1. Exercise 9.1 (p. 491)
2. Exercise 9.3 (p. 492)

3. The blue color of the Iodine-starch complex is due to the absorption of the linear $I_5^-$ ion, which has the linear structure $I$–$I$...$I$–$I$ (i.e., an iodide ion sandwiched between two $I_2$ molecules), enclosed in the $\alpha$-helix of the amylose form of starch. The absorption spectrum shows a maximum at $\lambda = 600$ nm. Let us assume that this absorption is due to the extra electron in $\Gamma$ going from the ground to the first excited state. Adopting the one-dimensional infinite well model for the electron, calculate the range of motion of this electron.

4. Equation (10.19) can be factored as follows:

$$\ln W = N \ln N - N + \sum_i n_i \left( 1 + \ln \frac{g_i}{n_i} \right).$$

Show that

$$\left( \frac{\partial \ln W}{\partial n_j} \right)_N = \ln \left( \frac{g_j}{n_j} \right).$$