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NURSING

[9/11/2012]

CHM 102 ASSIGNMENT

1.) Name the functional groups present in each of the following molecules

i) $\text{CH}_2 = \text{C}(\text{OH})\text{HCHO}$: Aldehyde

Alcohol

Alkene

ii) $\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{COCH}_3$: Ketone

Amine

iii) $\text{CH}_3\text{C} = \text{CHCH}(\text{OH})\text{CHO}$: Aldehyde

Alcohol

Alkene

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

$$\text{Specific Rotation} = \frac{\text{Observed Rotation (degrees)}}{(\text{Concentration in g/cm}^3) \times (\text{Path length of sample cell in dm})}$$

$$\text{Conc (in g/cm}^3) = \frac{0.856\text{g}}{10\text{cm}^3}$$

$$\text{In } 1\text{cm}^3 = 0.0856\text{g}$$

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

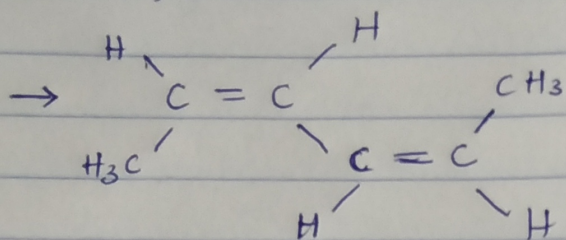
$$= +11.68^\circ\text{g}^{-1}\text{cm}^3\text{dm}^{-1}$$

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

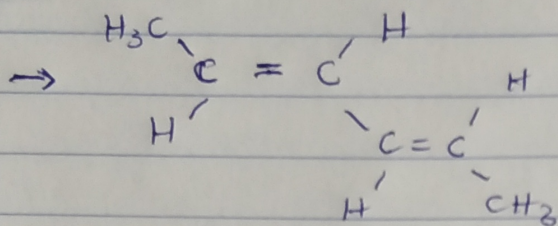
a) Hexa-2,4-diene

b) 2,3-Dimethylbut-2-ene

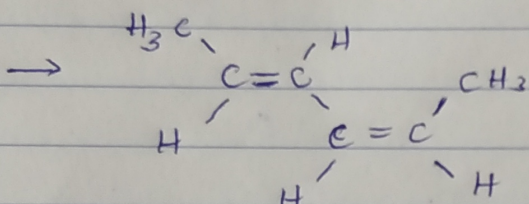
a. Hexa-2,4-diene



Cis-Cis hexa-2,4-diene



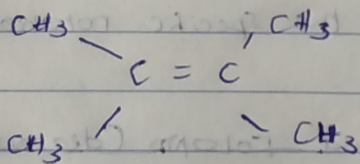
Trans-Trans hexa-2,4-diene



Trans-Cis hexa-2,4-diene or

Cis-Trans hexa-2,4-diene

b. 2,3-Dimethyl but-2-ene



It cannot form geometric isomer because each double bonded carbon has identical groups.