Practice Toxins Unit Test

_____**1.** What type of reaction is this? $Ag\ (s) + CuI_2\ (aq) \rightarrow AgI\ (s) + Cu(s)$

(A) single displacement (B) double displacement
(C) combination reaction (D) decomposition reaction

_____**2.** If a solution has a pH of 3, it is

(A) an acid (B) a base (C) neutral (D) an indicator

_____**3.** What is a precipitate?

(A) a solid that forms when two solutions are mixed
(B) rain
(C) the moisture that forms when you are running
(D) the formation of water in a reaction

_____**4.** To neutralize a base, you would use

(A) an acid (B) a base (C) an indicator (D) water

_____**5.** To dilute an acid, you would use

(A) an acid (B) a base (C) an indicator (D) water

_____**6.** The correct chemical formula for potassium carbonate is

(A) P_2CO_3 (B) $P(CO_3)_2$ (C) K_2CO_3 (D) $K(CO_3)_2$

_____**7.** According to this balanced equation, how many moles of Cu are required to produce 10 moles of Ag?

$$Cu + 2\ AgNO_3 \rightarrow 2\ Ag + Cu(NO_3)_2$$

(A) 5 moles (B) 10 moles (C) 15 moles (D) 20 moles

_____**8.** Which substance is the least toxic?

(A) chlorine (LD_{50} = 850 mg/kg) (B) aspirin (LD_{50} = 200 mg/kg)
(C) cola (LD_{50} = 140 mg/kg) (D) vitamin A (LD_{50} = 2000 mg/kg)

_____9**.** If you have 2 moles of glucose in 4 liters of solution, what is the molarity of the solution?

(A) 0.5 M (B) 2 M (C) 6 M (D) 8 M

_____**10.** How many moles of potassium iodide, KI, are there in 100 grams?

(A) 0.6 moles (B) 1660 moles (C) 3.01×10^{25} moles (D) 5.0×10^{-24} moles

_____**11.** How many moles of 0.28 M sodium chloride solution would you need to have if you want to have 2.3 liters of NaCl?

(A) 0.64 liters (B) 8.2 liters (C) 0.12 liters (D) 2.3 liters

_____**12.** If you saw a container of NaCl (aq) in a lab, what would you see?

(A) solid (B) liquid (C) gas

_____**13.** In order to balance a chemical equation, you can change

(A) the subscripts (B) the chemical formulas
(C) the reactants and the products (D) the coefficients

_____**14**. Which of the following is one of the correct products of this chemical reaction?

$$K_2S + Fe(NO_3)_2 \rightarrow \_\_\_\_ + \_\_\_\_$$

(A) K_2Fe (B) $S(NO_3)_2$ (C) KNO_3 (D) Fe_2S_3

_____**15.** Nitric acid is formed by the reaction of nitrogen dioxide with water.

$$3\ NO_2\ (g) + H_2O\ (l) \rightarrow NO\ (g) + 2HNO_3\ (aq)$$

How many moles of nitric acid, HNO_3, are produced when 8.4 moles of water reacts?

(A) 16.8 moles (B) 4.2 moles (C) 8.4 moles (D) 25.2 moles

_____16. How many grams of sugar (LD_{50} = 30 g/kg) would be lethal to a 175-pound man (2.2 lbs = 1kg)?

(A) 0.13 g (B) 2.65 g (C) 11550 g (D) 2386 g

_____ 17**.** When a substance does dissolve in water, it is called

(A) soluble (B) partially soluble (C) insoluble (D) a solution

_____ 18. Calculate the molar mass of ammonium phosphate, $(NH_4)_2CO_3$.

(A) 96.0 g/mole (B) 113.0 g/mole (C) 242.0 g/mole (D) 121.0 g/mole

_____ 19. How many moles of sodium nitrate are in 0.65 liters of a 0.5 M $NaNO_3$ solution?

(A) 0.325 moles (B) 2.3 moles (C) 0.43 moles (D) 18 moles

_____ 20. How many grams of glucose ($C_6H_{12}O_6$) would be needed to make 200 mL of a 1.5 M solution?

(A) 0.00167 g (B) 54 g (C) 16700 g (D) 27000 g

_____ 21. What would you expect to see if you performed the following chemical reaction?

$$2\ H_2O_2\ (aq) \rightarrow H_2O\ (l) + O_2\ (g)$$

(A) bubbles forming in a liquid (B) just a liquid
(C) solid forming in a liquid (D) only solid forming

_____ 22. $CO_2\ (s) \rightarrow CO_2\ (g)$ is an example of

(A) a chemical change (B) a physical change
(C) a combination reaction (D) a decomposition reaction

_____ 23. What is the correct description of this reaction?

$$Zn\ (s) + HCl\ (aq) \rightarrow ZnCl_2\ (aq) + H_2\ (g)$$

(A) Hydrogen gas reacts with a solution of zinc chloride to produce solid zinc metal in a solution of hydrochloric acid.
(B) A solution of zinc metal reacts with solid hydrochloric acid to produce a solution of zinc chloride and

hydrogen gas.

(C) Hydrogen gas reacts with solid zinc chloride to produce solid zinc metal in a solution of hydrochloric acid.

(D) Solid zinc reacts with a solution of hydrochloric acid to produce a solution of zinc chloride and hydrogen gas.

_____ 24. When the equation $Fe_2O_3 + H_2 \rightarrow Fe + H_2O$ is balanced, Fe has a coefficient of
(A) 6 (B) 3 (C) 2 (D) 1

_____ 25. What type of reaction is this: $AgNO_3$ (aq) + Cu (s) → Ag (s) + $Cu(NO_3)_2$ (aq)?
(A) single displacement (B) double displacement (C) combination (D) decomposition

_____ 26. Which of the following is one of the correct products of the chemical reaction
LiI + $Pb(NO_3)_2$ → ____ + ____ ?
(A) Li_2Pb (B) $LiNO_3$ (C) Li $(NO_3)_2$ (D) PbI

_____ 27. According to the reaction $P_4 + 6\ H_2 \rightarrow 4\ PH_3$, how many moles of H_2 would you need to produce 34 grams of PH_3?
(A) 0.67 moles (B) 1.5 mole (C) 4 moles (D) 6 moles

28. Consider the following reaction. Water (H_2O) is produced from the reaction of oxygen gas (O_2) with hydrogen gas (H_2).
a. Write a balanced chemical equation for the reaction.
b. Is the reaction a physical change or a chemical change?

29. Which is more concentrated: a 1.0 L solution with 20 grams of sodium chloride (NaCl) or a 1.0 L solution with 20 grams of sodium bromide (NaBr)? Explain your reasoning.

30. How many grams of MgO will you produce if you start with 25.0g of O_2? Show your work!!!
$2Mg + O_2 \rightarrow 2MgO$

31. What type of reaction is shown below?
C_3H_8 (g) + O_2 (g) → CO_2(g) + H_2O (l)

32. State the reaction type and balance the following equation: Pb (s) + I_2 (g) → PbI_2 (s)

33. State the reaction type, predict the products of the following reaction and balance the equation.
$AlCl_3 + Ca(OH)_2 \rightarrow$

34. Consider the following reaction:
Mg (s) + 2 HCl (aq) → $MgCl_2$ (aq) + H_2 (g)
How many liters of hydrogen, H_2, do you produce if 50 grams of hydrochloric acid, HCl reacts? Show your work.

35. Consider the following reaction:
Mg (s) + 2 HCl (aq) → $MgCl_2$ (aq) + H_2 (g)
How many atoms of magnesium, Mg, do you need to produce 94 grams of magnesium chloride, $MgCl_2$? Show your work.

36. Dr. Sanchez tested the pH of the frog pond in her back yard. The pond has a pH of 3.5. The frogs prefer to live at a pH of 7. What type of substance would you add to the pond to try to increase the pH? Why?

37. Label each as an acid or a base and state if it would feel slippery or not: a. NH_3 b. HNO_3 c. $Ca(OH)_2$

38. Indicate the color each of the following would turn in phenolphthalein: a. NH_3 b. HNO_3 c. $Ca(OH)_2$

39. Calculate the pH and pOH of each of the following AND indicate if it's an acid or a base:
a. 0.001 M HCl b. 0.1 M NaOH

40. Is NH_3 an Arrhenius base or a Bronsted-Lowry base? Would it turn blue litmus paper red, red litmus paper blue, or not change the color of the litmus paper at all?

41. Is H_2SO_4 a Bronsted-Lowry acid or Bronsted-Lowry base? Would it react with a metal to produce H_2 gas?

Answers:

1 a	8 d	15 a	22 b	28a $2H_2+O_2 \rightarrow 2H_2O$
2 a	9 a	16 d	23 d	28b chemical change
3 a	10 a	17 a	24 c	29 1.0L of 20g of NaCl because it contains more moles of solute.
4 a	11 a	18 a	25 a	30 62.5g MgO
5 d	**12 b**	**19 a**	**26 b**	**31 combustion**
6 c	**13 d**	**20 b**	**27 b**	**32 synthesis (or combination); already balanced**
7 a	**14 c**	**21 a**		**33 Double replacement; $2AlCl_3 + 3Ca(OH)_2 \rightarrow 2Al(OH)_3 + 3CaCl_2$**

34 15.6L H_2
35 6.02×10^{23} atoms (because 1 mole is needed)
36 Base, because bases have high pH's
37 a. base; slippery b. acid; will not feel slippery c. base; slippery
38 a. pink b. clear c. pink
39 a. pH =3 and pOH = 11 b. pH = 1 and pOH = 13
40 A bronsted-lowry base; it would turn red litmus paper blue.
41 A bronsted-lowry acid; yes