

1. Estimate the number of Bohr magnetons for iron and cobalt ferrite from their electron configuration, as done in the text. Compare your results with those listed in Table 15.3. Explain the discrepancy between experiment and calculation. Give the chemical formula for these ferrites.
2. Compare the experimental saturation magnetization,  $M_{s0}$  (Table 15.1 third column), with the magnetic moment,  $\mu_m$ , at 0 K for ferromagnetic metals (Table 16.1). What do you notice? Estimate the degree of  $d$ -band filling for iron and cobalt.
3. From the results obtained in the previous problem, calculate the number of Bohr magnetons for crystalline (solid) iron and cobalt and compare your results with those listed in Table 16.1. What is the number of Bohr magnetons for an iron *atom* and a cobalt atom? What is the number of Bohr magnetons for iron and cobalt ferrite?