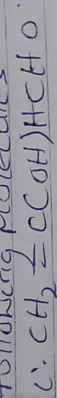


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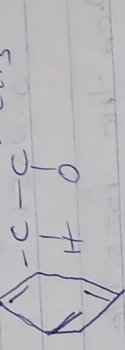
1. Name the functional groups present in each of the following molecules



The functional groups

present are:

- Double bond chain = (Alkene)
- OH (hydroxyl group)
- =O (Alkaryl).
- C-H

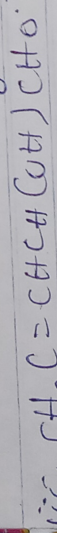


ii. $\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{COCH}_3$

Functional groups present

are:

- Phenyl group (C_6H_5) with double bonds.
- Amine.
- Alkanone/ketone ($\text{C}=\text{O}$)



Functional groups present

are:

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

2. A 0.856g sample of pure (2R, 3R)-tartaric acid is diluted to 100 cm³ with water and placed in a 100 ml

Polarimeter tube. The observed rotation at 20°C was $+1.0$. Calculate the specific rotation of (2R,3R)-tartaric acid.

Solution.

$$\text{Recall, } [\alpha]_D^{20} = \frac{\alpha}{l \times c}$$

where

l = length of sample tube.

c = mass (g/dm³) or (g/ml)
Volume

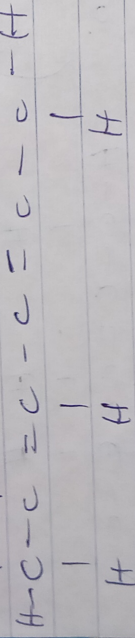
α = observed rotation.

$$S_r = \frac{1.0}{1.0 \times \left(\frac{0.856}{10}\right)}$$

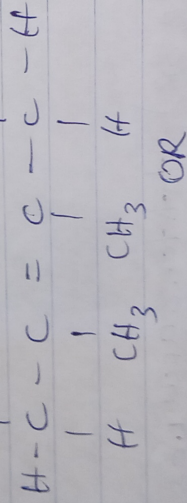
$$S_r = \frac{1}{0.0856} = 11.68$$

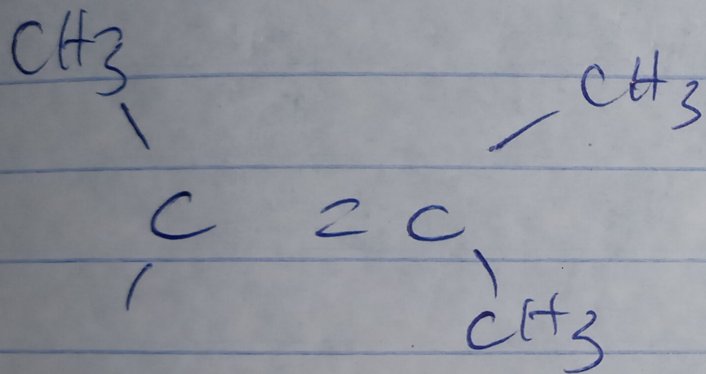
3. Draw the possible geometric isomers (where possible) for each of the following compounds.

i. Hexa-2,4-diene



ii. 2,3-Dimethylbut-2-ene.





(No butane)
circled

