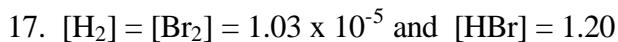
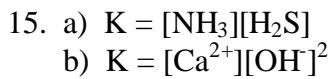


CHEM 1105
Sample Final Exam 1 ANSWERS

1. a) mercury(I) nitrate
b) magnesium acetate
c) ammonium carbonate
d) calcium hydroxide
e) HClO_4
f) H_2S
g) $\text{Ba}_3(\text{PO}_4)_2$
h) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
2. a) $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH}(aq) + \text{H}_2(g)$
b) $3\text{Pb}(\text{NO}_3)_2(aq) + 2\text{Na}_3\text{PO}_4(aq) \rightarrow \text{Pb}_3(\text{PO}_4)_2(s) + 6\text{NaNO}_3(aq)$
c) $\text{H}_2\text{SO}_4(aq) + 2\text{KOH}(aq) \rightarrow \text{K}_2\text{SO}_4(aq) + 2\text{H}_2\text{O(l)}$
3. $3\text{Pb}^{2+}(aq) + 2\text{PO}_4^{3-}(aq) \rightarrow \text{Pb}_3(\text{PO}_4)_2(s)$
4. a) 79 protons, 118 neutrons, 76 electrons, +3
b) $^{79}\text{As}_{33}^{3+}$, 30 electrons
c) $^{32}\text{S}_{16}^{2-}$, -2
d) $^{204}\text{Tl}_{81}^{+}$, 80 electrons
5. Eu-151 = 48.01% and Eu-153 = 51.99%
6. Empirical formula is CHCl
Molecular formula is $\text{C}_2\text{H}_2\text{Cl}_2$
7. a) 146 g Fe_2O_3
b) 0.732 mol/L
8. a) 3.34 mol H_2O_2
b) 35.8 g HNO_3
c) 27.4 g HNO_3
9. a) 0.154 M
b) 1.51%
10. $2\text{C(graphite)} + 3\text{H}_2(g) + \frac{1}{2}\text{O}_2(g) \rightarrow \text{C}_2\text{H}_5\text{OH(l)}$
11. -1405.6 kJ
12. -66.9 kJ/mol
13. a) +4 b) +5 c) +3 d) +6
14. $3\text{As}_2\text{O}_3 + 4\text{NO}_3^- + 4\text{H}^+ + 7\text{H}_2\text{O} \rightarrow 6\text{H}_3\text{AsO}_4 + 4\text{NO}$



18. a) decrease
b) increase
c) increase
d) no change
e) decrease
f) decrease
g) increase
h) decrease

