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DEPARTMENT: MECHATRONICS

MATRIC NO: 19/ENG05/001

Assignment

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

i. $CH_2=C(OH)AcHO$ → Alkanols/Alcohols

ii. $C_6H_5CH(NH_2)COOH_2$ → Amines

iii. $CH_3CH=CHCH(OH)CHO$ → Alkanols/Alcohols

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

Solution

$$\text{Specific rotation} = \frac{\text{observed rotation (degrees)}}{(\text{concentration g/cm}^3) \times \text{path length of sample cell in dm}}$$

Observed rotation = +1.0°

concentration in g/cm^3: 0.856g ÷ 10cm^3 = 0.0856g/cm^3

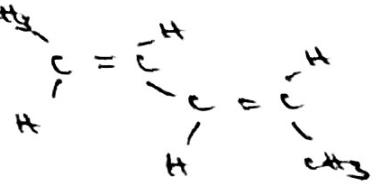
path length of sample cell in dm = 1dm

$$\therefore S.R = \frac{+1^\circ}{(0.0856 g/cm^3) \times (1 dm)}$$

$$= 11.6822\ g^{-1} cm^3 dm^{-1}$$

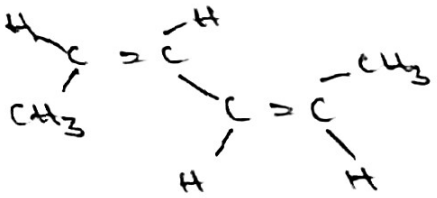
3. Draw the possible geometric isomers (where possible) for each of the following compounds

i. Hex-2,4-diene.

a 

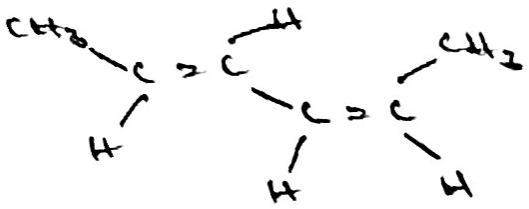
b [2E,4E] Hexan 2,4 diene.

Trans-trans isomer.



[2Z,4Z] Hexan 2,4 diene.

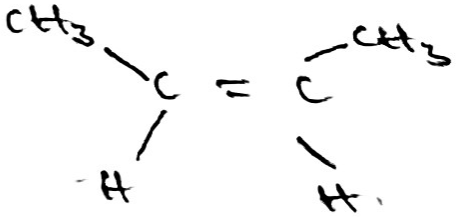
Cis,-cis isomer

2. 

(2Z,4E) Hexan 2,4-diene.

cis-trans isomer

11. 2,3 Dimethyl but-2-ene.



trans-isomer

2,3 Dimethyl but-2-ene