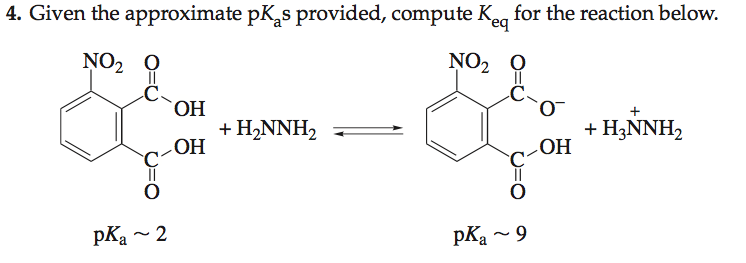
CHEMILUMINESCENCE: SYNTHESIS OF LUMINOL

**1.** Define the following terms.  
**a.** fluorescence  
**b.** phosphorescence  
**c.** chemiluminescence   
**d.** intersystem crossing

**2.** What is the difference in electronic configuration of a singlet and a triplet state?



ALKYNE FORMATION: DEHYDROBROMINATION OF *MESO*-STILBENE DIBROMIDE(*Preparative*)

**2.** The solvent used in the preparation of diphenylacetylene (2) is triethylene glycol.

**a.** Write the structure of triethylene glycol; circle and label each of the functional groups in this molecule.

**b.** What structural features account for the high boiling point of this solvent?

**4.** Give a stepwise mechanism showing the base-induced formation of diphenyl- acetylene from *meso-stilbene* dibromide. Use curved arrows to symbolize the flow of electrons.

**6.** Why do you think the enthalpy of activation, delta-H ‡, for a syn-periplanar elimination is higher than that for an anti-periplanar elimination?