**Synthesis and Analysis of Ammonium Decavanadate, (NH4)6V10O28•6H2O**

**Preliminary Questions**

1. Define a polyoxometallate (POM).
2. What causes the yellow color in ammonium decavanadate?
3. Balance the equations of reaction presented in the Introduction:
   1. NH4VO3 🡪 (NH4)6V10O28•6H2O
   2. V10O286- + H2SO3 🡪 VO2+ + SO3 (g)
   3. H2C2O4 + MnO4- 🡪 CO2 (g) + Mn2+ (in acidic solution)
   4. VO2+ + MnO4- 🡪 VO2+ + Mn2+ (in acidic solution)
4. At what pH and [V5+] is the decavanadate stable?
5. Determine the mass of oxalic acid dihydrate (H2C2O4•2H2O) necessary to make 100. mL of 0.010 M solution.
6. Calculate the theoretical yield of (NH4)6V10O28•6H2O if a student starts with 0.3124g NH4VO3.
7. If the student in the above question recovers 0.2248g (NH4)6V10O28•6H2O, what is the percent yield?
8. Calculate the percent vanadium in (NH4)6V10O28•6H2O.