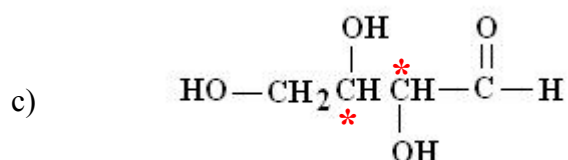
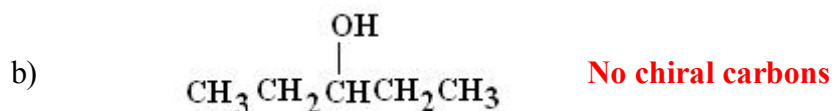
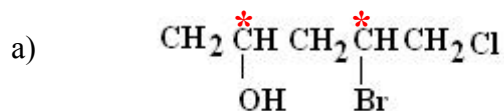


REVIEW QUESTIONS

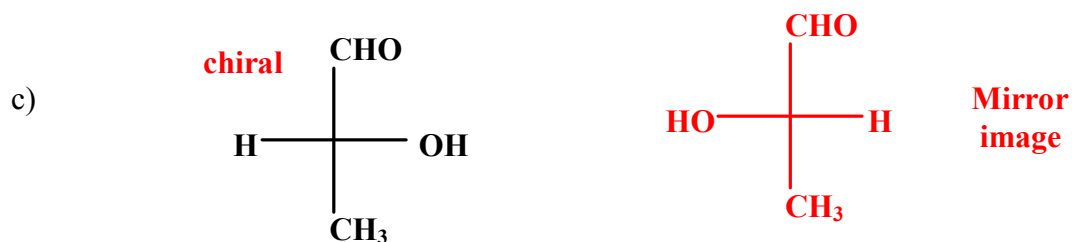
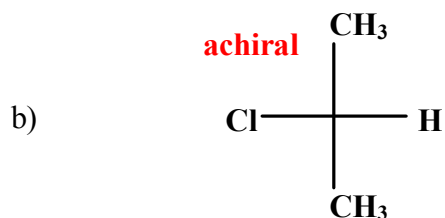
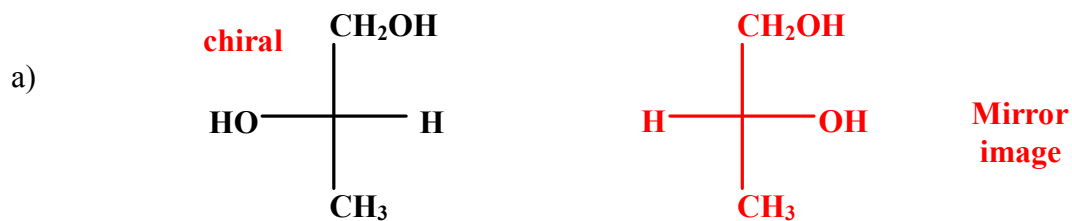
Chapter 26

1. Identify any chiral carbon(s) in each compound shown below:

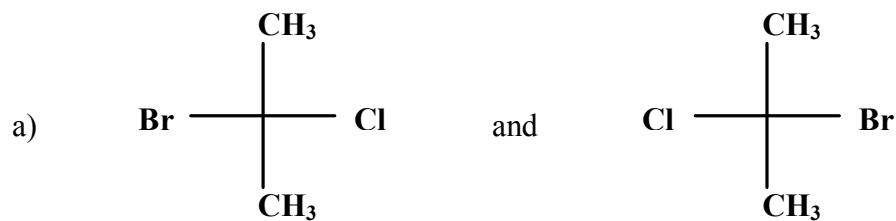
Chiral carbons have 4 different groups attached to them, and are indicated by an asterisk (*)



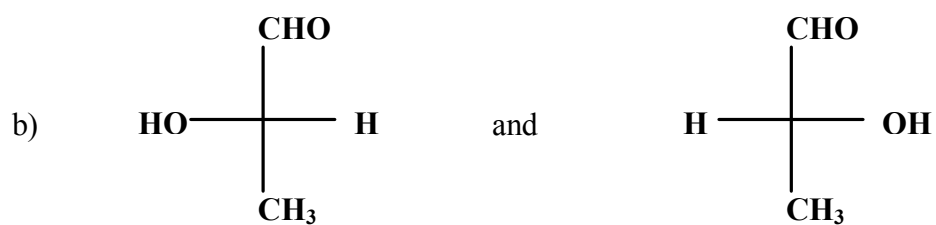
2. Determine if each of the Fisher projections shown below is a chiral compound. If so, draw the mirror image.



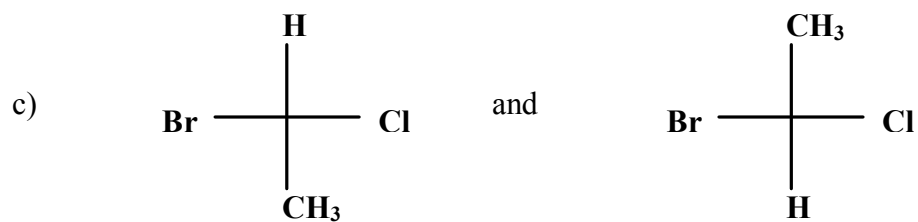
3. Indicate whether each pair of Fisher projections represent enantiomers or identical structures:



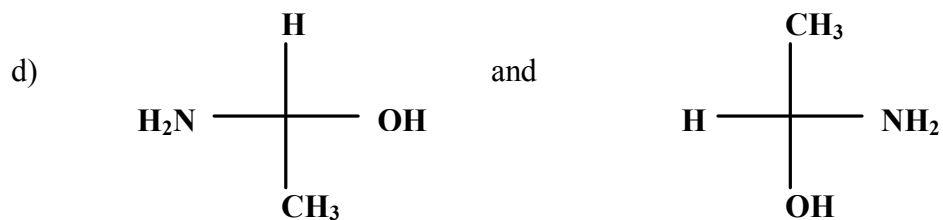
Identical molecules since they are achiral



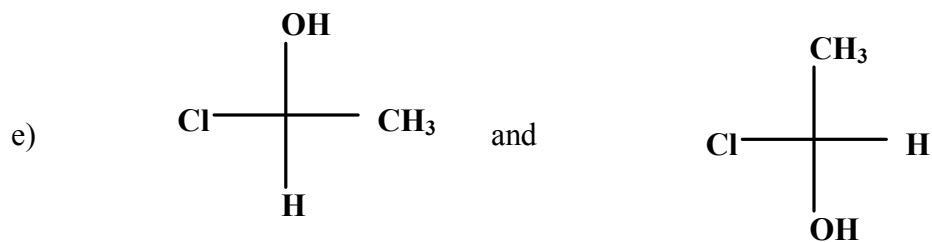
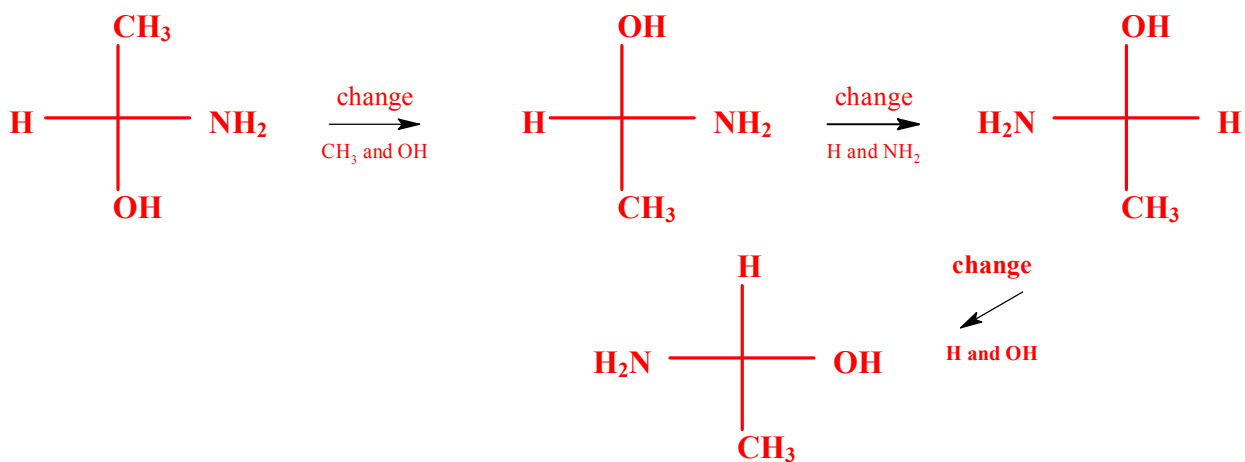
Enantiomers since they are chiral and require one change (H and OH) to interconvert



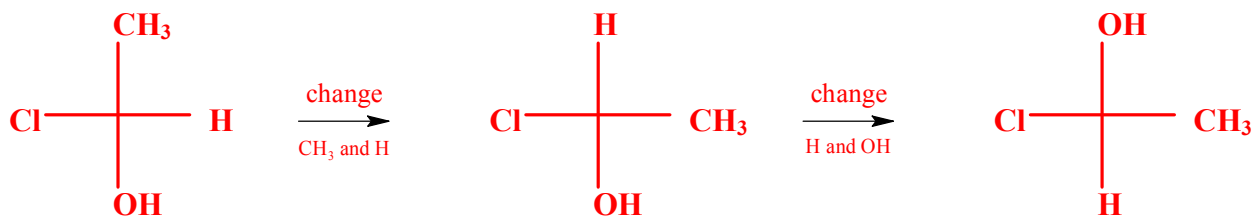
Enantiomers since they are chiral and require one change (H and CH₃) to interconvert



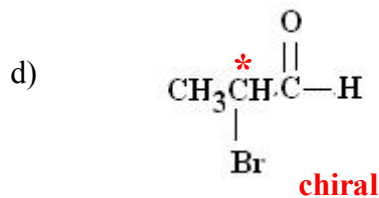
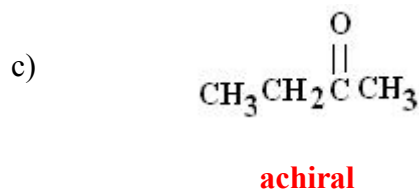
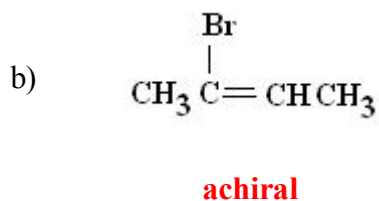
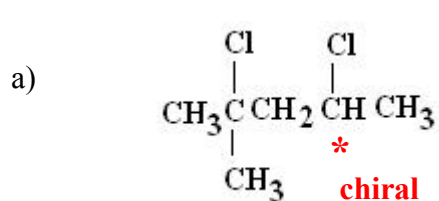
Enantiomers since they are chiral and require 3 change to interconvert



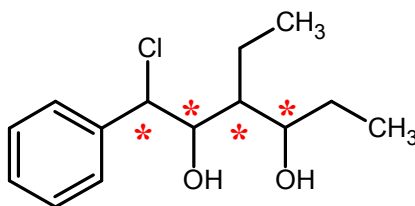
Identical molecules since they are chiral and require 2 change to interconvert



4. Identify each compound below as chiral or achiral. If chiral, indicate the chiral carbon. (**Chiral carbons are indicated with an asterisk**)

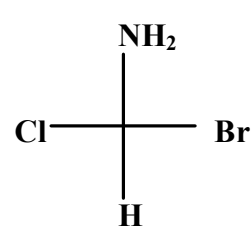
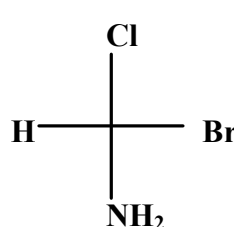
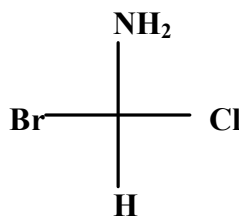
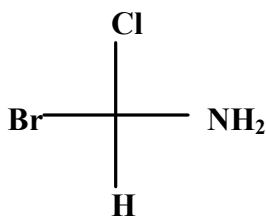


5. How many chiral carbons does the compound shown below possess? How many stereoisomers can this compound have?



Four chiral carbons present (marked by asterisks)
Total number of stereoisomers = 16 (2⁴)

6. Three of the structures shown below are the same compound. The other is the enantiomer. Which is the enantiomer?



(a)

(b)

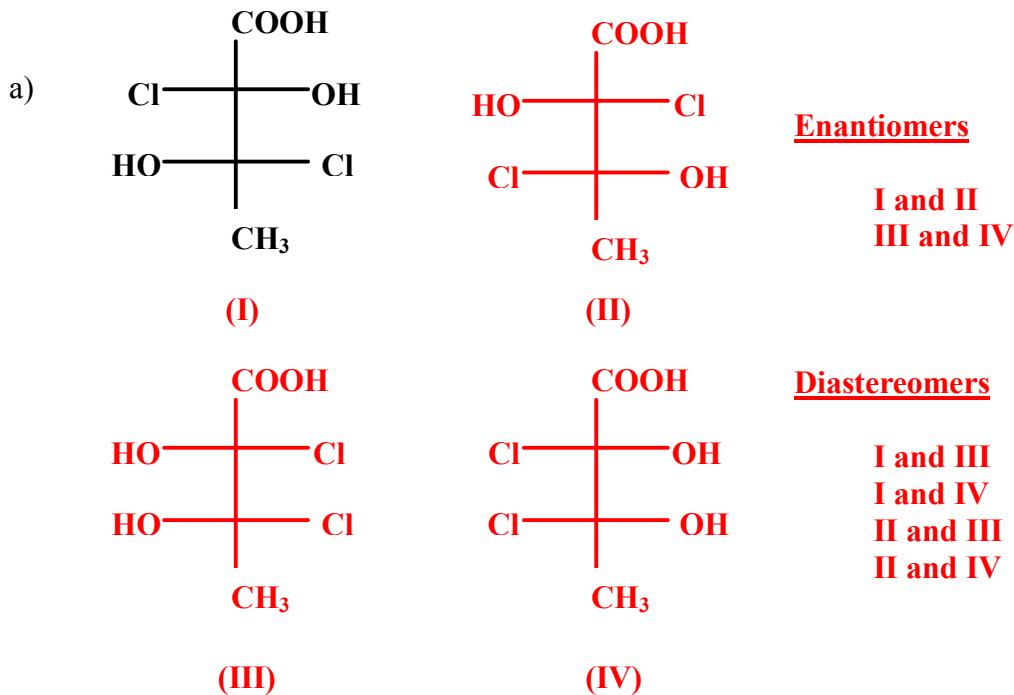
(c)

(d)

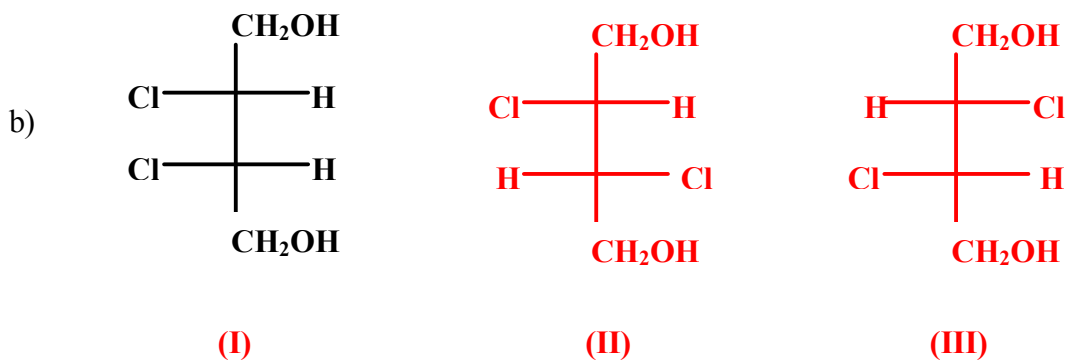
Structure (b) is the enantiomer, since it requires one change (Cl and NH₂) to interconvert to (a). Structures (c) and (d) are identical to (a) since each require 2 changes to interconvert.

7. Draw all the stereoisomers possible for the structures below. Identify enantiomer pairs, diastereomer pairs and meso compounds.

Since the molecule has 2 chiral carbons, there are 4 stereoisomers possible.



Since the molecule has 2 chiral carbons, there are 4 stereoisomers possible. However, due to the symmetry of the molecule one of the structures is meso.



Enantiomers: II and III

Diastereomers: I and II
I and III

Meso Compound: I