

CHEMISTRY 342 PROBLEMS, USING WADE 6

Chapter Topic	Wade Ch	Wade 6 Problems	Carey Ch	Carey 8 Problems
Alcohols and Their Synthesis, Including Grignard Reactions/Organo-metallics	10	1, 5d, 6, 8, 10, 12a,b,d, 13-16, 17 (esters only), 18-20, 22-26, 31, 33a-d, 34b,c, 35a,c, 36b,c, 37 (review from chapter 8), 38a-l, 39, 40, 42, 43	4, 14, 15, 19	Ch 4: 5, 7, 10, 23,a,c-h, 24b,f,i, 39a,d, 40a,c Ch 14: 3, 4, 5a, 6, 8, 16a, 18b,d,h,km, 19, 20a,b,d,e Ch 19: 15, 17
Alcohol Reactions And Retro-synthesis	11	1a,b,d, 2, 3, 5 (skip KMnO ₄), 6, 9, 10, 11, 12a, 13, 14, 22, 23, 27a,b, 33, 34, 35, 36, 37, 38, 40 (do the bromides only), 41 (skip g), 42, 43, 44, 48a, b, c, f, g, h, 49, 50, 52, 53, 56	4, 15	Ch 4: 5, 7, 10, 23a,c-h, 24b,f,i, 39a,d, 40a,c Ch 15: 2, 3, 10, 18a-c,f, 19a-e, 22a-d, 23a,c, 24b,c, 25a-c, 26a-e, 27d-f,h, 28a-f, 30a,c
Spectroscopy, NMR	13	2, 3, 4, 5, 6, 7, 9, 11, 13a, 15, 16, 18, 22, 24a-e, 25, 27, 29, 30, 32, 33, 34, 35 (skip d), 36, 38, 39, 40, 41, 43, 44, 49	13	5, 6, 7, 9, 11, 12, 16, 18, 21, 32a-c, 33a-d, 35, 37, 43, 45, 46, 53, 55, 57
Spectroscopy, IR	12	4, 5, 16	13	
Aldehydes, Ketones	18	1a,b, 6, 7, 8, 9, 10, 11a,b, 12, 16, 17, 18a, 19, 21, 22, 24, 25, 26, 27a,b,d, 28, 29, 30, 31, 32, 33, 34a-d, 35a-c, 37a-c, 39a-c, e-g, l, 40, 43, 44, 49, 50, 51a-f,h, 52, 56a-g, i-l, 57, 58,59 61a-e, 64a-d, 65, 66	17	1a,c, 2, 3, 5, 6, 10, 11a, 12, 14a-d, 23a, 26a,b,d,g-k,q,r, 27a,b,d,g-k,q,r, 28a,d, 29a,e, 31a-f, 33, 35, 36, 37a, 38a,b, 39a-d, 40, 44d,e, 48, 49
Enolates	22	(Enols, Halogenation) 1, 2, 3, 4, 5, 6, 8a,c,d, 9b,d,e, (LDA alkylation) 13, (Aldol) 18, 19, 22, 23, 24, 25, 26, 27, 28, 29, 30,32, (Claisen) 34a, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, (alkylation-decarboxylation) 46, 47, 49, 50, (Michael) 55, 56, 57, 59, 61, 62, 63, 64, 65, 66, 67, 68 (skip e), 69a, d, e, 70, 71, 73a-c	20	1, 2, 3, 5, 6, 7, 9, 10, 13, 14a,b, 16, 18, 19, 20, 22, 23, 24, 27, 28, 29, 30, 39, 47a, 48, 52a,b, 53, 54c, 55, 58, 60a-g, 61, 62a,d,e, 64a,b, 69, 73, 74, 77a,b,e,f, 78b-e Decarbox: Ch 18: 11, 12 Wittig: Ch 17: 17, 18, 20, 44b,c
Amines	19	1,2(skip b,d), 3a-c, 5b,c, 6a-c, 15, 16, 17, 25b,d,f,g, 26, 27, 28, 30a-c, e-g, 31, 36a-e, 37, 39a,c,d, 41a,b,h,i, j,l,m, 42 (skip e), 44a,d,g, 47, 48, 50a-c, 51a,c	21	1, 2, 3, 6, 13, 23a-c, 24a-g,i,j, 27a,b,d, 29a-c,e, 29, 34a,c,g, 36a-g,j, 37a-f, 38a, 39a-c, 42a
Acids	20	1b-d,g, 2a-c, 3, 4, 5, 6, 11 b,c,d,f, 12, 13, 15b,c, 16a,b, 18, 19, 20, 21, 23, 24, 26 (not d,g, i), 28a,e,f,h,i, 29 (skip b), 30a,d,e, 31, 32a,c,d 33, 35a-e,i,j,k, 36a-c,e,f, 37, 38, 39, 41, 42, 43, 47, 48, 49, 50	18	3, 5a-c,f, 7, 8, 9, 10, 13a,b,e-j, 14a,c,d, 15, 16a,d, 17a-d,f, 19a,c,e,f, 20a,b,d,e, 21, 24a-c,e,f, 28, 30a, 34, 35, 37
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Chemistry 342, Jasperse, Readings for Wade Version 6		
Topic	Wade 6 Readings	Carey 8 Reading
Test 1 Organometallics and Alcohols: Synthesis, Reactions, and Retrosynthesis		
Structure, Nomenclature, Properties, Weak Acidity of Alcohols	10.1-10.6	4.1-6
Synthesis of Alcohols; Organometallic Reactions.	10.7-10.9	14.1-6, 19.12, 15.4
Side Reactions; Reduction of Carbonyl Compounds	10.10-10.11	15.1-3, 19.13
Catchup; Practice Problems	Catchup	
Oxidation of Alcohols	11.1-11.3	15.10,
Conversion of Alcohols to Tosylates or Halides; Uses of Tosylates and Halides	11.5-11.9	4.7-14, 8.12, 15.6, 15.7,
Miscellaneous; Multistep Synthesis	11.10, 11.14	14.9
Catchup, Multistep Synthesis Problems	Catchup	
Test 2 Spectroscopy and NMR		
¹ H NMR Overview: Chemical Shift, Integration, and Splitting; ¹ H NMR Problem Solving	13.5-8	13.1-12, 13.25
¹ H NMR Problem Solving	13.5-8	13.1-12, 13.25
More Problem Solving; Complex Splitting; Stereochemical Nonequivalence of Protons	13.9-10	13.1-12, 13.25
	13.12-13;	13.14-22
¹³ C NMR; Infrared Spectroscopy	12.11-12	
Spectroscopy Catchup, Integrated Problems	catchup	
Test 3 Aldehydes, Ketones, and Enolate Reactions		
Ketones/Aldehydes. Nomenclature, Properties, Intro.	18.1-7	17.1-6
Synthesis of Ketones/Aldehydes.	18.7-11	17.4-6
	18.12, 14-17,	17.6-10
Reactions of Ketones/Aldehydes	18-19	
Reactions of Ketones/Aldehydes	18.20-21	17.6-10
Catchup; Enols and Enolates Intro. Acid/Base Considerations; Proton as Electrophile	22.1-2, 22.15	20.1,2,13
Enols and Enolates Intro. Acid/Base Considerations; Proton as Electrophile	22.1-2, 22.15	20.1,2,13
Halogenation; Alkylation; Double Activation; Ester Hydrolysis; Decarboxylation	22.3, 5, 15-17	20.14, 20.9-12, 18.16
The Aldol Reaction (Aldehyde/Ketone as Electrophile)	22.7-11	20.3-4
Claisen Reaction (Ester as Electrophile)	22.12-17	20.5-8
Catchup		
The Wittig Reaction and Alkene Synthesis; Catchup	18.13	17.12-17.13
Catchup, Integrated Practice Problems.	Catchup	
Test 4 Amines, Acids, and Acid Derivatives like Esters and Amides		
Amines. Intro, Nomenclature, Properties; Basicity of Amines; Structural Factors; Salts	19.1-7	21.1-5
Reactions of Amines	19.10-13, 17-18	21.11-12
Diazonium Chemistry; Amine Synthesis by Reductive Amination of Carbonyls	19.17-19	21.16-17,
More Synthesis of Amines	19.19	21.6-7, 21.9-10
Carboxylic Acids: Nomenclature; Properties; *ACIDITY*; Salts; Soap; SYNTHESIS	20.1-5	18.1-7, 18.10-12
Acid Synthesis; Reactions	20.8-11	18.13-15
	20.13-15; 21.1-3	19.1-11, 19.15-16
Reactions of Acids: Nucleophilic Acyl Substitution; Carboxylic Acid Derivatives		
Interconversions Among Acids and Derivatives; Synthesis and Mechanism; Catchup	21.5-7	19.1-11, 19.15-16
Interconversions Among Acids and Derivatives; Synthesis and Mechanism; Catchup	21.5-7	19.1-11, 19.15-16
Practice Problems	-	