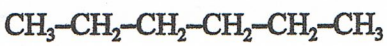
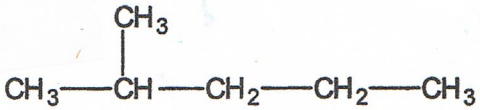
Ch. 22 (23, 27, 29, 31, 33)

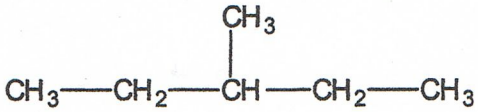
23. i.



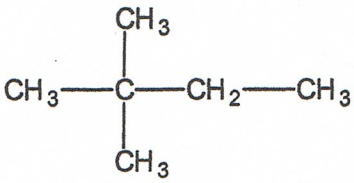
ii.



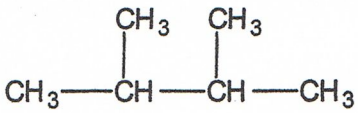
iii.



iv.

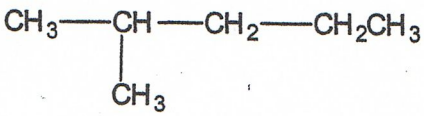


v.

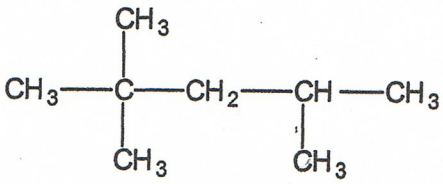


All other possibilities are identical to one of these five compounds.

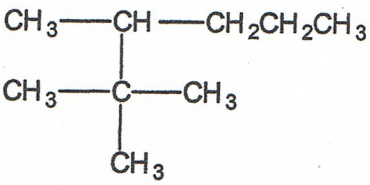
27. a.



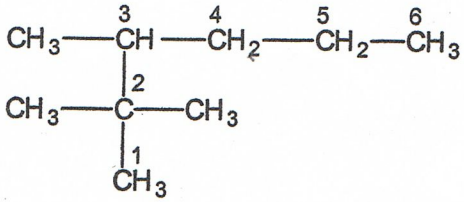
b.



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. $CH_3–CH_2–CH=CH–CH_2–CH_3$ b. $CH_3–CH=CH–CH=CH–CH_2CH_3$

c.