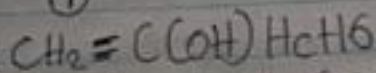
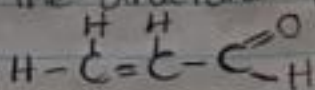


(1)

(i)



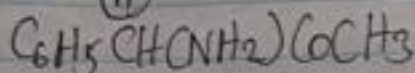
The structural formula



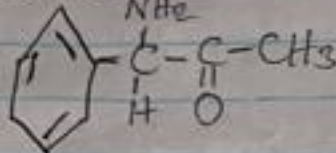
functional present are

- Double bond chain (Alkene)
- OH (Hydroxyl group)
- $\text{C}=\text{O}$ (Alcohol)

(ii)



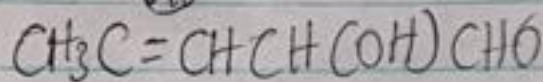
Structure



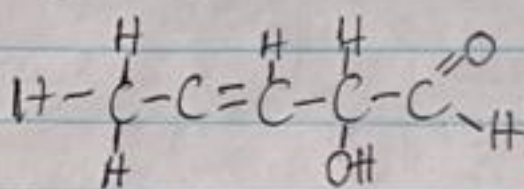
functional present

- phenyl group (C_6H_5) with double bonds
- Amine
- Alkaneone / ketone ($\text{C}=\text{O}$)

(iii)



Structure



functional present

- Alkene ($\text{C}=\text{C}$)
- Hydroxyl group (OH)
- Aldehyde ($\text{C}=\text{O}$)

(2)

Recall:
$$[\alpha]_D^{25} = \frac{\alpha}{l \times c}$$

where

l = length of sample tube
 c = $\frac{\text{mass}}{\text{volume}}$ ($\frac{\text{g}}{\text{cm}^3}$) or ($\frac{\text{g}}{\text{mol}}$)

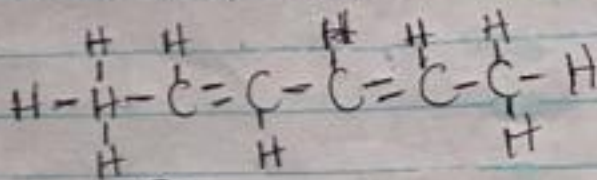
α = observed rotation

$$S_r = \frac{1.0}{1.0 \times \left(\frac{0.886}{10}\right)}$$

$$S_r = \frac{1}{0.0886} = 11.286$$

(3)(i)

Hexa-2,4-diene



(ii)

2,3-Dimethyl but-2-ene

