

## ORGANIC CHEMISTRY II PROBLEMS, USING WADE 9

### Based on Organic Chemistry (9th Edition) by L. G. Wade Jr

Note: if you have the 8<sup>th</sup>, 7<sup>th</sup> or 6<sup>th</sup> edition of Wade, or if you have a Klein textbook as used at NDSU, lists of problems are linked from the following website, or you can email me ([jasperse@mnstate.edu](mailto:jasperse@mnstate.edu)) to get the list.) Contact me if that's your situation, or see the following link:

- <https://web.mnstate.edu/jasperse/Chem360/OtherTextbooks.htm>

Note: for some links to buy variably new or perhaps older edition of the textbook and the associated solutions manuals, see: <https://web.mnstate.edu/jasperse/Required-Text-and-Materials.pdf>

<u>Chapter Topic</u>	<u>Wade Chap</u>	<u>Wade 9 Problems In the Chapter</u>	<u>Wade 9 Problems Back of the Chapter</u>
<b>Structure and Synthesis of Alcohols</b>	10	1, 5d, 6, 8, 10, 12a,b,d, 13-16, 17 (esters only), 18-20, 22-26	30, 32a-d, 33b,c, 34a,c, 33b,c, 36a-1, 38 (review from alkenes), 39, 40, 42, 43, 56, 57 (skip d)
<b>Reactions of Alcohols</b>	11	1a,b,d, 2, 3, 4.1,2, 5a,b, 6, 9, 10, 11, 12a, 13, 14, 22, 23, 26a, 33, 34, 35, 36, 37, 38	39 (skip g), 41 (do the bromides only), 42, 43, 44, 48a, b, c, f, g, h, 49, 50, 52, 53, 56
<b>Nuclear Magnetic Resonance Spectroscopy</b>	13	2, 3, 4, 5, 6, 7, 8, 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
<b>Infrared Spectroscopy</b>	12	4, 5	16
<b>Ketones and Aldehydes</b>	18	1a,b, 6, 7, 8, 9, 11, 13a, 14, 16a, 17, 19, 20, 21, 22a,b,d, 23, 24, 25, 26, 27, 28, 29a-d, 34a-c, 36a	38a-c, e-g, 1, 39a,e, 40, 41, 43, 44, 47a,c,d, 49, 50a,b,d,e, 51a-f,h, 52, 53a-g, i-l, 54a-e, 55a,c,d,e,f 57, 58, 59, 64a-d, 65, 67a,b
<b>Alpha Substitutions and Condensations of Enols and Enolate</b>	22	(Enols, Halogenation) 1, 2, 3, 5, 10, 11, 12, 13, 14, (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, Ch 18.32, 33 (Wittig)	60, 61, 62, 63, 64, 65, 67 (Basically draw the dicarbonyl precursor), 68, 69 (skip b,e,i), 71a, d, e, 72, 73, 77a-c
<b>Amines</b>	19	1,2(skip b,d), 3a-c, 5b,c, 6a-c, 15, 16, 17, 26, 27, 28, 30a-c, e-g, 31	32a-e, 33, 34, 37a,c,d 38a, h,i, j,l,m (NaBH(OAc) <sub>3</sub> = NaBH <sub>3</sub> CN), p, q, 40f, 42a,d,g, 47
<b>Carboxylic Acids</b>	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	25 (not d,g, i), 26a,b,c,f,g, (IUPAC only), 27a,e,f,h,i, 28, 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, 44, 47
<b>Carboxylic Acid Derivatives</b>	21	1a-c, 6-14,16, 18, 31, 32a,b	42a-c, 43a,c,d,e,f, 44, 45a,e,f, 46, 47 (saponification is NaOH/H <sub>2</sub> O hydrolysis), 48a,b, 49a,b,d, e, 50a,b,c,e,f,g,h, j, l, 54a,c,d,f,j, 55, 57a-c