

## CHEMISTRY 221

Suggested Readings and Problems in Organic Chemistry: Structure and Function (5<sup>th</sup> Edition by K.P.C Vollhardt and N.E. Schore)

### I. Introduction to Organic Chemistry; Bonding in Organic Molecules

Read: pp. 1-46

Problems: p.23: #1-9; p.36: #1-13; p.40: #1-17; pp.46-50: #21b,g,h; 27a,e,g; 31; 34; 38; 39c; 42a,b; 44a,b,d,e,g; 47; 48; 50

### II. Alkanes

Read: pp. 51-55, 66 (Section 2-3) – 90, 96-124

NOTE: Acid and base theory

(Section 2-2) will be discussed later in the semester.

Problems: p.72: #2-13; p.73: #2-14; pp.91-95: #28a,c,f; 29a,b,d,e,f,j; 30b,d; 33c,d; 34c,d,f; 36b,d; 40; 46; 47; 49; p.116: #3-8; p.118: #3-9; pp.127-130: #13c,d; 14c; 19a,b; 22c,d,e; 28b,c; 41; 42; 43

### III. Cycloalkanes

Read: pp. 131-161

Problems: p.133: #4-2; p.147: #4-8; p.153: #4-12; pp.162-167: #18; 23; 25c,d; 35; 42; 48; 49; 50

### IV. Stereochemistry

Read: pp. 168-206

Problems: p.174: #5-5; p.177: #5-7; p.180: #5-8b,d; p.188: #5-16; p.190: #5-17; pp.207-214: #28; 29; 31; 32; 33c; 36; 38c; 41; 46; 47; 48a,b,c,g; 52; 60; 62; 63

### V. Alkyl Halides

Read: pp. 215-245, 250-276

Problems: p.220: #6-1; 6-2; p.227: #6-10a; p.229: #6-13; p.231: #6-15; p.234: #6-19; p.237: #6-21; pp.246-249: #36; 37a,c; 39; 40; 41c,d; 42b,f; 43d,e,h; 47e; 49; 50; 58; 59; p.252: #7-1; p.264: #7-7; pp.267-8: #7-11; 7-12; p.271: #7-13; pp.276-284: #22; 24; 27; 28; 29; 32; 35d; 40; 43a,c,h,i; 44d,e; 53; 54; 56; 57; 58; 60

### VI. Alcohols

Read: pp. 285-324, 332-345

Problems: p.291: #8-3; p.297: #8-8; p.307: #8-13; p.308: #8-14b; pp.325-331: #21d,f,g; 32b,c,e; 34; 35a,c,d; 38b,d; 41b,c; 42b; 44; 47b,c; 48; 51; 59; p.337: #9-3; p.346: #9-9; pp.377-386: #26; 27d,g,h; 32c; 34a-d; j-m; 55; 60b; 70; 71

## VII. Ethers

Read: pp. 346 (Section 9-5) – 363

Problems: p.351: #9-11; p.344: #9-17; p.362: #9-20; p.363: #9-21; pp.379-386: #37a,b; 40; 44; 48f,g; 69; 72

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

Read: Section 11-5 (pp.460-464), 387-427, Section 11-4 (pp.454-460), Section 11-6 (pp.464-8)

Problems: p.398: #10-3; p.402: #10-6; p.412: #10-10d; p.420: #10-12; p.424: #10-14; p.426: #10-15a,b; pp.436-445: #22a,c; 27; 28; 30h,i,j; 32; 33; 36; 40; 51a; 57; 58; 59; p.474: #11-17; pp.493-5: #32; 34; 43

## IX. Alkenes

Read: pp. 446-454, 473 (Section 11-8) – 489, 500-522, 524 (Section 12-10) – 537, 602-7, Sections 14-5 and 14-6 (pp. 610-618), Section 14-8 (pp. 620-631)

Problems: p.449: #11-3; pp.488-499: #27c,g,i; 47; 57; 58; 66; 67; 68; p.507: #12-3; p.515: #12-11; p.525: #12-17; pp.552-560: #31; 34; 36a,c,g; 37; 38a; 39; 49; 50; 54; 55a,c; 57b,d,f; 62; 69; 70; 71; p.624: #14-16; p.627: #14-17; pp.655-6: #47; 52c

## X. Alkynes

Read: pp. 561-592

Problems: p.572: #13-7b; p.577: #13-13; p.578: #13-14; pp.593-601: #22c,e; 28; 30a; 32a,b,d,e,f; 34b,c; 36c,d,f,g,h; 40a; 50; 52; 54