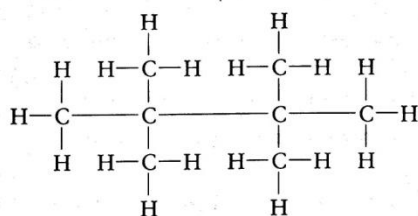


Chapter 15

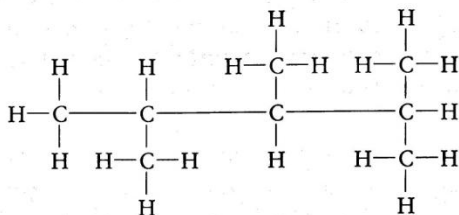
End-of-Chapter Questions

1. Explain the difference between structural formulas and condensed formulas.
2. Explain the comparative advantages and disadvantages of space-filling models and ball-and-stick models.
3. What are the bond angles around a carbon atom having four single bonds?
4. What are the bond angles around a carbon atom having two single bonds and one double bond?
5. Which is the only class of hydrocarbon for which geometric isomerism is possible?
6. What is the generic formula of an alkane?
7. Write the condensed formula corresponding to each of the following structural formulas:

(a)



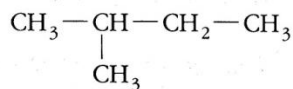
(b)



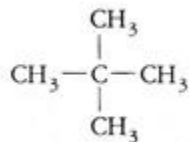
8. Draw the structural formula corresponding to each of the following condensed formulas:
- (a)



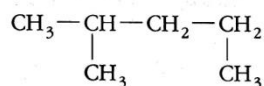
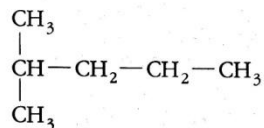
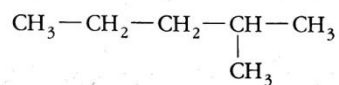
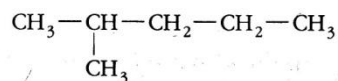
(b)



(c)

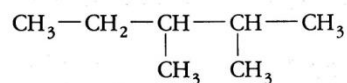


9. How many different isomers of C_6H_{14} are shown in the following condensed formulas?

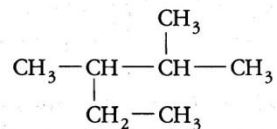


10. Which one of the condensed formulas shown below represents a different compound to the others?

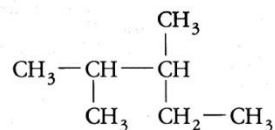
(a)



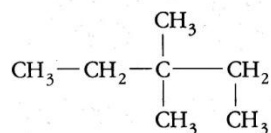
(b)



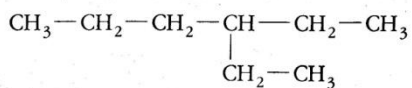
(c)



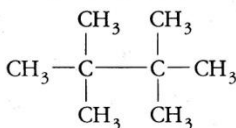
(d)



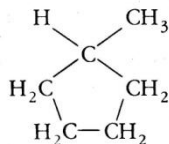
11. Provide the name of the alkane shown in the following condensed formula:



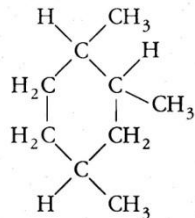
12. Provide the name of the alkane shown in the following condensed formula:



13. Draw the condensed formula for 3-ethylheptane.
14. Draw the condensed formula for 2,2,3,4,4-pentamethylpentane.
15. Provide the name of the *cyclo*-alkane shown in the following condensed formula:



16. Provide the name of the *cyclo*-alkane shown in the following condensed formula:



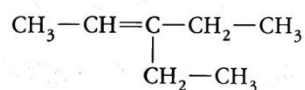
17. Draw the condensed formula for 2,4-dimethyl-3-heptene.
18. Draw the condensed formula for 2,3-dimethyl-2-pentene.

19. Are there geometric isomers of 2,4-dimethyl-3-heptene?

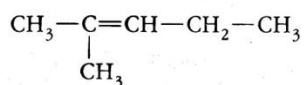
20. Are there geometric isomers of 2,3-dimethyl-2-pentene?

21. Provide the name of the alkene shown in each of the following condensed formulas:

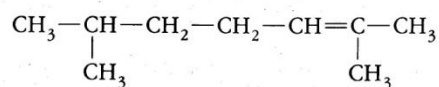
(a)



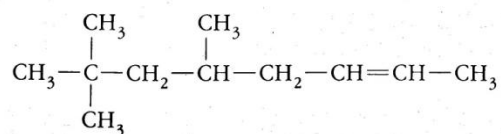
(b)



(c)

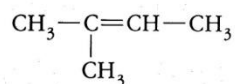


(d)

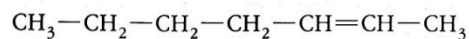


22. Provide the name of the alkene shown in each of the following condensed formulas:

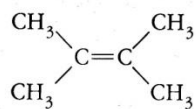
(a)



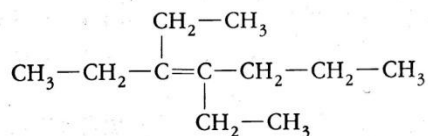
(b)



(c)



(d)

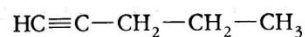


23. Draw the condensed formula of each of the three alkenes having the molecular formula C_4H_8 and name each one.

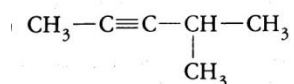
24. Draw the condensed formula of each of the two molecules other than alkenes having the molecular formula C_4H_8 and name each one.

25. Provide the name of each of the alkynes shown in the following condensed formulas:

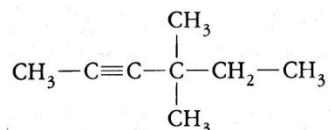
(a)



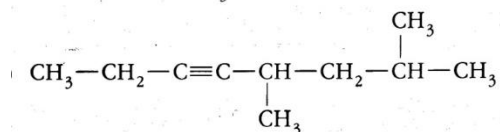
(b)



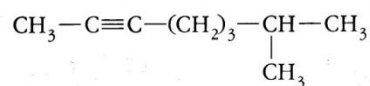
(c)



(d)

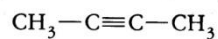


(e)

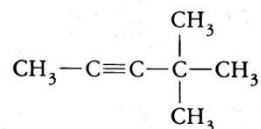


26. Provide the name of each of the alkynes shown in the following condensed formulas:

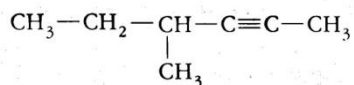
(a)



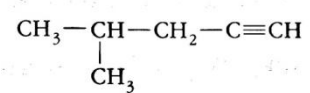
(b)



(c)



(d)



(e)

