

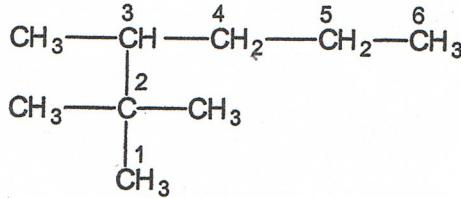
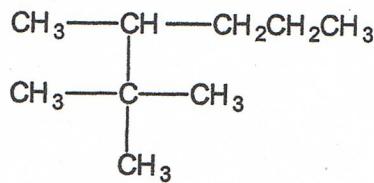
Ch. 22 (23, 27, 29, 31, 33)

23. i. $\text{CH}_3\text{---CH}_2\text{---CH}_2\text{---CH}_2\text{---CH}_2\text{---CH}_3$
- ii. $\begin{array}{ccccccc} & & \text{CH}_3 & & & & \\ & & | & & & & \\ \text{CH}_3 & \text{---} & \text{CH} & \text{---} & \text{CH}_2 & \text{---} & \text{CH}_2 \text{---} \text{CH}_3 \end{array}$
- iii. $\begin{array}{ccccc} & \text{CH}_3 & & & \\ & | & & & \\ \text{CH}_3 & \text{---} & \text{CH}_2 & \text{---} & \text{CH} \text{---} \text{CH}_2 \text{---} \text{CH}_3 \end{array}$
- iv. $\begin{array}{ccccc} & \text{CH}_3 & & & \\ & | & & & \\ \text{CH}_3 & \text{---} & \text{C} & \text{---} & \text{CH}_2 \text{---} \text{CH}_3 \\ & | & & & \\ & \text{CH}_3 & & & \end{array}$
- v. $\begin{array}{ccccc} & \text{CH}_3 & & \text{CH}_3 & \\ & | & & | & \\ \text{CH}_3 & \text{---} & \text{CH} & \text{---} & \text{CH} \text{---} \text{CH}_3 \end{array}$

All other possibilities are identical to one of these five compounds.

27. a. $\begin{array}{ccccc} & \text{CH}_3 & & & \\ & | & & & \\ \text{CH}_3 & \text{---} & \text{CH} & \text{---} & \text{CH}_2 \text{---} \text{CH}_2\text{CH}_3 \\ & | & & & \\ & \text{CH}_3 & & & \end{array}$
- b. $\begin{array}{ccccc} & \text{CH}_3 & & & \\ & | & & & \\ \text{CH}_3 & \text{---} & \text{C} & \text{---} & \text{CH}_2 \text{---} \text{CH} \text{---} \text{CH}_3 \\ & | & & & \\ & \text{CH}_3 & & & \end{array}$

- c. d. The longest chain is 6 carbons long.



2,2,3-trimethylhexane

29. a. 2,2,4-trimethylhexane b. 5-methylnonane c. 2,2,4,4-tetramethylpentane
d. 3-ethyl-3-methyloctane

Note: For alkanes, always identify the longest carbon chain for the base name first, then number the carbons to give the lowest overall numbers for the substituent groups.

31. a. 1-butene b. 4-methyl-2-hexene c. 2,5-dimethyl-3-heptene

Note: The multiple bond is assigned the lowest number possible.

33. a. $\text{CH}_3\text{---CH}_2\text{---CH=CH---CH}_2\text{---CH}_3$ b. $\text{CH}_3\text{---CH=CH---CH=CH---CH---CH}_2\text{CH}_3$
c. $\begin{array}{ccccc} & \text{CH}_3 & & & \\ & | & & & \\ \text{CH}_3 & \text{---} & \text{CH} & \text{---} & \text{CH=CH---CH}_2\text{CH}_2\text{CH}_2\text{CH}_3 \end{array}$