

STEREOCHEMISTRY

1.

Degree-II (H), Paper -IV, Lecture-8

31-07-2020

Optical Isomerism Continue..

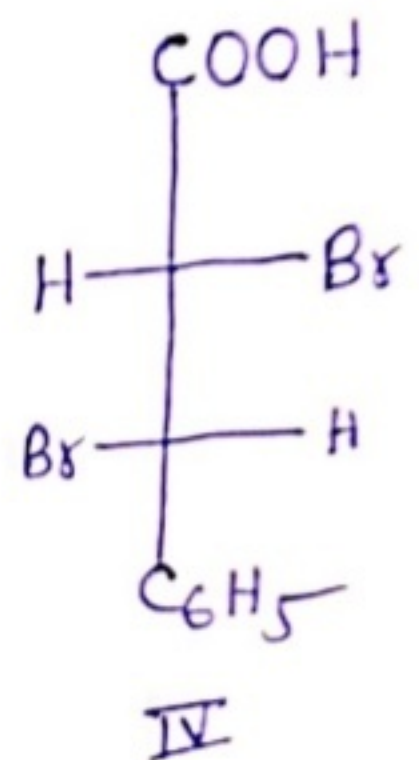
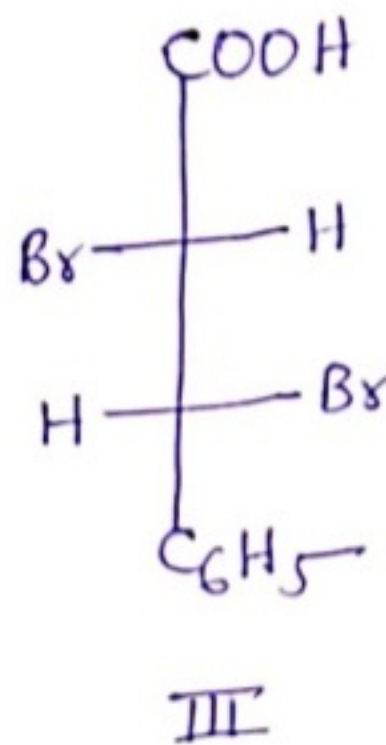
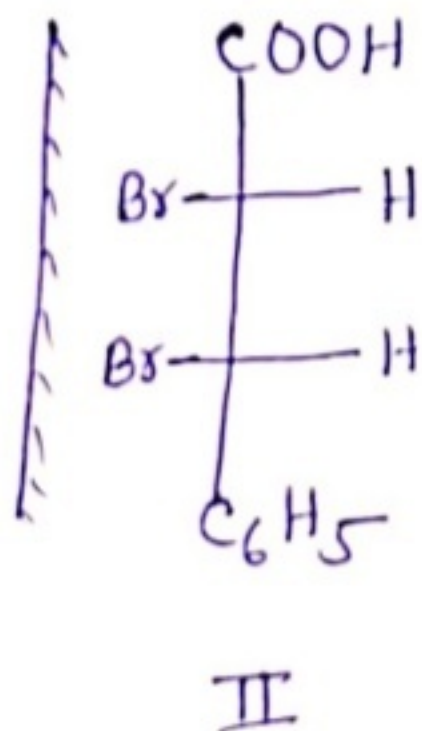
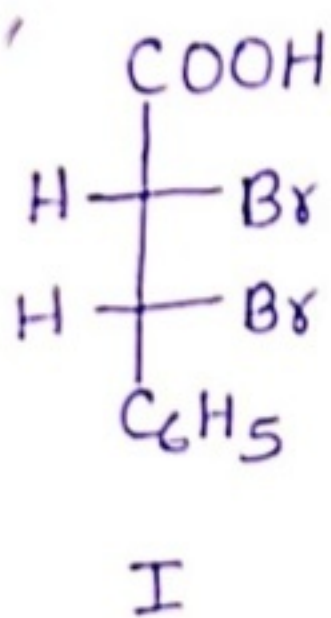
Compounds Containing two or more dissimilar

Chiral carbon atoms :-

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* The no. of optical isomers = $2^2 = 4$

eg;



Two enantiomers

Two enantiomers

Structure I & II are mirror image of each other

Hence, they are enantiomers. Similarly III & IV are enantiomers.

But, the structure I & III are not identical because they resemble in configuration around one chiral carbon atom and at the same time differ around another.

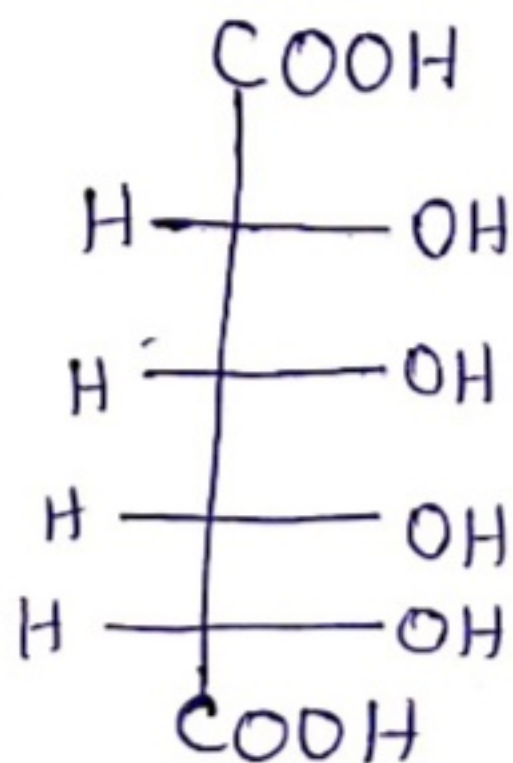
- * The stereoisomers, which are not mirror images (enantiomers) of each other are known as diastereomers
- * Other diastereoisomers are I and IV, II and III and II & IV.

Characteristics of Diastereomers

- * Diastereomers have different physical properties, such as m.p, b.p, densities, solubilities, etc.
- * Diastereomers other than geometrical isomers may or may not be optically active.
- * Diastereomers show similar, but not identical chemical properties.
- * Diastereomers can be separated from one another through techniques like fractional crystallisation, fractional distillation, chromatography etc.

Compounds Containing Four Chiral Carbon Atoms, Two of Which are same :-

eg;



The compound exists in ten stereoisomeric forms, out of which eight are optically active and two are meso forms.

To be continued in next lecture...

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