Answer on Question#41707-Chemistry-Organic Chemistry

Question

Which has no conformational isomers?

(1) CH_3OH

(2) CH_3CHO

(3) $CH_2 = CH–Cl$

(4) $CH_3–NH_2$

Answer

Conformational isomerism is a form of stereoisomerism in which the isomers can be interconverted exclusively by rotations about formally single bonds. Such isomers are generally referred to as conformational isomers or rotamers. Rotation is possible around single bonds only and not possible around double bonds.

So, the correct answer is

(3) $CH_2 = CH–Cl$ has no conformational isomers.

All other listed substances have single bonds (C – O (1) and C – C (2 and 4)), rotation around which give rise conformational isomerism. Rotation around C = C bond of $CH_2 = CH–Cl$ is not possible, that is why it has no conformational isomers.