Name

Chemistry

Monster Review

Any question listed as italics and bold is for honor chem. only.

1. Precipitation
2. Gas evolution:
3. Meter:
4. Liter:
5. Sublimation:
6. Vapordeposition:
7. Condensation:
8. Solidification:
9. ***Oxidation:******
10. ***Reduction:******
11. ***Reducing agent:******
12. ***Oxidation state:******
13. Voltage:
14. Current:
15. Cathode:
16. Suspension:
17. Alloy:
18. Concentrated:
19. Solvent:
20. Supersaturated:
21. Ionic Bond
22. Molecule
23. Formula Unit
24. Polar covalent bonding
25. Electronegativity
26. Dipole
27. Polar
28. Covalent bond
29. Nomenclature

30. FORMULA NAME

31. $KMnO_4$

32. $CuCl_2$

33. $H_2S_{(aq)}$

34. $H_3PO_{4(aq)}$

35. SF_6

36. NH_4ClO

37. CuCl

38. H_2O

39. KOH

40. $HBrO_2$

41. NAME FORMULA

42. Copper II nitrate

43. Oxygen tetrafluoride

44. Hydrofluoric acid

45. Sulfuric acid

46. Sodium sulfate

47. Aluminum oxide

48. Nitrous acid

49. Water

50. Magnesium Fluoride

51. Boron trifluoride

52. In your own words explain how a molecule becomes polar. (What are the two factors, explain.)

53. 138.5 K = _____°C

54. 32°F = _____K

55. 212°F = _____K

56. 1500 C _____K

57. 160 Torr = _____Atm

58. 150 mmHg =_____atm

59. 30 in Hg = _____atm

Determine if the following are chemical or physical reactions

60. Log burning in campfire.

61. Getting your hair cut.

62. Camera flash going off.

63. Lightning bug flashing

64. Gaseous vapor escaping from a can of pop.

65. Solid water vapor forming on a leaf in the early morning during winter.

Convert the following

66. 150 cm $\rightarrow$ m

67. 250 lbs. $\rightarrow$ oz.

68. 250000. Inches $\rightarrow$ kilometers

For the following determine the number of molecules

69. 9.8 moles of O_2

70. 5 moles of H_2O

71. For the following determine the amount of moles

72. 2.3×10^{12} molecules of H_2

73. 3.2×10^{28} molecules of C_2H_4

For the following determine the Formula Weight (in grams/mole)

74. H_2

75. Na_2SO_4

76. NaOH

For the following determine the mass (in grams)

77. 5.3 moles of O_2

78. 45.2 moles Fe_2O_3

For the following determine the amount of moles found in each mass

79. 22 grams of O_2

80. 126 grams of Fe_2O_3

81. 305.6 grams of $C_6H_{12}O_6$

For the following determine the amount of moles using the following equation

$N_2 + 2\ O_2 \rightarrow 2NO_2$

82. If one used 6 moles of O_2, how many moles of NO_2 would be formed?

83. If one formed 4.2 moles of NO_2, how many moles of N_2 are needed?

Determine the mass (grams) using the following equation

84. $3\ H_2O_2 + 4\ Al \rightarrow 2\ Al_2O_3 + 3H_2$

85. 90.2 grams of Al was added to an excess of hydrogen peroxide, how much aluminum oxide was formed?

86. Determine the Limiting Reagent, the amount of product (in grams), and the amount of the excess reagent remaining after the reaction

$6NaOH + Cr_2(SO_4)_3 = 3Na_2SO_4 + 2\ Cr(OH)_3$

87. How much $Cr(OH)_3$ was produced (in grams) when 18 grams of NaOH was added to 38.2 grams of $Cr_2(SO_4)_3$?

88. A car tire is inflated to 1710 mmHg at 6°C. The temperature goes up over the next 9 days to 50°C. What is the new pressure of the tire.

89. A bike tire can only contain 2 atm of pressure. Explain three ways in which the pressure of the tire could exceed the 2 atm.

FILL IN THE BLANK:

90. An acid, in the end will have to produce _____ ions.
91. A base, in the end will have to produce _____ ions.
92. Hydronium ion = _____ = _____. (two different ways of writing.)
93. In a neutral solution the $[H^+]$ ions = _____.
94. In an Acidic solution the $[H_3O^+]$ ions is greater than _____.
95. In a basic solution the $[OH^-]$ is _____ the $[H_3O^+]$
96. Phenolphthalein is a common acid base _____.
97. In acidic solutions phenolphthalein is _____.
98. In basic solutions phenolphthalein is _____ .
99. The sum of the pH and pOH equals _____.
100. When calculating pH the range of acidic values are _____.

In the following questions determine the pH. Indicate whether the substance is acidic, basic, and neutral.

101. $[H^+]$ ions = 1.0×10^{-7}
102. pOH = 11.2
103. $[H^+] = 1.62 \times 10^{-4}$
104. $[OH^-] = 3.72 \times 10^{-11}$
105. $[H^+]$ = 1.0E-5

$HBr + KOH \rightarrow$

25g 25g

106. Complete and balance the previous reaction.

107. Each reactant has the same mass. Why don't the reactants balance out to neutral.

108. What type of reaction is this?

109. Which of the two reactants is limiting?

110. How much salt can be produced?

111. How much excess is left over?

Titration:

You have discovered a unknown bottle of acid. You need to figure out the concentration. You have collected a 15mL sample of the acid. After a titration, the neutralization reaction required 26mL of .5 M NaOH. Answer the following questions.

112. How many moles of NaOH were used?

113. How many moles of OH^- were used?

114. How many moles of H^+ ions were consumed?

115. What is the molarity of the acid?

116. What is the pH of the unknown solution?

SALTS:

$MgCO_3$ ***$NaC_2H_3O_2$*** ***$FeCl_2$*** ***$Al_2(SiO_3)_3$*** ***NaOH***

117. Which of the following salts are neutral?

118. Which of the following salts are acidic?

119. Which of the following salts are basic?

120. Cations can produce acidic/ basic or neutral?

Solutions

121. 10.0 moles of NaCl dissolve in 10 L of H_2O. Determine the Molarity.

122. 5.0 moles of solute dissolved in 2.5kg solvent. Determine molality.

123. 15.0 grams of $NaNO_3$ dissolved in 250mL H_2O. Determine the *M*

124. 150.0 g of $AgNO_3$ dissolved in 250 mL of H_2O Determine the *m.*

125. You need 1 liter of .005M Crystal Violet for an experiment. How many grams CV do you need. The molecular mass of CV is 407.5g/mol.

126. In your stock room you have 40 grams of $AgNO_3$. What is the total volume of 1.5 M Concentration can you make?

Draw a Lewis structures for each individual in the following reaction.

$$N_2 + O_2 \rightarrow NO_2^-$$

127. Determine the energy involved in the bonds of the reactants.
(Using bond energies worksheet)

128. Determine the energy involved in the bonds of the products.
(Using bond energies worksheet)

129. Determine the ΔH from the bond energies. (Bonds broken – bonds formed)

130. Draw a graph depicting an exothermic reaction. Label the ΔH and the Ea.

131. Draw a graph depicting an endothermic reaction. Label the ΔH and the Ea.

132. On a very hot day, in Wisconsin, cities along Lake Michigan are 15-20 degrees cooler then other regions of the state. Why?

Determine individual oxidation states

133. CO_3^{-2}

134. F_2

135. Al_2O_3

BALANCE THE FOLLOWING REACTIONS:

Determine the Voltage and draw a cell for each.

136. $Cu^{2+} + Zn \rightarrow Cu + Zn^{2+}$

137. $Li^{+} + Zn \rightarrow Li + Zn^{2+}$