

HILLARY-EDJERE VUIEDE PRISCILLA

CHM 102

19/MHS02/061

100 L

NURSING

ASSIGNMENT 4

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

Ans

i) $\text{CH}_2=\text{C}(\text{OH})\text{HCHO}$ ~~Aldehyde~~
Functional group: ~~Aldehyde (Alcohol & Alkene)~~
Functional groups: Aldehyde, Alcohol and Alkene.

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

iii) $\text{CH}_3\text{C}=\text{CHCH}(\text{OH})\text{CHO}$
Functional groups: Alkene, Aldehyde and Alcohol

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

Ans

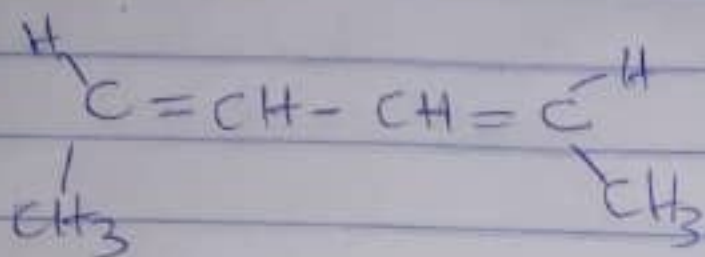
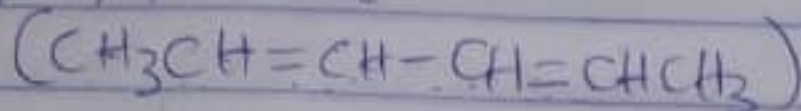
Specific rotation = $\frac{\text{observed rotation (degrees)}}{(\text{conc. in g/cm}^3) \times \text{path length of sample conc. inch}}$

$$\text{Specific rotation} = \frac{1.0^\circ}{0.856 / (10\text{cm}^3 \times 1)} = 11.7\text{g}^{-1}\text{cm}^3\text{dm}^{-1}$$

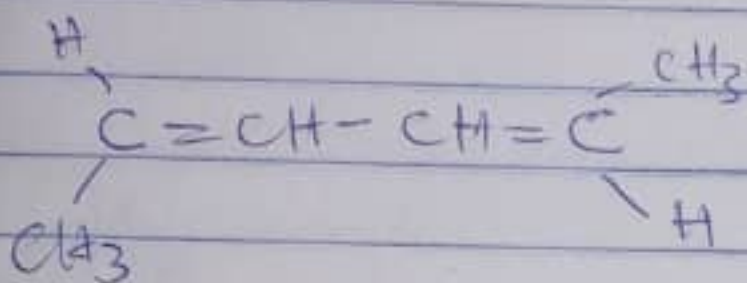
3) Draw the possible geometric isomers (where possible) for each of the following compounds:

Ans

i) Hexa-2,4-diene

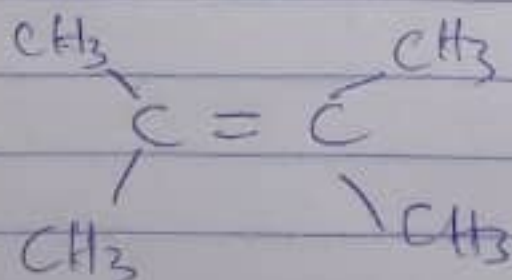
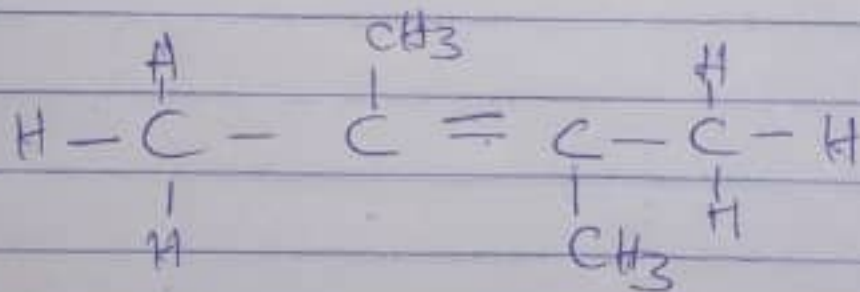


Cis Hexa-2,4-diene



Trans Hexa-2,4-diene

ii) 2,3-Dimethylbut-2-ene - $[CH_3C(CH_3)=C(CH_3)CH_3]$



Ans. Geometric isomerism is not possible in 2,3-Dimethylbut-2-ene.