

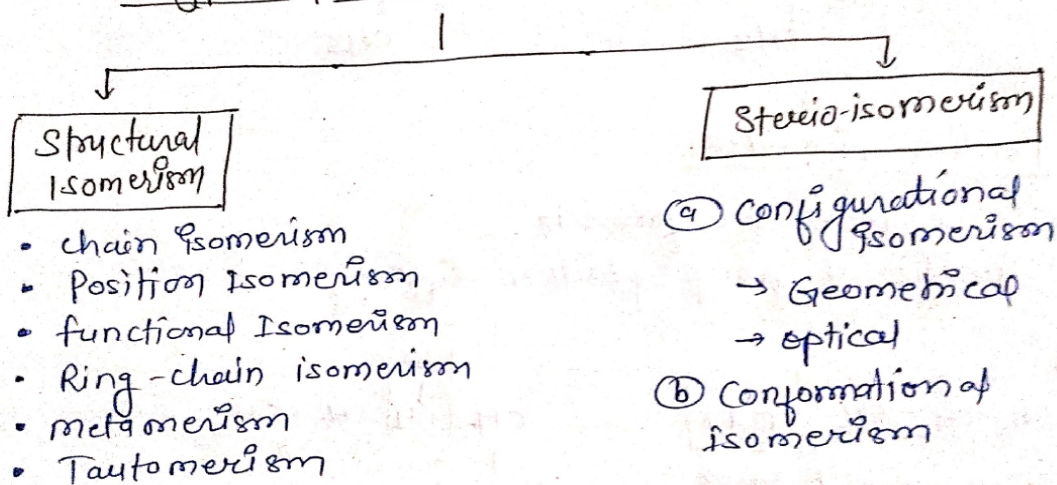
Q.2 Write in detail about structural Isomerism. (15)

ISOMERISM

ISOMERS: Compounds having same molecular formula but differ in their physical & chemical property.

→ This phenomenon is also Isomerism.

Types of Isomerism



→ STRUCTURAL ISOMERISM

→ when isomerism is due to difference in arrangement of atoms in molecule or we can say,

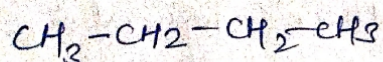
compounds having same molecular formula but different in structural formula.

① Chain isomerism

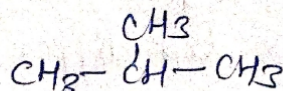
→ Same molecular formula but the order in which carbon atoms are bonded to each other

example:

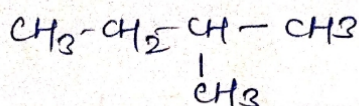
(i) n-Butane



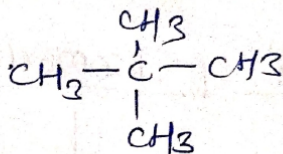
(ii) isobutane



(2) 2-methylbutane



2,2-dimethylpropane

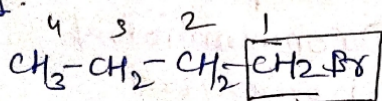


(2) Position Isomerism

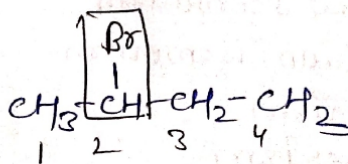
→ same molecular formula,

→ functional group position differs.

eg.

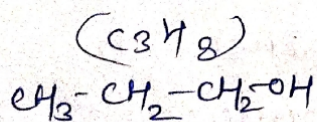


1-bromo butane

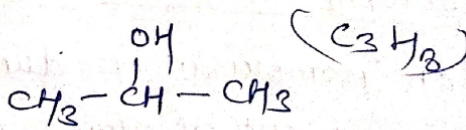


2-bromo butane

eg.

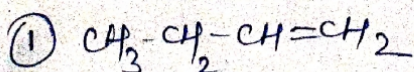


(n-propyl alcohol)

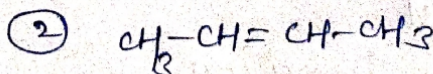


(iso-propyl alcohol)

BONDS



(1-butene)

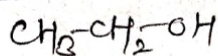


(2-butene)

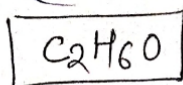
③ functional Isomerism

- same molecular formula.
- Different in functional group.

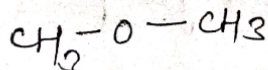
e.g.



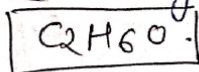
(Ethanol)



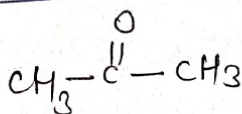
mol. formula



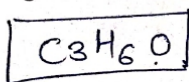
(Dimethyl ether)



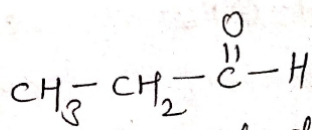
e.g.



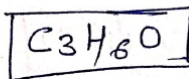
(Acetone)



molecular formula



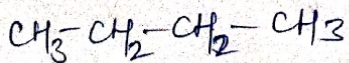
(Propionaldehyde)



④ RING CHAIN ISOMERISM

- same molecular formula.
- They have different mode of c-c linkage.
like (ring/chain)

e.g.



(butane)

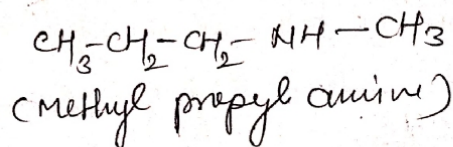
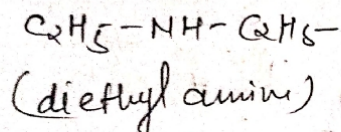
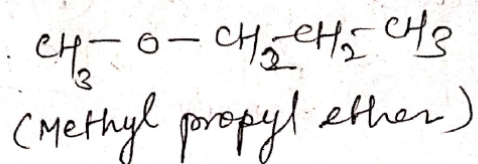
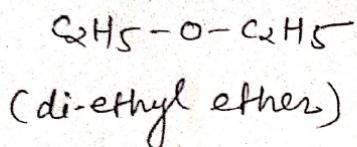


(cyclobutane)

⑤ METAMERISM

- same molecular formula.
- same functional group.
- But unequal distribution of 'C' on both side of functional group.

e.g.



⑥ Tautomerism

- same molecular formula
- Exist in two different interconvertible structure (dynamic equilibrium).

e.g.

