NAME: Oluwadamilare Faith Oluwadarasimi

DEPARTMENT: Human Nutrition and Dietetics

MATRIC NO: 19/mhs04/002

ASSIGNMENT TITLE: Stereochemistry and Functional Group

COURSE TITLE: General Chemistry II

COURSE CODE: CHM 102

1. Name the functional groups present in each of the following molecules
(i) CH2=C(OH)HCHO (ii) C6H5CH(NH2)COCH3 (iii) CH3C=CHCH(OH)CHO

Answer

(i) CH2=C(OH)HCHO
– COH Aldehydes
- OH Alkanols
(ii) C6H5CH(NH2)COCH3
– NH_2 Amines
– RCOR' Alkanones
(iii) CH3C=CHCH(OH)CHO
– OH Alkanols
- COH Aldehydes

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^{0}C was +1.00. Calculate the specific rotation of (2R, 3R)-tartaric acid.

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

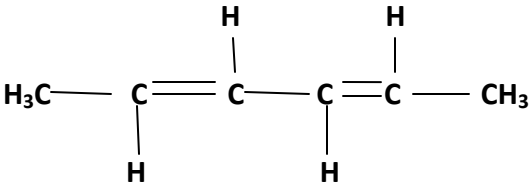
$$\text{Specific rotation of (2R, 3R)-tartaric acid} = \frac{20^0\text{C}}{(0.856\text{g}/10\text{cm}^3) \times 1.0\text{dm}}$$

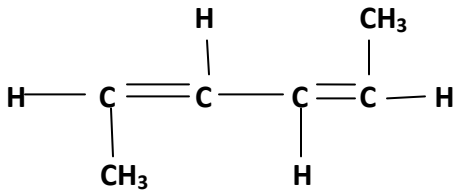
$$= 20 / 0.0856$$

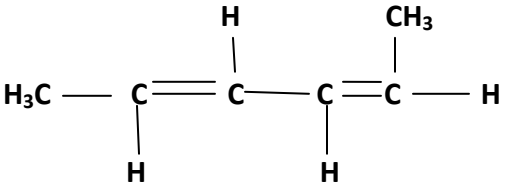
$$= 233.64^0\text{g}^{-1}\text{cm}^3\text{dm}^{-1}$$

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

Answer
(i) Hexa-2,4-diene







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

It cannot show Geometric Isomerism.