

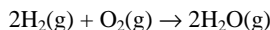
**Practice Toxins Unit Test**

- \_\_\_\_\_ 1. What type of reaction is this?  $\text{Ag (s)} + \text{CuI}_2 \text{ (aq)} \rightarrow \text{AgI (s)} + \text{Cu(s)}$   
(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)  $\text{P}_2\text{CO}_3$  (B)  $\text{P}(\text{CO}_3)_2$  (C)  $\text{K}_2\text{CO}_3$  (D)  $\text{K}(\text{CO}_3)_2$
- \_\_\_\_\_ 7. According to this balanced equation, how many moles of Cu are required to produce 10 moles of Ag?  
$$\text{Cu} + 2 \text{AgNO}_3 \rightarrow 2 \text{Ag} + \text{Cu}(\text{NO}_3)_2$$
  
(A) 5 moles (B) 10 moles (C) 15 moles (D) 20 moles
- \_\_\_\_\_ 8. Which substance is the least toxic?  
(A) chlorine ( $\text{LD}_{50} = 850 \text{ mg/kg}$ ) (B) aspirin ( $\text{LD}_{50} = 200 \text{ mg/kg}$ )  
(C) cola ( $\text{LD}_{50} = 140 \text{ mg/kg}$ ) (D) vitamin A ( $\text{LD}_{50} = 2000 \text{ mg/kg}$ )
- \_\_\_\_\_ 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) 1.66 moles (C) 16,600 moles (D)  $5.0 \times 10^{-24}$  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. Which of the following is one of the correct products of this chemical reaction?  
$$\text{K}_2\text{S} + \text{Fe}(\text{NO}_3)_2 \rightarrow \text{_____} + \text{_____}$$
  
(A)  $\text{K}_2\text{Fe}$  (B)  $\text{S}(\text{NO}_3)_2$  (C)  $\text{KNO}_3$  (D)  $\text{Fe}_2\text{S}_3$
- \_\_\_\_\_ 14. Nitric acid is formed by the reaction of nitrogen dioxide with water.  
$$3 \text{NO}_2 \text{ (g)} + \text{H}_2\text{O (l)} \rightarrow \text{NO (g)} + 2\text{HNO}_3 \text{ (aq)}$$
  
How many moles of nitric acid,  $\text{HNO}_3$ , 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
- \_\_\_\_\_ 15. If the pH of a solution is 3, what is the pOH?  
(A) 4 (B) 7 (C) 11 (D) 3
- \_\_\_\_\_ 16. When a substance does dissolve in water, it is called  
(A) soluble (B) partially soluble (C) insoluble (D) a solution
- \_\_\_\_\_ 17. Calculate the molar mass of ammonium phosphate,  $(\text{NH}_4)_2\text{CO}_3$ .  
(A) 96.0 g/mole (B) 113.0 g/mole (C) 242.0 g/mole (D) 121.0 g/mole
- \_\_\_\_\_ 18. How many grams of glucose ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) would be needed to make 200 mL of a 1.5 M solution?  
(A) 0.3 g (B) 54 g (C) .001667 g (D) 54000 g
- \_\_\_\_\_ 19. If the  $[\text{H}^+]$  of a solution is  $1.0 \times 10^{-2}$ , what is the  $[\text{OH}^-]$ ?  
(A)  $1.0 \times 10^{-2} \text{ M}$  (B)  $1.0 \times 10^{-12} \text{ M}$  (C)  $1.0 \times 10^{-5} \text{ M}$  (D)  $1.0 \times 10^{+2} \text{ M}$
- \_\_\_\_\_ 20. If the  $[\text{H}^+]$  of a solution is  $1.0 \times 10^{-2}$ , what is the pH?  
(A) 2 (B) 12  
(C) 5 (D) -2
- \_\_\_\_\_ 21. According to the Arrhenius definition, bases produce \_\_\_\_\_ in water.  
(A)  $\text{OH}^-$  (B)  $\text{H}^+$  (C)  $\text{Na}^+$  (D) ammonia
- \_\_\_\_\_ 22. When the equation  $\text{Fe}_2\text{O}_3 + \text{H}_2 \rightarrow \text{Fe} + \text{H}_2\text{O}$  is balanced, Fe has a coefficient of  
(A) 6 (B) 3 (C) 2 (D) 1
- \_\_\_\_\_ 23. What type of reaction is this:  $\text{AgNO}_3 \text{ (aq)} + \text{Cu (s)} \rightarrow \text{Ag (s)} + \text{Cu}(\text{NO}_3)_2 \text{ (aq)}$ ?  
(A) single displacement (B) double displacement (C) combination (D) decomposition
- \_\_\_\_\_ 24. According to the reaction  $\text{P}_4 + 6 \text{H}_2 \rightarrow 4 \text{PH}_3$ , how many moles of  $\text{H}_2$  would you need to produce 34 grams of  $\text{PH}_3$ ?  
(A) 0.67 moles (B) 1.5 mole (C) 4 moles (D) 6 moles
25. How many grams of MgO will you produce if you start with 25.0g of  $\text{O}_2$ ? Show your work!!!  
$$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$$
26. The following data was collected in order to determine the acidity/basicity of an unknown solution:

Test	Result
Litmus Paper	Red litmus paper turned blue
Cabbage Juice	Yellow-Green
Universal Indicator	Blue-Green
Reaction with Zinc metal	No reaction

Is the unknown solution an acid, a base, or neutral?

27. 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?
28. Label each as an acid or a base and state if it would feel slippery or not: a.  $\text{NH}_3$  b.  $\text{HNO}_3$  c.  $\text{Ca}(\text{OH})_2$
29. Indicate the result of the litmus paper test for each of the following substances: a.  $\text{NH}_3$  b.  $\text{HNO}_3$  c.  $\text{Ca}(\text{OH})_2$
30. 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
31. Is  $\text{NH}_3$  an Arrhenius base or a Bronsted-Lowry base?
32. Is  $\text{H}_2\text{SO}_4$  a Bronsted-Lowry acid or Bronsted-Lowry base? Would it react with a metal to produce  $\text{H}_2$  gas?
33. Label each substance as an acid, base, conjugate acid, and conjugate base:  
 $\text{NH}_3 + \text{HC}_2\text{H}_3\text{O}_2 \rightarrow \text{NH}_4^+ + \text{C}_2\text{H}_3\text{O}_2^-$
34. Predict the products of the following Bronsted-Lowry acid/base reaction:  
 $\text{CH}_3\text{NH}_2 + \text{HCl} \rightarrow$
35. Use Le Chatelier's Principle to fill in the chart below:



Stress	Equilibrium Shift	$[\text{H}_2]$	$[\text{O}_2]$	$[\text{H}_2\text{O}]$
Add $\text{H}_2$		-----		
Add $\text{O}_2$			-----	
Add $\text{H}_2\text{O}$				-----
Remove $\text{H}_2$		-----		
Remove $\text{O}_2$			-----	
Remove $\text{H}_2\text{O}$				-----

Answers:

- 1 a 8 d 15 c 22 c  
 2 a 9 a 16 a 23 a  
 3 a 10 a 17 a 24 b  
 4 a 11 a 18 b 25 62.5g MgO  
 5 d 12 b 19 b 26 base  
 6 c 13 c 20 a  
 7 a 14 a 21 a
- 27 Base, because bases have high pH's
- 28 a. base; slippery b. acid; will not feel slippery c. base; slippery
- 29 a. red litmus paper will turn blue  
 b. blue litmus paper will turn red  
 c. red litmus paper will turn blue
- 30 a. pH = 3 and pOH = 11 b. pH = 1 and pOH = 13
- 31 A bronsted-lowry base
- 32 A bronsted-lowry acid; yes
- 33  $\text{NH}_3 + \text{HC}_2\text{H}_3\text{O}_2 \rightarrow \text{NH}_4^+ + \text{C}_2\text{H}_3\text{O}_2^-$   
 base acid conj. acid conj. base
- 34  $\text{CH}_3\text{NH}_3^+ + \text{Cl}^-$

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Stress	Equilibrium Shift	$[\text{H}_2]$	$[\text{O}_2]$	$[\text{H}_2\text{O}]$
Add $\text{H}_2$	right	-----	decrease	increase
Add $\text{O}_2$	right	decrease	-----	increase
Add $\text{H}_2\text{O}$	left	increase	increase	-----
Remove $\text{H}_2$	left	-----	increase	decrease
Remove $\text{O}_2$	left	increase	-----	decrease
Remove $\text{H}_2\text{O}$	right	decrease	decrease	-----



