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**Department: MEDICINE AND SURGERY 19/MHS01/293**

**Course Code: CHM102**

**1.** Name the functional group present in each of the following molecule;

(i) CH2=C(OH)HCHO

(ii) C6H5CH(NH2)COCH3

(iii) CH3=CHCH(OH)CHO

**2.** A 0.0856g sample of pure (2R,3R)-tartaric acid was diluted to 10cm3 with water and placed in a 1.0dm polarimeter tube . The observed rotation at 20⁰c was +1.0⁰. Calculate the specific rotation of (2R,3R)-tartaric acid.

**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

**ANSWERS**

**1**(i)

(a) Formyl group (Aldehyde) group (CHO)

(b) Hydroxyl group (-OH)

(c) Alkene group( Double bond)

(ii) (a) Amino group (- NH2)

(b) Aromatic group( Phenyl group)

(c) Keto group ( Carbonyl group)

(iii) (a) Aldehyde group(CHO)

(b) Hydroxyl group(-OH)

(c) Alkene group ( Double bond)

**2.** Concentration(moldm-3) = Mass concentration(gdm-3)

 Molar Mass (gmol-1)

 [α]λT = α

 c.l

 Tartaric acid = C4H6O6

 Molar mass =150gmol-1

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

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

 X= 0.856 x 1000  = 85.6gdm-3

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Concentration in gcm-3 = Concentration(gdm-3‑)

 1000

 =85.6 = 0.0856gcm-3

 1000

 Using;

 [α]λT = α ;α=41.0⁰ C=0.0856gcm-3

 c.l

 = 41.0 = 11.68⁰

 0.0856

**3.**  Answer in the picture below

 