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Course Code: Chm 102.

1 Name the functional groups present in each of the following molecules:

(i) $CH_2 = C(OH)HCHO$: Alkene (double bond), OH (hydroxyl), $\overset{O}{C}_H$ (alkanal).

(ii) $C_6H_5CH(NH_2)COCH_3$: Phenyl group, Amine, Alkanone.

(iii) $CH_3C=CHCH(OH)CHO$: Alkene, hydroxyl group, alkanal.

(3) Draw the possible geometric isomers for each of the following

$[\alpha]_\lambda^T = \frac{\alpha_\lambda^T}{c \cdot l}$ ✱ c = conc in g/cm³

where l = optical path length in dm

λ = wavelength, T = temperature

[α] = specific rotation, α = optical rotation

Parameters given:

m = 0.8568 g, V = 10 cm³, [α] = ?, l = 1.0 dm, T = 25°C

α = 1.0° $C = \frac{\text{mass (g)}}{\text{Volume (cm}^3\text{)}} = \frac{0.8568}{10} = 0.08568\ g/cm^3$

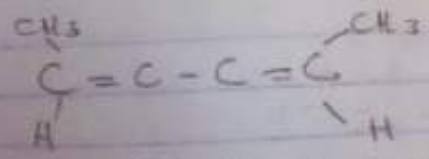
Inserting values into $[\alpha] = \frac{\alpha}{cl}$

$[\alpha] = \frac{1.0}{0.08568(1.0)}$

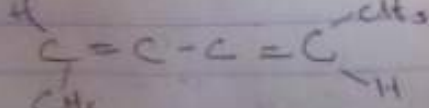
$= 11.68°$

Draw the possible geometric isomers for each of the following compounds

Hexa-2,4-diene

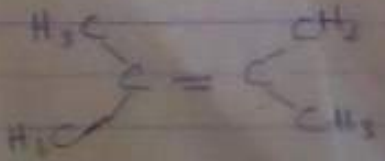


Cis Hexa-2,4-diene

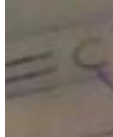


Trans Hexa-2,4 diene

(a) 2,3 dimethyl but-2-ene



Both Cis and trans are same



Trans - but-2-ene