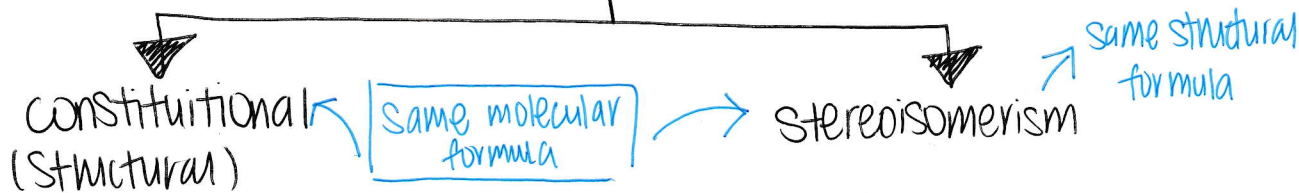


Chapter 12: Isomerism



① Chain isomerism

- same functional group
- differs in how the carbons are joined together

② Position isomerism

- same functional group
- differs in the position of the functional group

③ Functional group isomerism

- different functional group

② Enantiomerism

Criteria

- no multiple bonds
- must be bonded to 4 different groups

* a chiral carbon and its non-superimposable mirror image form a pair of enantiomers
→ mirror image which does not overlap

⇒ no line of symmetry

chiral molecules are optically active,

non-chiral molecules are not

rotate the plane of polarised light

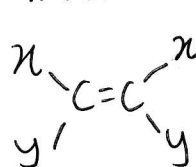
Properties

1. identical chemical properties except towards chiral reagents
2. identical physical properties except for direction of polarised light

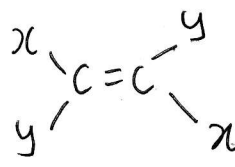
① Cis-trans isomerism

Criteria

- must have C=C bond



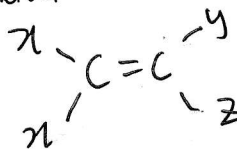
cis



trans

⇒ restricted rotation about C=C bond prevents spontaneous inter-conversion of one isomer into the other.

- cannot have 2 identical groups bonded to either alkene carbon



Properties

1. Similar chemical properties

↳ different rates (for example)

2. different physical properties

↳ cis-isomer has higher boiling point than trans-isomer

- higher dipole moment

↳ cis-isomer has lower melting point than trans-isomer

- pack less closely together