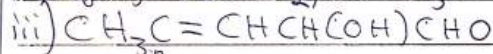
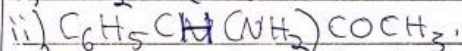
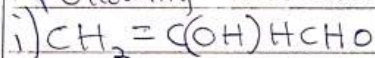
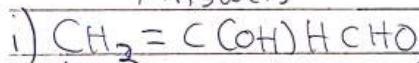


## Assignment

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



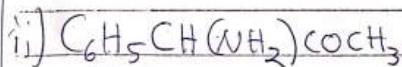
Answers



Functional group :- i) aldehyde

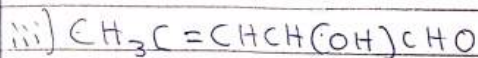
ii) alcohol

iii) alkene



Functional group :- i) amides

ii) ketones



Functional group :- i) Alkene

ii) Alcohol

iii) aldehydes

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2. A 0.856g sample of pure (2R,3R)-tartaric acid was diluted to 10cm<sup>3</sup> with water and placed in a 1.0dm polarimeter tube. The observed rotation at 20°C was +1.0°. Calculate the specific rotation of (2R,3R)-tartaric acid.

Answers

$$\text{Observed rotation} = 1.0^\circ$$

$$\text{Concentration} = \frac{0.856\text{g}}{10\text{cm}^3} = 0.0856\text{g/cm}^3$$

$$\text{Length of sample cell (polarimeter)} = 1.0\text{dm}$$

$$\text{Specific rotation} = \frac{\text{Observed rotation (degrees)}}{(\text{Concentration in g/cm}^3) \times \text{path length of sample cell in dm}}$$

$$= \frac{1.0}{0.0856 \times 1}$$

$$\text{Specific rotation of the sample} = \frac{1.0}{0.0856 \times 1}$$

$$= \frac{1.0}{0.0856}$$

$$= 11.68$$

$$= 11.68^\circ \text{g}^{-1} \text{cm}^3 \text{dm}^{-1}$$

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

Specific rotation of the sample =  $\frac{[\alpha]_D^{25}}{l \cdot c}$

$$= \frac{0.856}{10 \times 1} \times 1$$

$$= 0.0856 \times 1$$

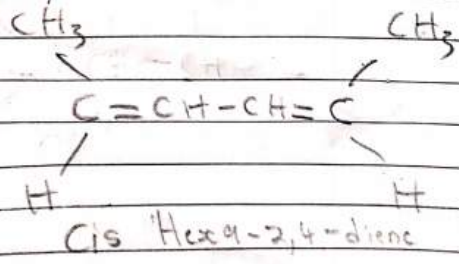
$$= 11.68^\circ \text{g}^{-1} \text{cm}^3 \text{dm}^{-1}$$

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

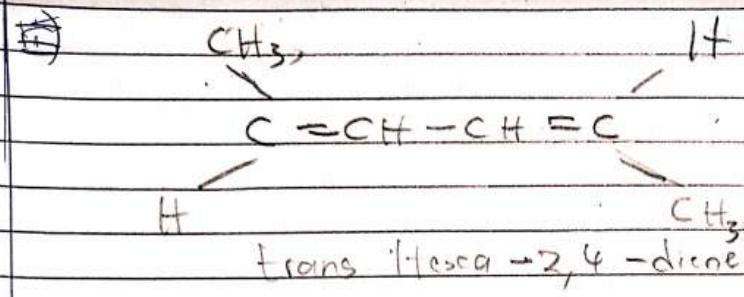
- i) Hexa-2,4-diene
- ii) 2,3-Dimethylbut-2-ene

Answers:

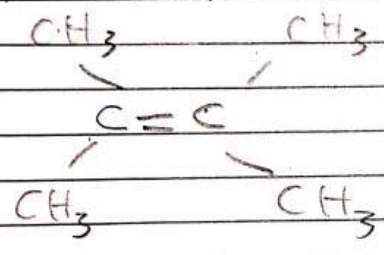
i) Hexa-2,4-diene



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ii) 2,3-Dimethylbut-2-ene



Geometric isomers is not possible for 2,3-Dimethylbut-2-ene