AP CHEMISTRY CHAPTER 4 PRACTICE TEST

1. When 20. mL of 1.0 M HCl is diluted to a total volume of 60. mL, the concentration of the resulting solution is
2. 1.0 M
3. 0.50 M
4. 0.33 M
5. 0.25 M
6. When NaOH(aq) reacts completely with HCl(aq) and the resulting solution is evaporated to dryness, the solid remaining is
7. an ester
8. an alcohol
9. a salt
10. a metal
11. Which equation represents a neutralization reaction?
12. Ca(OH)2 → Ca2+ + 2OH-
13. CaCl2 → Ca2+ + 2Cl-
14. H+ + OH- → H2O
15. H+ + F- → HF
16. Which compound is a strong electrolyte?
17. C6H12O6
18. CH3OH
19. HNO2
20. H2SO4
21. In the redox reaction C(s) + H2O(g) → CO(g) + H2(g) , there is a competition between C atoms and H atoms for
22. protons
23. neutrons
24. electrons
25. positrons
26. In which species does hydrogen have an oxidation number of -1?
27. H2O
28. H2
29. NaH
30. NaOH
31. In the reaction Pb + 2Ag+ → Pb2+ + 2Ag, the oxidizing agent is
32. Ag+
33. Ag
34. Pb
35. Pb2+
36. In the reaction 2Mg + O2 → 2MgO, the magnesium is the
37. oxidizing agent and is reduced
38. oxidizing agent and is oxidized
39. reducing agent and is reduced
40. reducing agent and is oxidized
41. Given the reaction Cr + Fe2+ → Cr3+ + Fe

When the reaction is completely balanced using the smallest whole-number coefficients, the sum of the coefficients is

1. 10
2. 6
3. 3
4. 4
5. What is the molarity of a NaOH solution if 20. mL of 2.0 M HCl is required to exactly neutralize 10. mL of the NaOH solution?
6. 1.0 M
7. 2.0 M
8. 0.50 M
9. 4.0 M
10. Oxygen will have a positive oxidation number when combined with
11. fluorine
12. chlorine
13. bromine
14. iodine
15. What volume of 18.0 M H2SO4 is required to prepare 15.5 L of 0.195 M H2SO4?
16. 168 mL
17. 0.336 L
18. 92.3 mL
19. 226 mL
20. none of these
21. How many grams of NaOH are contained in 500. mL of a 0.80 M sodium hydroxide solution?
22. 16 g
23. 80. g
24. 20. g
25. 64 g
26. none of these
27. Iron (II) sulfate reacts with potassium hydroxide in aqueous solution to form a precipitate. The net ionic equation for this reactions is
28. Fe2+ + SO42- → FeSO4
29. 2K+ + SO42- → K2SO4
30. 2Fe3+ + 3SO42- → Fe2(SO4)3
31. Fe2+ + 2OH- → Fe(OH)2
32. K+ + Fe2+ → Fe3+
33. When NH4OH is added to Cu(NO3)2 a precipitate initially forms. Its formula is:
34. Cu(NH3)42+
35. Cu(NO3)2
36. Cu(OH)2
37. Cu(NH3)22+
38. CuO
39. What volume (mL) of 0.500 M Cr2(SO4)3 solution is needed to react completely with 300. mL of 0.400 M BaCl2?
40. 60.0 mL
41. 80.0 mL
42. 85.0 mL
43. 160. mL
44. none of these
45. If all of the chloride within a 5.000 g sample of an unknown metal chloride is precipitated as AgCl with 70.90 mL of 0.2010 M AgNO3, what is the percentage of chloride in the sample?
46. 50.55 %
47. 10.10 %
48. 1.425 %
49. 20.22 %
50. none of the above
51. 50.0 mL of 0.10 M silver nitrate is added to 50.0 mL of 0.20 M calcium chloride. A white precipitate forms. After the reaction is complete, calculate the concentration of Cl- ions remaining in solution?
52. 0.20 M
53. 0.15 M
54. 0.10 M
55. 0.050 M
56. 0.025 M
57. Which of the following salts is insoluble in water?
58. Na2S
59. K3PO4
60. Pb(NO3)2
61. CaCl2
62. None of these
63. Which of the following are oxidation-reduction reactions?
64. PCl3 + Cl2 → PCl5
65. Cu + 2AgNO3 → Cu(NO3)2 + 2Ag
66. CO2 + 2LiOH → Li2CO3 + H2O
67. FeCl2 + 2NaOH → Fe(OH)2 + 2NaCl
68. III
69. IV
70. I and II
71. I, II, and III
72. I, II, III, IV