

# 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 CO<sub>2</sub>

- 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 + O<sub>2</sub> --> Fe<sub>2</sub>O<sub>3</sub>

- Answer: 4,3,2

U5-13: Balance the following: Fe(OH)<sub>3</sub> --> Fe<sub>2</sub>O<sub>3</sub> + H<sub>2</sub>O

- Answer: 2,1,3

U5-14: Balance the following: Al + FeO --> Al<sub>2</sub>O<sub>3</sub> + Fe

- Answer: 2,3,1,3

U5-15: Balance the following: H<sub>3</sub>PO<sub>4</sub> + Ca(OH)<sub>2</sub> --> Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub> + H<sub>2</sub>O

- Answer: 2,3,1,6

U5-16: Balance the following: C<sub>10</sub>H<sub>8</sub> + O<sub>2</sub> --> CO<sub>2</sub> + H<sub>2</sub>O

- Answer: 1,12,10,4

U5-17: In order for the reaction 1 Zn + 2 CuNO<sub>3</sub> --> 1 Zn(NO<sub>3</sub>)<sub>2</sub> + 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 CaCl<sub>2</sub> + 2 AgNO<sub>3</sub> --> 1 Ca(NO<sub>3</sub>)<sub>2</sub> + 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<sub>2</sub> ; I<sub>2</sub> ; N<sub>2</sub> ; Cl<sub>2</sub> ; H<sub>2</sub> ; O<sub>2</sub> ; F<sub>2</sub>

U5-20: Identify reaction type: \_2\_Na + \_1\_Cl<sub>2</sub> --> \_2\_NaCl

- Answer: Synthesis

U5-21: Identify reaction type: \_2\_Na + \_2\_H<sub>2</sub>O --> \_2\_NaOH + \_1\_H<sub>2</sub>

- Answer: S-R

U5-22: Identify reaction type: \_2\_C<sub>4</sub>H<sub>10</sub> + \_13\_O<sub>2</sub> --> \_8\_CO<sub>2</sub> + \_10\_H<sub>2</sub>O

- Answer: Combustion

U5-23: Identify reaction type: \_2\_HgO --> \_2\_Hg + \_1\_O<sub>2</sub>

- Answer: Decomposition

U5-24: Identify reaction type: \_1\_BaCl<sub>2</sub> + \_1\_Na<sub>2</sub>SO<sub>4</sub> --> \_2\_NaCl + \_1\_BaSO<sub>4</sub>

- Answer: D-R

U5-25: Predict product(s) only: CH<sub>4</sub> + O<sub>2</sub> --> ?

- Answer: CO<sub>2</sub> + H<sub>2</sub>O

U5-26: Predict product(s) only: MgO + H<sub>2</sub>O --> ?

- Answer: Mg(OH)<sub>2</sub>

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

- Answer: NaCl + H<sub>2</sub>O

U5-28: Predict product(s) only: CaCO<sub>3</sub> --> ?

- Answer: CaO + CO<sub>2</sub>

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

- Answer: ZnCl<sub>2</sub> + H<sub>2</sub>

U5-30: \_?\_AgNO<sub>3</sub> + \_?\_K<sub>3</sub>PO<sub>4</sub> --> ?

A) Predict Product(s):

B) Complete balanced coefficients (in order):

- Answer: A) KNO<sub>3</sub> + Ag<sub>3</sub>PO<sub>4</sub>      B) 3,1,3,1

U5-31: \_?\_Cl<sub>2</sub> + \_?\_AlBr<sub>3</sub> --> ?

A) Predict Product(s):

B) Complete balanced coefficients (in order):

- Answer: A) AlCl<sub>3</sub> + Br<sub>2</sub>      B) 3,2,2,3

U5-32: \_?\_NaClO<sub>3</sub> --> ?

A) Predict Product(s):

B) Complete balanced coefficients (in order):

- Answer: A) NaCl + O<sub>2</sub>      B) 2,2,3

U5-33: \_?\_Al + \_?\_Br<sub>2</sub> --> ?

A) Predict Product(s):

B) Complete balanced coefficients (in order):

- Answer: A) AlBr<sub>3</sub>      B) 2,3,2

U5-34: \_?\_C<sub>6</sub>H<sub>6</sub> + \_?\_O<sub>2</sub> --> ?

A) Predict Product(s):

B) Complete balanced coefficients (in order):

- Answer: A) CO<sub>2</sub> + H<sub>2</sub>O      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<sub>2</sub> (aq) + 1 K<sub>2</sub>SO<sub>4</sub> (aq) → 1 SrSO<sub>4</sub> (s) + 2 KBr (aq)

U5-36: Convert to FULL word eqn:

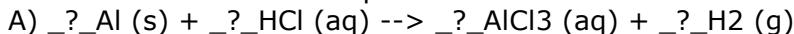
A) \_?\_Pb(NO<sub>3</sub>)<sub>2</sub> (aq) + \_?\_KBr (aq) --> \_?\_PbBr<sub>2</sub> (s) + \_?\_KNO<sub>3</sub> (aq)

- 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.

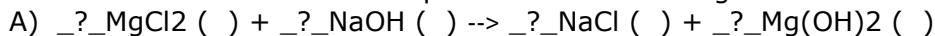


U5-38: Convert to word eqn:

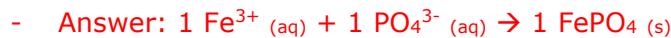
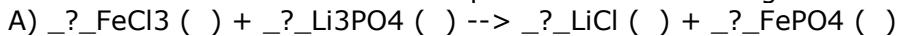


- Answer: 2 moles metallic aluminum reacts with 6 moles aqueous hydrochloric acid to produce 2 moles aqueous aluminum chloride and 3 moles hydrogen gas.

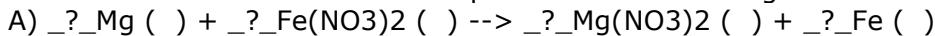
U5-39: Determine the Net Ionic Equation of the following:



U5-40: Determine the Net Ionic Equation of the following:



U5-41: Determine the Net Ionic Equation of the following:



U5-42: The product of a synthesis reaction is  $\text{Mg(OH)}_2$ . If one of the reactants is  $\text{H}_2\text{O}$ , what is the other reactant?



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  $\text{NaNO}_3$  / Al and  $\text{NiCl}_2$   
B) Sr and  $\text{FeBr}_3$  / Co and  $\text{CaCO}_3$

- Answer: A) Al and  $\text{NiCl}_2$       B) Sr and  $\text{FeBr}_3$

U5-45: Which set of reactants will react?

- A) Cd and  $\text{AgNO}_3$  / Ag and  $\text{Mg(ClO}_3)_2$   
B) Sn and  $\text{CaCl}_2$  / Rb and  $\text{Ba}_3\text{P}_2$

- Answer: A) Cd and  $\text{AgNO}_3$       B) Rb and  $\text{Ba}_3\text{P}_2$