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DEPARTMENT: DENTISTRY

MATRIC NO: 19/MHS09/012

COURSE CODE: CHM 102

Assignment on Stereochemistry and Functional Group

1. i. CH_2=C(OH)HCHO ---
   a. Alkene(=),
   b. Alkanol(-OH),
   c. Alkanal/Aldehyde(-CHO)

ii. $C_6H_5CH(NH_2)COCH_3$---

   a. Ketone/Alkanone(-C=O),
   b. Amine(-NH_2),
   c. Aromatic group(Phenyl)

iii. CH_3C=CHCH(OH)CHO---

   a. Alkene (=)
   b. Alkanol (-OH)
   c. Alkanal/Aldehyde(-CHO)

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 20^0C was $+1.0^0$. Calculate the specific rotation of (2R, 3R)-tartaric acid.

Mass of Pure (2R, 3R) - tataric acid = 0.856g

Volume = $10 cm^3$

Path length of sample cell = 1.0dm

Observed rotation = +1.0°

Specific rotation = ?

Concentration in g/cm^3 = $\frac{0.856}{10}$ = 0.0856 g/cm^3

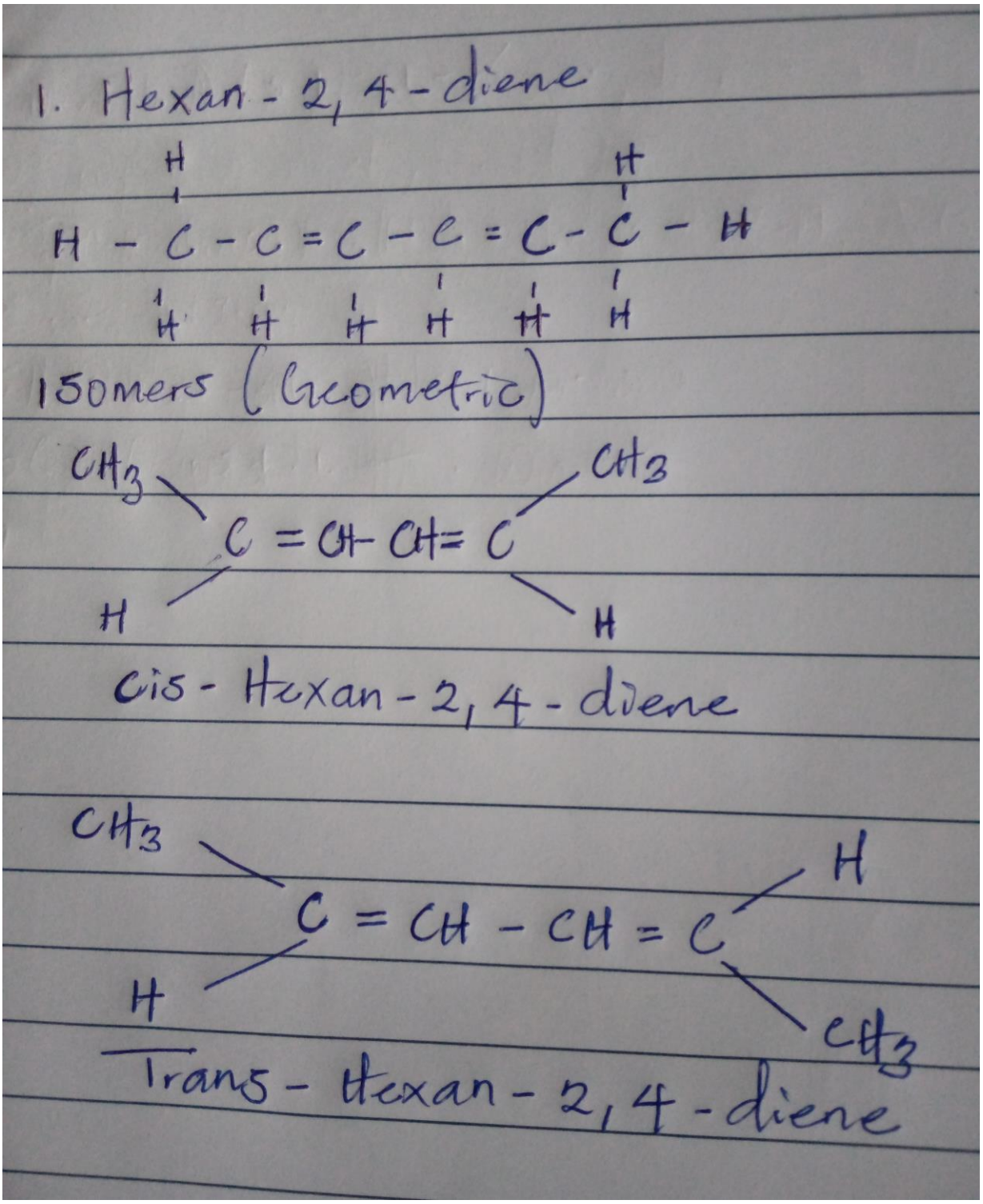
Specific rotation = $\frac{\text{Observed rotation}}{(\text{concentration}) \times (\text{path length of cell})}$

Specific rotation = $\frac{+1.0°}{(0.0856 g/cm^3) \times (1.0 dm)}$

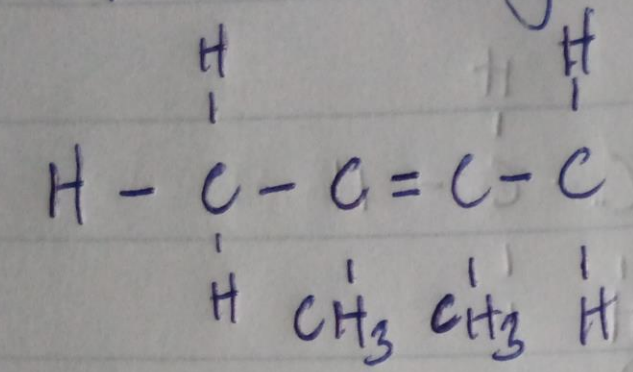
$= +1.168 \times 10^{1}° g^{-1} cm^3 dm^{-1}$

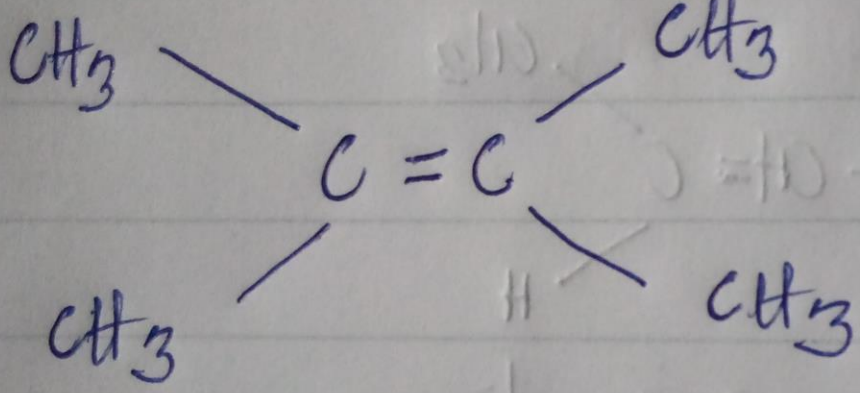
$\simeq 11.68° g^{-1} cm^3 dm^{-1}$

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



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





It has no cis-trans isomerism as all substituents are identical