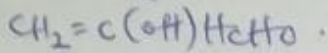


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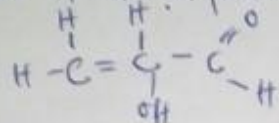
Solution

(1)

(i)



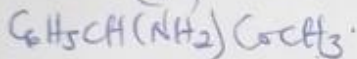
The structural formula:



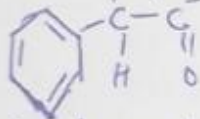
functional present are:

- Double bond chain = (Alkene)
- OH (hydroxyl group)
- $\overset{O}{\parallel}C-H$ (aldehyde)

(ii)



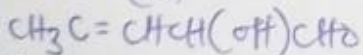
Structure:



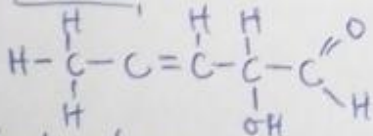
functional present

- phenyl group (C_6H_5) with double bonds.
- Amine.
- Alkaneone / ketone ($\overset{O}{\parallel}C-R$)

(iii)



Structure:



functional present

- Alkene ($C=C$)
- Hydroxyl group (OH)
- Alkane ($\overset{O}{\parallel}C-H$)

(2)

Recall;

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

where

l = length of sample tube

$$c = \frac{\text{mass}}{\text{volume}} \left(\frac{g}{cm^3} \right) \text{ or } \left(\frac{g}{ml} \right)$$

α = observed rotation

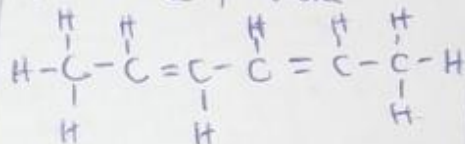
$$S_r = \frac{1.0}{1.0 \times \left(\frac{6.856}{4} \right)}$$

$$S_r = \frac{1}{0.0556} = \underline{\underline{11.68}}$$

(3)

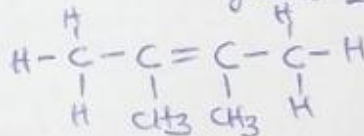
(i)

Hexa-2,4-diene



(ii)

2,3-Dimethylbut-2-ene



OR

