) $CoCl_2 \bullet 2H_2O$

U7-24: Naphthalene is used in moth balls. Its E.F. is C5H4 with a molecular mass of 128.16 g/mol. What's the M.F. of Naphthalene?

- Answer: M.F. = $C_{10}H_8$

U7-25: Reaction: __HCl + __Ba(OH)2 → __BaCl2 + __H2O
A) How many moles of hydrochloric acid will react with 0.750 grams of barium hydroxide?

- Answer: 0.00875 mol HCl