

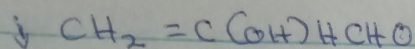
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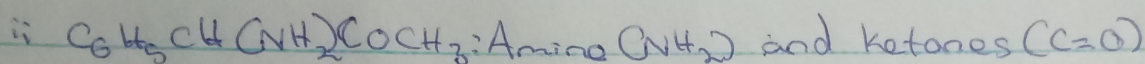
Elect/Elect

CHM102

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



Hydroxyl group or alcohol (OH) and aldehyde, alcohol (OH) or alkene (double bond)



iii) $\text{CH}_3\text{C}=\text{CHCH}(\text{OH})\text{CHO}$: Hydroxyl group or alcohol (OH), aldehyde or alcohol (CHO) and alkene (double bond)

2) A 0.856g sample of pure (2R,3R)-tartaric acid was diluted to 10cm^3 with water and placed in a 1.0dm polarimeter tube, the observed rotation at 20°C was $+1.0^\circ$. Calculate the specific rotation of (2R,3R)-tartaric acid.

Solo

Specific rotation is given by $[\alpha]$ in $\text{g}^{-1}\text{cm}^3\text{dm}^{-1}$

α = observed rotation in degree

C = concentration of optically active solute in gcm^{-3}

L = path length in dm

Recall that, $[\alpha] = \alpha / d$

$$C = 0.856\text{g}/10\text{cm}^3$$

$$L = 1.0\text{dm}$$

$$\alpha = 1.0^\circ$$

$$T = 20^\circ\text{C}, \text{ wavelength} = 589\text{nm}$$

$$0.856\text{g} \rightarrow 10\text{cm}^3$$

$$2\text{g} \rightarrow 1000\text{cm}^3$$

$$0.856 \text{ g} \times 1000 \text{ cm}^3 = 10 \text{ g cm}^3$$

~~$$0.856 \text{ g} \times 1000 \text{ cm}^3 =$$~~
$$856 \text{ g cm}^3 = 10 \times \text{g cm}^3$$

$$x = \frac{856 \text{ g cm}^3}{10 \text{ g cm}^3}$$

$$x = 85.6 \text{ g dm}^3$$

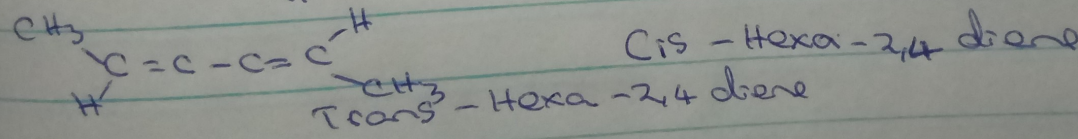
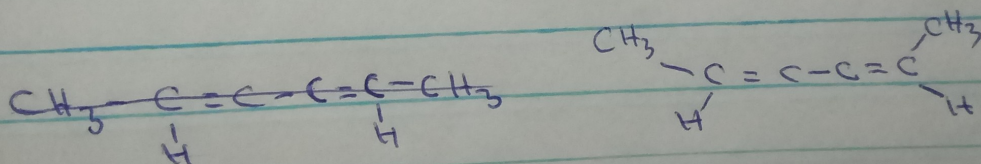
Concentration in g cm^3 : $\frac{\text{g dm}^3}{1000}$

$$C = \frac{85.6}{1000} = 0.0856 \text{ g cm}^3$$

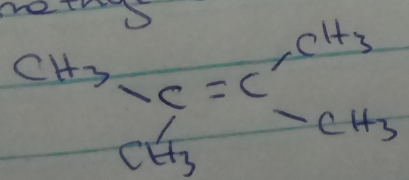
$$[\alpha]_{589}^{20} = \frac{d}{cL} = \frac{+1^\circ}{0.0856 \times 1} = 11.68^\circ \text{ g}^{-1} \text{ cm}^3 \text{ dm}^{-1}$$

3) draw the possible geometric isomers for each of the following compounds.

i) Hexa-2,4-diene



ii) 2,3-dimethyl but-2-ene



There is no geometric isomer