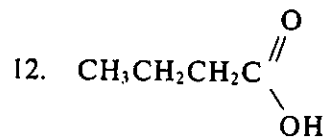
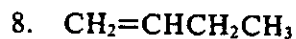
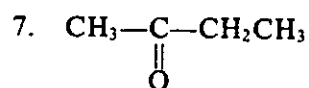
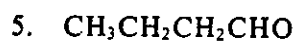
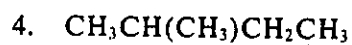
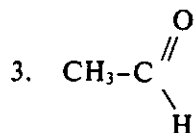
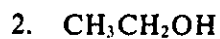


Organic Chemistry

I. Identify the structural group in each of the following compounds and tell which organic family the compound belongs to.



(continued)

13. $\text{CH}_3\text{C} \equiv \text{CH}$
14. $\text{CH}_2\text{NH}_2\text{CH}_2\text{CH}_3$
15. $\text{CH}_3\text{CCl}_2\text{CH}_3$

II. Write an expanded structural formula for each of the following compounds, and then name the compound.

1. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
2. $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
3. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3$
4. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}_3$
5. $\text{CH}_3\text{CH}(\text{CH}_3)\text{C}(\text{CH}_3)(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}_3$
6. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
7. $\text{CH}_3\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_3$
8. $\text{CH}_3\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3$
9. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}(\text{CH}_3)\text{CH}(\text{CH}_3)\text{CH}_3$

(continued)

10. $\text{CH}_3\text{CHBrCH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_3$
11. $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}(\text{CH}_3)\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_3$
12. $\text{CH}_3\text{CHClCCl}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3$
13. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)\text{C}(\text{CH}_3)(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}_3$
14. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHClCHClCH}_2\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_3$
15. $\text{CH}_2\text{ClCHBrCH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CHBrCH}_3$
16. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}(\text{n}-\text{C}_3\text{H}_7)\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CHClCH}_3$
17. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CHBrCH}_2\text{CH}_3$
18. $\text{CH}_2\text{ICH}_2\text{CH}_2\text{CHICH}_2\text{CHICH}_2\text{CH}_3$
19. $\text{CH}_3\text{CH}_2\text{CHFCH}_2\text{CH}(\text{CH}_3)\text{CHICH}_2\text{CH}_3$
20. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CHICH}_2\text{CH}_2\text{CH}_3$
21. $\text{CH}_2=\text{CH}_2$
22. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}=\text{CHCH}_2\text{CH}_3$

(continued)

23. $\text{CH}_3\text{CH}(\text{CH}_3)\text{C}(\text{CH}_3)=\text{CHCH}_2\text{CH}_3$
24. $\text{CH}_2=\text{CHCH}_2\text{CH}(\text{CH}_3)\text{CHClCH}_3$
25. $\text{CH}_3\text{CH}_2\text{CHBrCH}_2\text{CH}(\text{CH}_3)\text{CH}=\text{CHCH}_3$
26. $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CH}(\text{CH}_3)\text{CH}(\text{CH}_3)\text{CH}_3$
27. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}=\text{C}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}_2\text{Cl}$
28. $\text{CH}_3\text{CH}=\text{C}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{CHClCH}_2\text{Cl}$
29. $\text{CH}_3\text{CH}_2\text{CH}=\text{CHCH}_2\text{CHClCH}_2\text{CH}_3$
30. $\text{CH}_3\text{CH}=\text{CHC}(\text{CH}_3)_2\text{CH}_2\text{CHClC}(\text{CH}_3)_2\text{CH}_2\text{CH}_3$
31. $\text{CH}_3\text{CH}=\text{CHCH}_2\text{CCl}_2\text{CH}_2\text{CH}_2\text{Br}$
32. $\text{CH}_3\text{CH}_2\text{CH}=\text{C}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}_3$
33. $\text{CH}_3\text{CHBrCH}=\text{CBrCH}_2\text{CH}(\text{CH}_3)\text{CH}_3$
34. $\text{CH}_3\text{CH}_2\text{CH}=\text{C}(\text{CH}_3)\text{CHBrCH}_2\text{CH}_2\text{Br}$
35. $\text{CH}_3\text{CH}_2\text{CH}=\text{CHCHBrCH}_2\text{CHClCH}_2\text{Cl}$

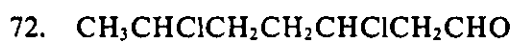
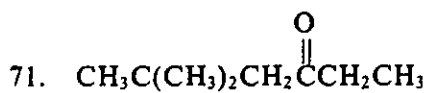
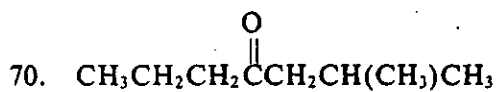
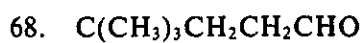
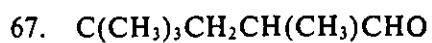
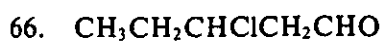
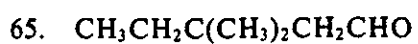
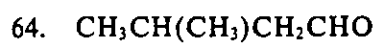
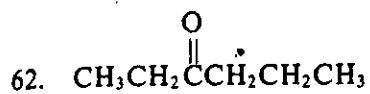
(continued)

36. $\text{CH}_3\text{C}\equiv\text{CH}$
37. $\text{CH}_3\text{C}\equiv\text{CCH}_3$
38. $\text{CH}_3\text{CH}_2\text{C}\equiv\text{CCH}_2\text{Br}$
39. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{C}\equiv\text{CCH}_3$
40. $\text{CH}_3\text{CH}_2\text{CH}_2\text{C}\equiv\text{CCH}(\text{CH}_3)\text{CHBrCH}_3$
41. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$
42. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
43. $\text{CH}_3\text{CHOHCH}_2\text{CH}_2\text{CH}_3$
44. $\text{CH}_3\text{CH}_2\text{CHOHCH}_3$
45. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHOHCH}_2\text{CH}_2\text{CH}_3$
46. $\text{CH}_3\text{CHOHCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
47. $\text{CH}_3\text{CH}_2\text{CHOHCHClCH}_3$
48. $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$

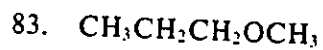
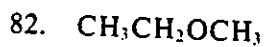
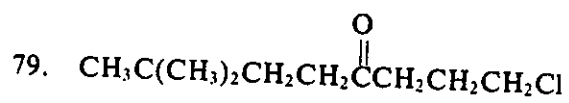
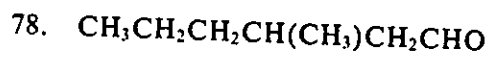
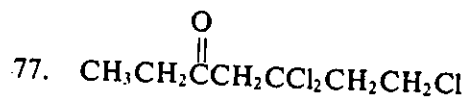
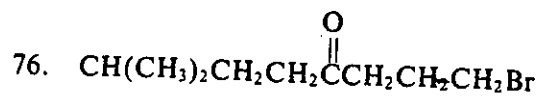
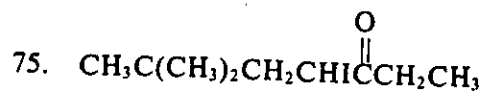
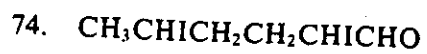
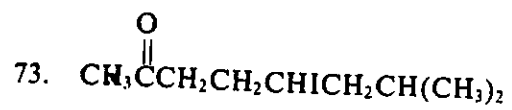
(continued)

49. $\text{CH}_3\text{CHOHCH}(\text{CH}_3)\text{CH}_2\text{CH}_3$
50. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}(\text{CH}_3)\text{CHOHCH}_3$
51. $\text{CH}_3\text{C}(\text{CH}_3)_2\text{CH}_2\text{CHOHCH}_2\text{CH}(\text{CH}_3)\text{CH}_3$
52. $\text{CH}_2\text{OHCH}_2\text{CH}_2\text{CHClCH}(\text{CH}_3)\text{CH}_3$
53. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CHOHCHClCH}_2\text{Cl}$
54. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHOHCH}(\text{CH}_3)\text{CH}(\text{CH}_3)\text{CH}_3$
55. $\text{CH}_2\text{ClCHOHCHClCH}_3$
56. $\text{CH}_3\text{CHOHCH}_2\text{CH}_2\text{C}(\text{C}_2\text{H}_5)_2\text{CH}_2\text{CH}_3$
57. $\text{CH}_3\text{CHOHCH}_2\text{CHClCH}_2\text{CHBrCH}_2\text{Cl}$
58. $\text{CH}_2\text{OHCH}(\text{CH}_3)\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{CH}_2\text{CH}_3$
59. $\text{CH}_2\text{OHCH}_2\text{CH}_2\text{CH}_2\text{OH}$
60. $\text{CH}_3\text{CH}_2\text{CHOHCH}_2\text{CH}_2\text{CH}_2\text{OH}$
61. CH_3CHO

(continued)



(continued)



(continued)

84. $\text{CH}_3\text{OCH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$
85. $\text{CH}_3\text{CH}_2\text{OC}(\text{CH}_3)_3$
86. $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$
87. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{COOH}$
88. $\text{CH}_3\text{CH}_2\text{C}(\text{CH}_3)_2\text{COOH}$
89. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{COOH}$
90. $\text{HOOCCH}_2\text{CH}_2\text{COOH}$
91. $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}_2\text{COOH}$
92. $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{CH}(\text{CH}_3)\text{COOH}$
93. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHClCH}_2\text{COOH}$
94. $\text{CH}_3\text{CH}_2\text{CHFCH}_2\text{CH}_2\text{COOH}$
95. $\text{CH}_3\text{CH}_2\text{CHNH}_2\text{COOH}$
96. $\text{CH}_3\text{CH}_2\text{CHBrCOOH}$

(contin

97. $\text{CH}_3\text{CHBrCH}_2\text{CHBrCOOH}$
98. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHNH}_2\text{COOH}$
99. $\text{CH}_3\text{CHOHCH}_2\text{COOH}$
100. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CHOHCOOH}$

III. Draw structural formulas for each of the following compounds.

1. n-butane
2. 2-chloropentane
3. 3-methylhexane
4. n-heptane
5. 2, 2, 4-trimethylheptane
6. 4-chloro-2, 3-dimethyloctane
7. 1, 2, 4-trichloropentane
8. 2, 3, 4-trimethylhexane

(continued)

9. 2, 3, 3-trimethylheptane
10. 4-bromo-4-chloro-2-methyldecane
11. 2, 3-dimethyl-3-hexene
12. 2-chloro-1-pentene
13. 3-octene
14. 4-ethyl-2, 3-dimethyl-3-nonene
15. 2, 2, 3, 5-tetramethyl-3-octene
16. 1, 4, 5-tribromo-2, 2-dichloro-3-heptene
17. 3-chloro-2, 3-difluoro-1-butene
18. 1, 3-butadiene
19. ethanol
20. 2-propanol
21. 2-pentanol

22. 3, 3-dimethyl-2-hexanol
23. 1, 2, 3-trichloro-1-butanol
24. 3-ethyl-2, 2-dimethyl-1-hexanol
25. 2, 4, 4-trimethyl-2-heptanol
26. 2-bromo-1, 3, 6, 7-tetrachloro-4, 4-dimethyl-1-decanol
27. 1, 3-butanediol
28. 2, 2-dibromo-3, 4-dimethyl-3-hexanol
29. 1, 4-difluoro-2, 2, 3-trimethyl-3-heptanol
30. 3-ethyl-2, 4-diiodo-2, 4, 5-trimethyl-1-nonanol
31. heptanal
32. butyraldehyde
33. methylpropyl ketone
34. diethyl ketone

(continued)

35. 4-nonanone
36. 3-ethyl-2-methylhexanal
37. 3-bromo-2, 2-dichlorobutanal
38. 2-chloro-2, 4-dimethyl-3-hexanone
39. methanal
40. 2, 3, 3-trimethylpentanal
41. 2, 4, 4-trimethyl-3-heptanone
42. 4-chloro-4-iodo-3, 3-dimethyl-2-pentanone
43. 2, 3-dibromo-4, 6, 7-trichlorodecanal
44. 5, 7-diethyl-2, 3, 5-trimethyl-4-nonanone
45. butanoic acid
46. 1, 5-pentanedioic acid
47. α -aminopropionic acid

48. 2, 3-dichlorobutanoic acid
49. 3, 3-dimethylhexanoic acid
50. γ -hydroxyvaleric acid
51. 2, 3, 4-tribromodecanoic acid
52. 4, 4, 5-triiodo-2-methylhexanoic acid
53. α -hydroxybutanoic acid
54. 1, 4-butanedioic acid
55. β -hydroxyvaleric acid
56. 4-chloro-2, 3-dimethylhexanoic acid
57. 3, 4-dibromo-2, 5, 7-trichlorodecanoic acid
58. 2, 2-diaminobutanoic acid
59. 5, 6-dichlorooctanoic acid
60. 2, 4-dihydroxypentanoic acid