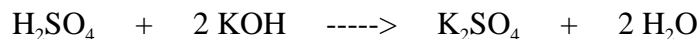


7. Write the “complete formula” equation for the reaction of one mole of sulfuric acid with two moles of potassium hydroxide.



8. Hydrogen perchlorate (HClO_4) reacts completely with water to form hydronium ions and perchlorate ions. Hydrogen perchlorate is

- a. a strong acid b. a strong base
c. a weak acid d. a weak base

9. What is the pH of a 0.01 M solution of HCl?

2

10. Write the net ionic equation for the reaction of a bicarbonate salt with an acid.



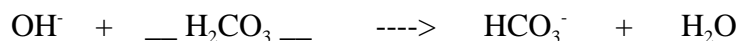
11. What volume of 2.50 M HBr is required to make 3.00 L of 1.50 M solution?

- a. 0.800 L b. 1.80 L c. 0.556 L d. 1.25 L

12. An aqueous solution of $(\text{NH}_4)_2\text{SO}_4$ would be

- a. an acid b. a base c. neutral d. impossible to tell

13. Use H_2CO_3 and HCO_3^- to explain how a buffer controls pH.



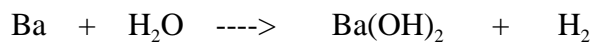
14. What is the pH of 0.00089 M HNO_3 solution?

3.05

15. Calculate the molarity of a $\text{Ca}(\text{OH})_2$ solution if 25.00 mL of it requires 23.45 mL of 0.1112M HCl for neutralization. $\text{Ca}(\text{OH})_2 + 2 \text{HCl} \rightarrow \text{CaCl}_2 + 2 \text{H}_2\text{O}$

0.05215 M $\text{Ca}(\text{OH})_2$

16. Complete the following by writing formulas for the expected products, then balance:



17. Which one of the following 0.010 M solutions has the highest H^+ ion concentration?

a. H_2SO_4 b. HCl c. $\text{H}_2\text{C}_2\text{O}_4$ d. HNO_3

18. The pH of blood is normally 7.4. If a person's blood pH is 7.25 this condition is called

a. acropolis b. acidophilus c. acidosis d. alkalosis

19. A strong acid is titrated with a weak base. The solution at the equivalence point is

a. acidic b. basic c. neutral d. none of these

20. Which one of the following is a non-electrolyte?

a. H_2SO_4 b. KI c. NH_4OH d. BaSO_4

21. What new products would be formed if electricity were passed through molten LiCl?

At the anode: _____ Cl_2 _____ At the cathode: _____ Li _____

22. Which one of the following is a greenhouse gas?

a. SO_2 b. CH_4 c. H_2O d. N_2

23. If aluminum is above chromium in the activity series, then which one of the following statements is true?

- a. $\text{Al} + \text{Cr}^{3+} \rightarrow \text{Al}^{3+} + \text{Cr}$
- b. $\text{Al}^{3+} + \text{Cr} \rightarrow \text{Al} + \text{Cr}^{3+}$
- c. Both statements a and b above are true.
- d. Neither statement a nor b above is true.

24. What condition leads to the formation of carbon monoxide during combustion?

- a. insufficient air
- b. too high a combustion temperature
- c. excess air
- d. too low a combustion temperature

25. Diamonds and graphite are examples of

- a. isotopes
- b. allocations
- c. allotropes
- d. forms of oxygen