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MBBS CHEM 102 191mhs011016

1. Name the functional group present in each of the following molecules

(i) $CH_2=C(OH)HCHO$ - [double bond (=), hydroxyl group (-OH) and carbonyl group (-C=O)]

(ii) $(C_6H_5CH(NH_2)COCH_3$ - [Amino groups ($-NH_2$) and carbonyl group (-C=O)]

(iii) $CH_3C=CH(CH(OH)CHO$ - [double bond (=), hydroxyl group (-OH) and carbonyl group (-C=O)]

2. A 0·856g sample of pure (2R, 3R)- tartaric acid was diluted to 10 cm^3 with water and placed in a 1·0dm polarimeter tube. The observed rotation of 20°C was +1·0°. Calculate the specific rotation of (2R, 3R) tartaric acid.

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

where $[\alpha]_\lambda^T$ = Specific rotation in degrees

α = observed rotation in degrees

L = Cell path length in decimeters

C = Concentration in g/ml

∴ Concencentration in g/ml

If 0856g is 10ml of solution

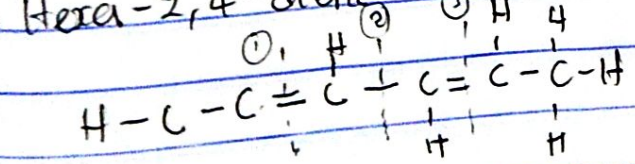
0·0856g will give in 1ml

$\therefore [\alpha]_\lambda^{20°C} = \frac{+1·0}{1·0 \times 0856}$

$[\alpha]_\lambda^{20°C} = +11·68°$

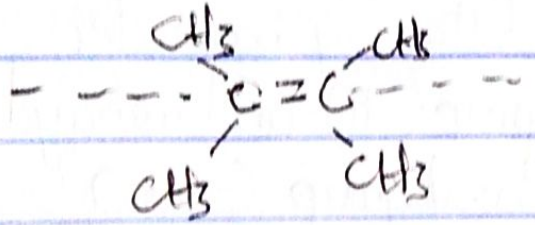
(3) Draw the possible geometric isomers (where possible) for each of the following compounds

(i) Hexa-2,4-diene



Hexan-2,4-diene cannot undergo geometric isomerism because division of ① and ③ will not yield a symmetric compound and the division at ② is not at the double bond.

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



2,3-dimethylbut-2-ene will not undergo geometric isomerisms because the different spatial arrangement will yield the same groups ($-CH_3$) on either half.