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MBBS

100Level 19/MHS01/418

CHM 102

Assignment: Stereochemistry and Functional group.

1 Name the functional groups present in each of the following

i $CH_2 \equiv C(OH)HCHO$

=> Groups present

- Aldehyde group (formaldehyde) (CH_2O)
- Alkanol group ($-OH$) / Hydroxyl group
- Alkene group ($C=C$)

ii $C_6H_5CH(NH_2)COCH_3$

=> Groups Present

- Amine group ($-NH_2$)
- Ketone group ($C(=O)CH_3$)
- Phenol group (C_6H_5)

iii $CH_3C=CHCH(OH)CHO$

- Alkene group ($C=C$)
- Alkanal group ($-C(=O)H$) Aldehyde ~~grou~~

2 A 0.856g sample of pure (2R, 3R) - tartaric acid was di... to 10cm³ with water placed in a 1.0dm polarimeter tube. The rotation at 20°C was +1°C. Calculate the Specific rotation of (2R, 3R) tartaric acid.

Soln

Specific rotation = Observed rotation / (conc. in g/cm³) (path length in cell ...

$$[\alpha] = \frac{\alpha}{C \times L}$$

Observed rotation = $+1.0^{\circ}$

$C = \frac{0.856\,g}{10\,cm^3}$

$= 0.0856\,g/cm^3$

$l = 1\,dm$

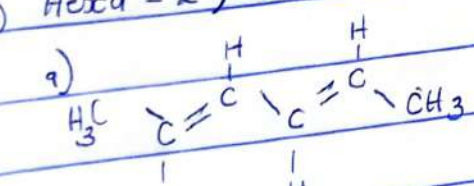
Specific rotation = $\frac{+1.0^{\circ}}{0.0856\,g/cm^3 \times 1\,dm}$

Specific rotation = $11.68\,g^{-1}cm^3dm^{-1}$

3 Draw the possible geometric isomers for the following compound

1) Hexa-2,4-diene

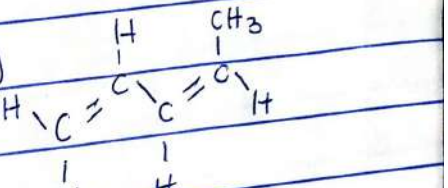
a)



(2E,4E)-hexa-2,4-diene

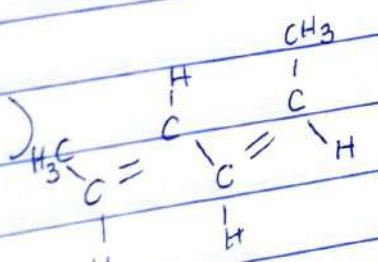
(cis,cis)-hexa-2,4-diene

b)



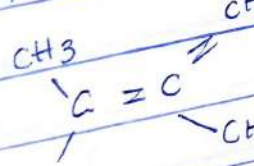
(2Z,4Z) hexa-2,4-diene

c)



(2Z,4E)-hexa-2,4-diene

2) 2,3-Dimethylbut-2-ene



no geometric isomers.