

TABLE OF CONTENTS

Licensing

1: Introduction to Organic Spectroscopy

- 1.1: Chapter Objectives and Preview of Spectroscopy
- 1.2: The Nature of Radiant Energy and Electromagnetic Radiation
- 1.3: Introduction to Molecular Spectroscopy
- 1.4: Time-resolved vs. Frequency Resolved
- 1.5: The Power of the Fourier Transform for Spectroscopists
- 1.6: Upcoming Spectroscopy Techniques
- 1.S Summary of Organic Spectroscopy

2: Mass Spectrometry

- 2.1: Chapter Objectives and Preview of Mass Spectrometry
- 2.2: Instrumentation
- 2.3: Ionization Techniques
- 2.4 Mass Analyzers
- 2.5: Applications of Mass Spectrometry
- 2.6: Interpretation of Mass Spectra
- 2.7 Mass Spectrometry of Some Common Functional Groups
- 2.8: Mass Spectrometry Problems
- 2.S Summary of Mass Spectrometry

3: Conjugated Compounds and Ultraviolet Spectroscopy

- 3.1: Chapter Objectives and Preview of Ultraviolet Spectroscopy
- 3.2: Conjugated Dienes
- 3.3: Electronic Transitions
- 3.4: Ultraviolet Absorption
- 3.5: UV-Visible Spectrometer
- 3.6: Interpreting Ultraviolet Spectra
- 3.7: Conjugation and the Absorption of Light in the Real World
- 3.S: Summary

4: Infrared Spectroscopy

- 4.1: Chapter Objectives and Preview of Infrared Spectroscopy
- 4.2: Theory
- 4.3: Instrumentation
- 4.4 The IR Spectrum
- 4.5 IR Data Table
- 4.6: Interpretation
- 4.7 Identifying Characteristic Functional Groups
- 4.8 Infrared Spectroscopy Problems
- 4.9: Application
- 4.S Summary

5: Proton Nuclear Magnetic Resonance Spectroscopy (NMR)

- 5.1: Chapter Objectives and Preview of Nuclear Magnetic Resonance Spectroscopy
- 5.2: Theory of NMR
- 5.3: Instrumentation
- 5.4: Types of Protons
- 5.5: Chemical Shift
- 5.6: Integration of Proton Spectra
- 5.7: Spin-Spin Splitting in Proton NMR Spectra
- 5.8: More Complex Spin-Spin Splitting Patterns
- 5.9: Uses of Proton NMR Spectroscopy
- 5.10: Interpreting Proton NMR Spectra
- 5.11: Proton NMR problems
- 5.S: Summary

6: Carbon-13 NMR Spectroscopy

- 6.1: Chapter Objectives and Preview of C-13 Nuclear Magnetic Resonance Spectroscopy
- 6.2: C-13 NMR Spectroscopy- Signal Averaging and FT-NMR
- 6.3: Characteristics of C-13 NMR Spectroscopy
- 6.4: DEPT C-13 NMR Spectroscopy
- 6.5: Interpreting C-13 NMR Spectra
- 6.6: Uses of C-13 NMR Spectroscopy
- 6.7: Structure Determination Problems with C-13 NMR and 1-H NMR
- 6.S: Summary

7: Two-Dimensional NMR Spectroscopy

- 7.1: Chapter Objectives and Preview of Correlation NMR Spectroscopy
- 7.2: Theory
- 7.3: Two Dimensional Homonuclear NMR Spectroscopy
- 7.4: Two Dimensional Heteronuclear NMR Spectroscopy
- 7.5: Uses for 2-D NMR Spectroscopy
- 7.6: Interpreting 2-D NMR Spectra
- 7.7: 2-D NMR Problems
- 7.S: Summary

8: Structure Elucidation Problems

- 8.1 Chapter Objectives and Preview
- 8.2 Problem 1
- 8.3 Problem 2
- 8.4 Problem 3
- 8.5 Problem 4
- 8.6 Problem 5

[Index](#)

[Glossary](#)

[Detailed Licensing](#)