

IBISAGBA
 AYOMIKUN
 19/ENG09/007

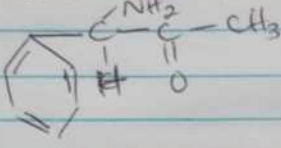
AERONAUTICAL
 ENGINEERING

CHM 102

1&2

CHM 102

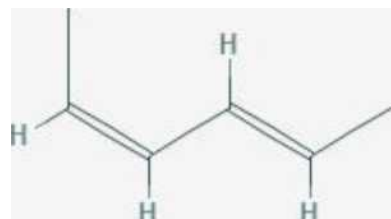
1. a) $\text{CH}_2 = \text{C}(\text{OH})\text{HCHO}$
 functional group present:
 - Double bond chain (Alkene)
 - OH (Hydroxyl group)
 - $\text{C}=\text{O}$ (Alkanol)

b) $\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{COCH}_3$

 Functional group present:
 - Phenol group with double bonds
 - Amine (NH_2)
 - Alkanone / ketone $\text{C}=\text{O}$

c) $\text{CH}_3\text{C}=\text{CHCH}(\text{OH})\text{CHO}$
 functional group present
 - Double bond (=)
 - $\text{C}=\text{O}$ Alkanol
 - OH Hydroxyl group.

2) mass of tartaric acid = 0.856g
 vol. of water diluted in = 10cm^3
 Recall,
 $\text{mass conc. (c)} = \frac{\text{mass}}{\text{vol}} = \frac{0.856\text{g}}{10\text{cm}^3}$
 $= 0.0856\text{g/cm}^3$
 vol. of polarimeter tube = 1dm^3
 \therefore length of tube = 1dm
 Observed rotation (α) = $+1.0^\circ$
 at 20°C
 Specific rotation $[\alpha] = ?$
 $[\alpha] = \frac{\alpha}{c \times l}$
 $= \frac{+1.0^\circ}{0.0856\text{gcm}^{-3} \times 1\text{dm}}$
 $[\alpha] = \frac{+1}{0.0856} = +11.6822^\circ$

3. Hexa-2,4-diene - has only 3 isomers



Isomers

B. 2,3 dimethyl but-2-ene. - does not have geometric isomers because there are two identical groups attached to the same carbon of the double bond.

trans trans isomer

cis cis isomer

cis trans isomer

(2E,4Z)-hexa-2,4-diene



(2E,4E)-hexa-2,4-diene

(2Z,4Z)-hexa-2,4-diene

CH₃ 2,3-dimethylbut-2-ene