

Print Last (Family) Name	First Name	Signature	ID Number (if known)	Leave Blank (Score)
KEY				300 points

Section I.A. page 2	1.		2.		3.		4.	
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Section I.A. p2	5.	urea
page 2	6.	Z (or cis)-7-dodecyl acetate - will accept ethanoate for acetate 1pt stereochem wrong/missing
page 3	7.	2E,4E-heptadienyl pentanoate (will accept valerate instead of pentanoate, all trans OK)

Section I.A. page 3	8.		9.		10.	
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Section I.A. p4	11.	2,2-diethyl-3-pentenamide
page 4	12.	2E,6E-nonadienal

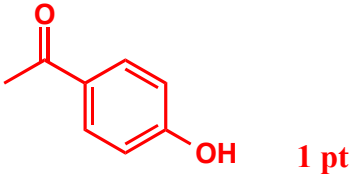
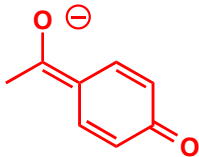
Section I.A. page 4	13.		14.		15.	
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Section I.B. p5	16. identical	17. identical	18. identical	19. enantiomers	20. identical
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Section I.C. p6	21. 12 2 pts	22. 22 3 pts	23. F	24. F	25. T	26. F	27. T	28. T	29. T	30. F	31. T	32. F
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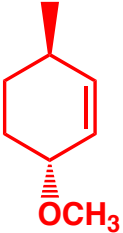
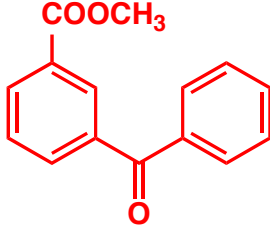
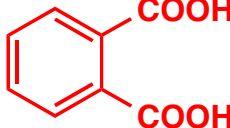
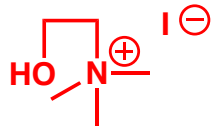
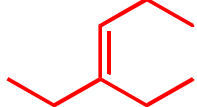
Section ID p7	33. wedge	34. b, d, h, k	35. acetal	36. b	37. six	38. c, e, k, i	39. Yes	40. Yes	41. b,h	42. a, f, g
Section IE p7	43. F		44. T		45. F		46. F		47. T	

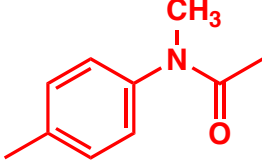
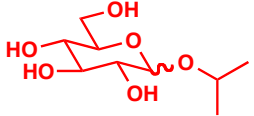
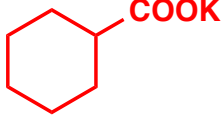
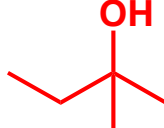
Section IIA p8	1. 10 (± 1)	2. 3	3. 19 (± 2)	4. 17	5. alkyne or acetylene	6. 0	7. S
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Section IIB p8	8.  1 pt	9. 
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Section IIC p9	10. 3	11. 8	12. 4	13. 14	14. F	15. F	16. T	17. F	18. T
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Section IIIA p10	1. Rubber	2. Nicotine	3. Aspirin	4. Morphine	5. Penicillin
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Section IVA page 11	1. 	2. 	3. 	4. 	5. 
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Section IVA page 12	6. 	7. 	8.  will accept the acid	9. CH ₃ CH ₂ OH	10. 
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Section IVB Page 13	11. SO ₃ H ₂ SO ₄	12. H ₂ O, heat	13. LiAlH ₄ will accept NaBH ₄	14. LiAlH ₄ will accept NaBH ₄	15. HCN or NaCN, H ⁺
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