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MATRICULATION NUMBER: 19/MHS01/089

COURSE: CHM 102

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

(i.) $\text{CH}_2 = \text{C}(\text{OH})\text{HCHO}$ - hydroxyl, aldehyde

(ii.) $\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{COCH}_3$ - amine, ketone

(iii.) $\text{CH}_3\text{C} = \text{CHCH}(\text{OH})\text{CHO}$ - hydroxyl, aldehyde

(iv.)

$$2. [\alpha] = \frac{\alpha \text{ observed}}{C \times L}$$

C - g/ml

L - dm

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

where

α = specific rotation (in°)

$$T = 20^\circ\text{C} \quad C = 1 \text{ dm}$$

α_0 = the original or observed (in°)

$$\alpha = 1^\circ$$

C = Concentration

$$\gamma = ?$$

L = Path length (dm)

$$C = \frac{\text{mass}}{\text{volume}}$$

T = Temperature

γ = wavelength that resulted to

$$= \frac{0.8569}{100\text{cm}^3} = \frac{0.8569}{0.01\text{ml}} = 85.69/\text{ml} \quad \text{the new rotation}$$

Convert 100cm^3 to ml

$$[\alpha]^{20^\circ\text{C}} = \frac{1}{85.6 \times 1}$$

$$1000\text{cm}^3 = 1\text{ml}$$

$$100\text{cm}^3 = 0.1\text{ml}$$

$$= +0.0117$$

$$\approx +0.012$$

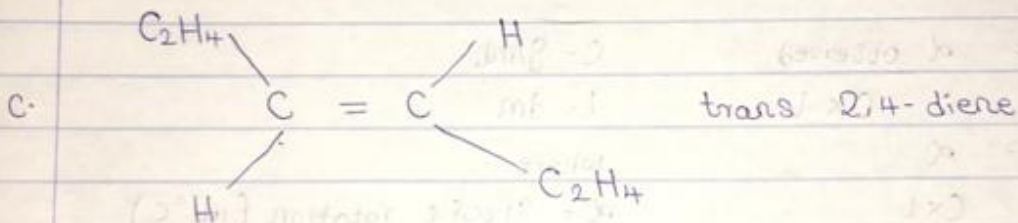
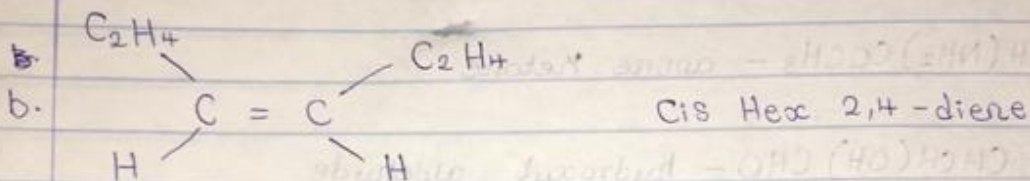
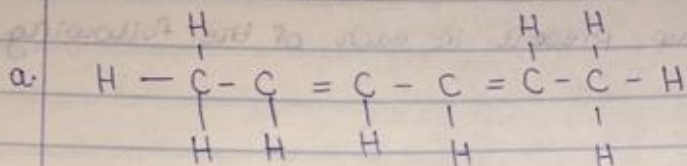
$$\alpha = \frac{1^\circ}{100} = 0.01\text{ml}$$

H (2R, 3R tartaric acid)

Handwritten notes at the bottom of the page.

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

(i.) Hexa-2,4-diene



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

