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Department: Pharmacy — Matric No: 19/MHS 11/101
Course: CHM 102

Stereochemistry and Functional Group

(i). $CH_2=C(OH)HCHO$

functional group present are;

(a) Alkene group ⇒ $\overset{\backslash}{\underset{/}{C}}=\overset{/}{\underset{\backslash}{C}}$

(b) Alkanol (Hydroxyl) group ⇒ $-OH$

(c) Alkanal (Aldehydes) group ⇒ $-CHO$

(ii). $C_6H_5CH(NH_2)COCH_3$

functional group present are;

(a) Phenyl group ⇒ 

(b) Amine group ⇒ $-NH_2$

(c) Alkenone (ketone) group ⇒ $-\overset{\overset{O}{\|}}{C}-R$ or $-COR$

(iii). $CH_3C=CHCH(OH)CHO$

functional group present are;

(a) Alkene group ⇒ $\overset{\backslash}{\underset{/}{C}}=\overset{/}{\underset{\backslash}{C}}$

(b) Alkanol (Hydroxyl) group ⇒ $-OH$

(c) Alkanal (Aldehyde) group ⇒ $-CHO$

2. Recall;

$$[\alpha]_\lambda^T = \frac{\alpha}{cxl}$$

where, α = observed rotation

c = concentration of tartaric acid

l = length of sample tube

$m = 0.856g$; $v = 10cm^3$; $\alpha = +1.0^\circ$; $l = 1dm$

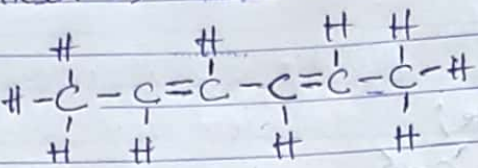
$c = \frac{\text{mass}}{\text{volume}}\left(\frac{g}{cm^3}\right) = \left(\frac{0.856}{10}\right) = 0.0856 g/cm^3$

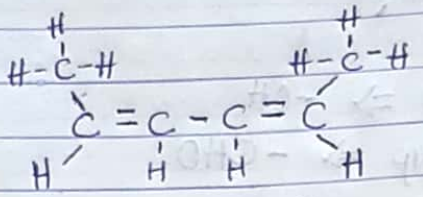
$\therefore [\alpha]_\lambda^T = \frac{+1.0}{0.0856 \times 1} = \frac{+1.0}{0.0856} \Rightarrow 11.68^\circ$

$\therefore$ Specific rotation $= \underline{\underline{11.68^\circ}}$

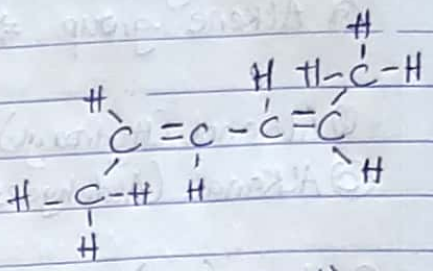
3. Geometric isomers

(i). Hexa-2,4-diene



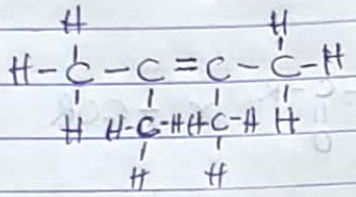


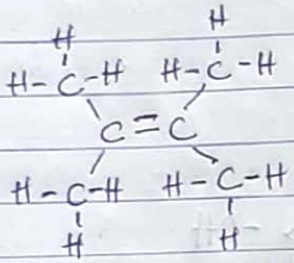
cis-Hexa-2,4-diene



trans-Hex-2,4-diene

(ii). 2,3-Dimethylbut-2-ene





No geometric isomer