

Chapter 7 Ultraviolet-Visible Spectroscopy (Optical Spectroscopy)

(problems: 1, 2, 5, 7, 8)

I. The Electronic Excitation

- A. optical range for UV-vis spectroscopy
- B. orbital structure of molecules and orbital classification of transitions
- C. excitation process
 - 1. energy
 - 2. timescale
 - 3. transition probability (signal intensity)

II. Beer-Lambert Law

III. Sample Handling

- 1. cells
- 2. solvents

IV. Terminology

V. Common Chromophores

- 1. alkenes, dienes, polyenes
- 2. aromatic systems
- 3. carbonyl compounds

VI. Molecular Complexation Effects