

CHEM-457 (S14)
Problem Set 5

1. Miessler, Fischer and Tarr #9.12, 9.9, 9.15, 9.22, 10.6, 10.18 – 10.23, and 10.29
2. For each of the following, determine (1) metal oxidation state; (2) *d*-electron count; (3) effective atomic number (i.e., valence electron count) and (4) LFSE.
 - (a) $[\text{Cu}(\text{H}_2\text{O})_6]^{2+}$
 - (b) $[\text{Cr}(\text{CN})_6]^{4-}$
 - (c) $[\text{Fe}(\text{CN})_6]^{3-}$
 - (d) $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$
 - (f) $[\text{Co}(\text{NH}_3)_6]^{3+}$
 - (g) MnO_4^-
 - (h) $[\text{Ru}(\text{bpy})_3]^{2+}$
 - (i) $[\text{FeCl}_4]^-$