**CHM102 ASSIGNMENT**

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**MATRIC NUMBER:** 19/MHS01/063

**DEPARTMENT:** Pre-Medicine and Surgery

**COLLEGE:** Medicine and Health Sciences

**LEVEL:** 100

Assignment

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

1. CH2=C(OH)HCHO

 H H

 H - C = C -C = OH

 OH

 The functional groups present are;

1. Alkene the double bond chain ( = )
2. Alkanol the hydroxyl functional group ( – OH)
3. Alkanal the carbonyl functional group ( – HC=O)

1. C6H5CH(NH2)COCH3

 H – N – H H

 C – C – C – H

 H O H

1. Alkanone the carbonyl functional group ( – C = O – )
2. Amine the functional group ( – NH2 )
3. Acyclic the phenyl functional group ( – C6H5 )
4. CH3C=CHCH(OH)CHO

 H H H H

 H – C – C = C – C – C = O

 H OH

1. Alkene the double bond chain ( = )
2. Alkanol the hydroxyl functional group ( – OH )
3. Alkanal the carbonyl functional group ( – HC =O)

 2. A 0.856 g sample of pure (2R, 3R)-tartaric acid was diluted to 10cm3 with water and placed in a 1.0 dm polarimeter tube. The observed rotation at 200 C was +1.00. Calculate the specific rotation of (2R, 3R)-tartaric acid.

Solution

Recall, $[∝]\_{λ}^{T}=\frac{∝}{l×c}$

Observed rotation,$∝$= +1.00

Path length of the sample cell in dm = 1.0dm

Concentration in grams = 0.856g

Concentration in cm³ = 10cm³

 $specific rotation of the sample=\frac{observed rotation (degrees)}{\left(concentration\frac{g}{cm^{3}}\right)×path length of the sample cell in dm }$

 $∴specific rotaion of \left(2R,3R\right)-tartaric acid=\frac{+1.00}{(\frac{0.856g}{1ocm³})×1.0dm}$

 $∴specific rotation of \left(2R,3R\right)-tartaric acid=+11.68g⁻¹cm³dm⁻¹$

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

1. Hexa-2,4-diene

 H H

 H – C – C = C – C = C – C – H

 H H H H H H {cis-Hexa-2,4-diene}

 H H H H

 H - C – C = C – C = C – C – H

 H H H H

 {trans-Hexa-2,4-diene}

1. 2,3-Dimethylbut-2-ene

 H H

 H – C – C C – C – H

 H H–C–H H–C –H H

 H H

 {cis-2,3-Dimethylbut-2-ene}

 H

 H H–C–H

 H – C – C C – C – H

 H H–C– H H

 H

 {trans-2,3-Dimethylbut-2-ene}