

- **CHEMISTRY 341 PROBLEMS**

- **SUMMER Carey Version 9**

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- These assume you are using Carey and Giuliano version 9. (I have lists that are appropriate if you instead have the 8th or 10th edition of Carey, or the 6th or 7th version of Wade. Contact me if that's your situation, or see:

- <http://www.ndsu.edu/pubweb/~jasperse/Chem341/Other%20Books-Problems%20and%20Readings/Other%20Books-Problems%20and%20Readings.htm>

<u>Chapter</u>	<u>Recommended Book Problems</u>
	<u>Test 1</u>
1	1, 6, 7, 9- 13, 16, 17, 22- 25, 31, 34, 35, 40-50, 53, 57, 61-63, 68-70, 72, 73
2	3, 4, 6, 7, 8, 12, 13a,b, 22a,b, 23, 24a,b, 25, 26, 29, 30a,b, 43
3	1-4, 7, 8, 9, 12, 13, 18, 20-25, 28, 29, 33a-e, 34a-e
4	Functional Groups: 35a,b,e,g, 36, 37, 38
	<u>Test 2</u>
4	Radicals and Radical Halogenation: 17, 19 (prop. only), 20, 21, 23
7	Stereo: 1, 2, 3c,d, 4, 5, 8, 9, 12, 13, 22, 23, 24, 32-34, 38a,c-f,h-k
8	Substitution: 1-3, 5, 7, 8, 9, 11, 15a,b, 16, 18, 20a, 21, 23a-g, 24, 25, 26a-f, 31, 32, 33a,b,d-h, 34a, 35, 41, 48, 49-51
5	Elimination: 21-25, 37, 38a,b,e, 41c,f,g
	<u>Test 3</u>
5	1-5, 7, 8, 10-17, 19, 21-25, 29a-h, 31, 34a-d (rank), 35a,b, 37, 38, 41
6	1, 3, 4, 5, 7, 8, 14, 17, 20, 22, 29, 34, 35, 36, 37, 39, 41a-f,i,k, 47, 58-61, 63, 64-68 Ch 15:5
	<u>Test 4</u>
10	1, 2, 3, 4, 5, 8, 9, 11, 12, 16, 17, 19, 21, 23, 31a-f, 32a-c,g, 33a-c,g, 34, 35, 36, 37, 40, 43, 47, 48, 49, 51, 53
11	1, 2, 3a,c, 9, 10, 13, 15, 18, 21, 24, 25, 26, 34a,f,i, 35, 37a, 41a-d, h, i, 47a, b, e, f, 48- 51, 54, 55,
12	2, 3, 4, 6, 10, 12, 15, 17, 18, 19, 21, 22, 23 (hard), 24, 33a-k, 34a-d,g,i,l,m,, 36, 38, 39, 40, 43, 45, 46a-l,n, 47, 49, 50b,d, 53

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Schedule: Which Lecture Videos and Practice-Set Videos Go with Each Test

Chemistry 341, Jasperse, Summer (34 class lectures). Carey Version 9		Reading Assignment
TEST 1 LECTURES		
1.	Class Intro; Carbon, Normal Bonding, Lewis Structures	1.1-5
2.	Normal Bonding, Lewis Structures, Formal Charge; Resonance; Structural Formulas	1.6-11
3.	Structural + Skeletal Formulas; Resonance Structures; Allylic Systems; VSEPR + shape	1.6-11
4.	Shape, Drawing 3D, Mechanisms + Arrow Pushing, Acid-Base	1.12-17
5.	Acid-Base	1.12-17
6.	Hybridization, Isomers, Intermolecular Forces, Boiling Points, Solubility	2.1-10, 2.20
7.	Functional Groups.	4.1, 4.6
8.	Alkanes + Nomenclature.	2.11-18
9.	Conformations, Newman Projections, Higher Alkanes, Rings, Cyclohexane Chairs	3.1-6
10.	Substituted Cyclohexane Chairs; Alkane Structure Isomers	3.7-13
11.	10 minutes of structural isomers. Then Test 2 material.	Catchup
Quick skim 2.1-10, Quick skim 3.13-15		
Extra Practice Sets+Videos: Acid-Base Practice; 3D-Drawing Practice; Newman Practice; Cyclohexane Practice; Cyclohexane and Newman Projections Summary		
Test 1. Chapters 1-3.		
TEST 2 LECTURES		
11.	Introduction to Reactivity Principles. Radical Halogenation of Alkanes.	4.8,9,13-17
12.	Rates, Activation Energies, Transition States, Multistep Reactions, Stability-Reactivity Principles	4. ,9,13-17
13.	Bromination of Alkanes; Radical Stabilities; Mechanism; Practice Problems	4.9,15, 17
14.	Practice Bromination Mech; Stability/reactivity: Chirality, Enantiomers, Chiral Centers	4.17; 7:1-6
15.	R and S Classification, Stereochemical Prioritization Rules	7:1-6,8,10
16.	Optical Activity; Racemic Mixtures; Symmetry Planes; Diastereomers; Meso Compounds; Molecules with ≥ 2 Chiral Centers	7.11-15
17.	Alkyl Halides, Introduction/Nomenclature, Properties, Reactivity, and the SN2 Reaction The Sn2 Substitution Reaction.	4.2,4-6 8.1-5
18.	SN2 Reactions	8.1-5
19.	SN1 Reaction and Mechanism	8.6-12
20.	Elimination Reactions	5.14-18
21.	Elimination, Practice, how to Distinguish between SN2/SN2/E2/E1	5.14-18
Skip 4.1-14 at this time. Quick skim 7.7,9,16,17		
Extra Practice Sets+Videos: Br2/hv Products/Mechanisms Practice; Introductory Mechanism Practice; Extra Stereochemistry Practice; Extra Test 2 Mechanisms Practice		
Test 2. Chapters 4, 7, 8, 5		
TEST 3 LECTURES		
22.	Alkenes. Elements of Unsaturation, Hydrogenation, Nomenclature, E/Z	5.1-7; 13.25
23.	Synthesis of Alkenes. Use of Bulky Bases. Acid-Catalyzed Dehydration of Alcohols	5.8-13
24.	Recognizing Mechanisms. HBr and HOH addn to Alkenes. Markovnikov's Rule	6.1-7
25.	Antimarkovnikov HBr and HOH Addn. Stereoselective HOH.	6.6-9,13, p.258-261
26.	Addition of H ₂ , Br ₂ , BrOH, Stereospecificity, Synthetic Design	6.10-13,15
27.	Epoxidation, Dihydroxylation, Ozonolysis	6.11-13,15
Skim: 5.17, Skim: 6.14		
Extra Practice Sets+Videos: Extra Practice; Mechanisms; Alkene Reactions; Synthesis		
Test 3. Chapters 5, 6		
TEST 4 LECTURES		
28.	Conjugation, It's Impact, and Allylic Cations	10.1-4, 11.9-11
29.	Allylic Cations, Radicals, Anions, SN2. 1,4/1,2 Addn. Kinetic vs Thermo. Diels-Alder	10.2-10.10
30.	Diels-Alder. Aromatics: Structure, Huckel's Rule, Impact	10.12-15, 11.1-7
31.	Aromatic Nomenclature. Electrophilic Aromatic Substitution Reactions.	11.1-9,17-23
32.	Electrophilic Aromatic Substitution Reactions. p4-11	12.1-8
33.	Advanced Aromatic Substitution Reactions and Synthetic Planning	12.9-16
34.	Aromatic Synthesis Design Problems	12.1-16
Skip: 11.10,16,17, 12.17-22		
Extra Practice Sets+Videos: HBr Addn to Dienes; NBS Allylic Bromination; Conjugation-Allylic-Diels-Alder Practice; Aromatic Substitution Mechanisms; Aromatic Substitution Product Prediction/Mechanisms/Synthesis Design		
Test 4. Chapters 10, 11, 12		