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DEPARTMENT: PHYSIOLOGY

COURSE CODE: CHM 102

MATRIC NO: 19/MHS05/001

1. Name the functional groups present in each of the following molecules
2. CH2=C(OH)HCHO – Alkenes, alcohols and aldehyde groups.
3. C6H5CH(NH2)COCH3- amines, ethers.
4. CH3C=CHCH(OH)CHO- alkene group, ethers and aldehyde group.
5. A 0.86g 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 20c was +1.0 degree. Calculate the specific rotation of ( 2R,, 3R) –tartaric acid.

Concentration (mol/dm3)= conc. (g/dm3) molar mass (g/mol)

[α]TI = α

C.L

OH OH OH O

Tartaric acid= C - C - C - C = C4H6O6

O H H OH

Molar mass = 150 g/mol

0.856g-----------------------10cm3

Xg-----------------------------1000cm3

0.856 x 1000 = 85.6g/dm3

10

Concentration in g/cm3 = concentration in (g/dm3)

1000

= 85.6 = 0.0856g/cm3

1000

[α]TI =α = 4.10° = 11.68°

C.L 0.0856

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

H H

3i) H - C- C = C - C = C - C - H Hexa-2,4-diene

H H H H H H

CH3 CH3 CH3 H

C = C - C= C C= C- C= C

H H H CH3

Cis- Trans-

H CH3 CH3 H CH3 CH3

ii) H- C – C = C- C – H C= C

H H CH3 CH3

2-3 dimethylbut-2-ene