

CHEMISTRY 221

Suggested Readings and Problems in *Organic Chemistry: Structure and Function* (6th Edition by K.P.C. Vollhardt and N.E. Schore)

I. Introduction to Organic Chemistry; Bonding in Organic Molecules

Read: pp. 1-44

Problems: p. 22: #1-11; p. 36: #1-16; p. 39: #1-21; pp. 44-48: #25b,g,h; 28b,c; 31a,b,g; 38; 41; 45; 46c; 49a,b; 51a,b,d,e,g; 54; 55; 57

II. Alkanes

Read: p. 49 – top of p. 55, pp. 67 (Section 2-3) – 89, 95-124

NOTE: Acid and base theory (Section 2-2) will be discussed later in the semester.

Problems: p. 72: #2-17, p. 73: #2-18; pp. 90-94: #33a,b,c,f; 35a,b,d,e,f,j; 36b,d; 39c,d; 40c,d,f; 42b,d; 46; 52; 53; 55; p. 114: #3-9; pp. 127-130: #15c,d; 16c; 21a,b; 27c,d,e; 33b,c; 46; 47; 48

III. Cycloalkanes

Read: pp. 131-161

Problems: p. 134: #4-3; p. 148: #4-11; p. 153: #4-16; pp. 162-168: #23b,d,e; 30; 32c,d; 42; 49a,b; 55; 56; 57

IV. Stereochemistry

Read: pp. 169-207

Problems: p. 174: #5-5; p. 177: #5-8; p. 181: #5-9b,d; p. 189: #5-19; p. 191: #5-20; pp. 208-214: #32; 33; 36; 39; 40c; 43; 45c; 48; 53; 54; 55a,b,c,g; 59; 67; 69; 70

V. Alkyl Halides

Read: pp. 65-66 (the Section on “Electrophiles and Nucleophiles”); pp. 215-245, 251-277

Problems: p. 220: #6-1; p. 221: #6-3; p. 227: #6-12a; p. 229: #6-15; p. 232: #6-18; p. 234: #6-22; p. 238: #6-24; pp. 247-250: #41; 42a,c; 44; 45; 46c,d; 47b,f; 48d,e,h; 53e; 56; 57; 65; 66; p. 252: #7-1; p. 266: #7-10; pp. 269-270: #7-14; 7-15; p. 273: #7-16; pp. 278-286: #25; 27; 30; 31; 32; 35; 40d; 46; 49a,c,h,i; 50d,e; 59; 60; 62; 63; 64; 66

VI. Alcohols

Read: pp. 56-63 (Section 2-2); pp. 287-325, 333-347

Problems: p. 293: #8-4; p. 300: #8-9; p. 309: #8-15; 8-16b; pp. 326-332: #24d,f,g; 36b,c,e; 38; 40a,c,d; 43b,d; 46b,c; 48b; 50; 53b,c; 54; 57; 65; p. 338: #9-3; p. 347: #9-10; pp. 377-386: #29; 31d,g,h; 36c; 38a-d,j-m; 61; 66b; 76; 77

VII. Ethers

Read: pp. 347 (Section 9-5) – 364

Problems: p. 352: #9-12; p. 358: #9-19; p. 362: #9-23; p. 364: #9-24; pp. 379-386: #41a,b; 44; 49; 54f,g; 75; 78

VIII. Infrared and Nuclear Magnetic Resonance Spectroscopy and Mass Spectrometry in Organic Chemistry

Read: pp. 468-472 (Section 11-8); pp. 387-426; pp. 453-458 (Section 11-4); pp. 473-477 (Section 11-9)

Problems: p. 397: #10-3; p. 401: #10-7; p. 412: #10-12d; p. 420: #10-16; p. 424: #10-18; p. 426: #10-19a,b; pp. 436-444: #26a,c; 32; 34; 36h,i,j; 38; 39; 43; 47; 58a; 64; 65; 66; p. 483: #11-25; pp. 493-495: #52; 54; 63

IX. Alkenes

Read: pp. 445-453; pp. 459 (Section 11-5) – 467; pp. 507-530; pp. 532 (Section 12-10) – 545; pp. 609-614; pp. 617-625 (Section 14-5 and Section 14-6); pp. 628-638 (Section 14-8)

Problems: p. 448: #11-3; pp. 488-498: #30c,g,i; 39; 49; 50; 72; 73; 74; p. 515: #12-6; p. 523: #12-14; p. 534: #12-22; p. 539: #12-26; pp. 558-566: #37; 42a,c,g; 43; 44a; 46; 58; 59; 63; 64a,c; 66b,d,f; 71; 79; 80; 81; p. 632: #14-18; p. 636: #14-20; p. 663: #53; 58c

X. Alkynes

Read: pp. 567-587, 590-598

Problems: p. 578: #13-9b; p. 583: #13-16; p. 584: #13-18; pp. 599-608: #28c,e; 34; 36a; 38a,b,d,e,f; 41b,c; 44c,d,f,g,h; 49a; 59; 61; 63