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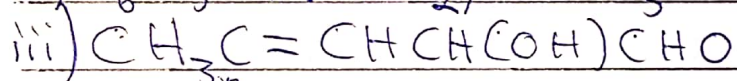
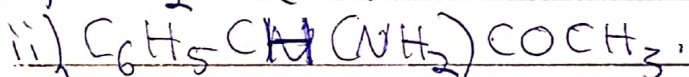
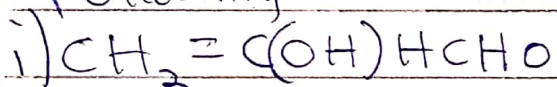
Matric Number:- 19/mhs02/014

Department:- Nursing

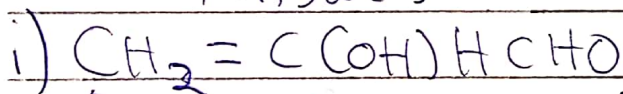
Course Code:- CHM 102

Assignment

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



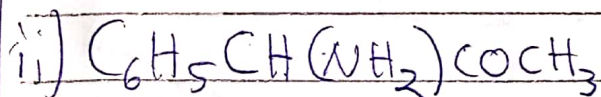
Answers



Functional group :- i) aldehyde

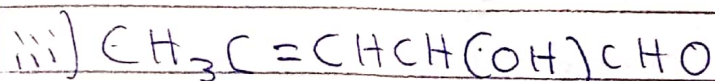
ii) alcohol

iii) alkene



Functional group :- i) amides

ii) ketones



Functional group :- i) Alkene

ii) Alcohol

iii) aldehydes

2. A 0.856g sample of pure (2R, 3R)-tartaric acid was diluted to 10 cm³ with water and placed in a 1.0 dm polarimeter tube. The observed rotation at 20°C was +1.0°. Calculate the specific rotation of (2R, 3R)-tartaric acid.

Answers:

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

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

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

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

$$\begin{aligned} \text{Specific rotation of the sample} &= \frac{1}{0.856 \times 1} \\ &= \frac{1}{0.856} \\ &= +1.68^\circ \text{g}^{-1} \text{cm}^3 \text{dm}^{-1} \end{aligned}$$

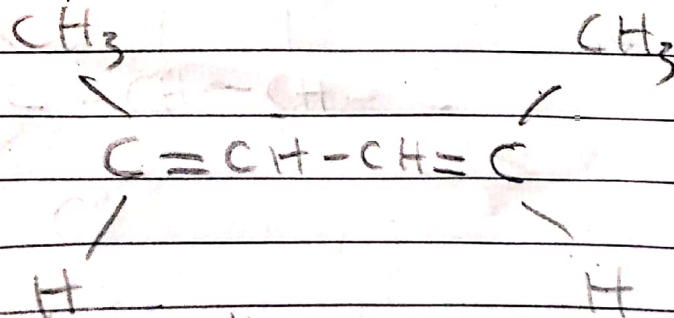
3. Draw the possible geometric isomers (where possible) for each of the following compounds.

i) Hexa-2,4-diene

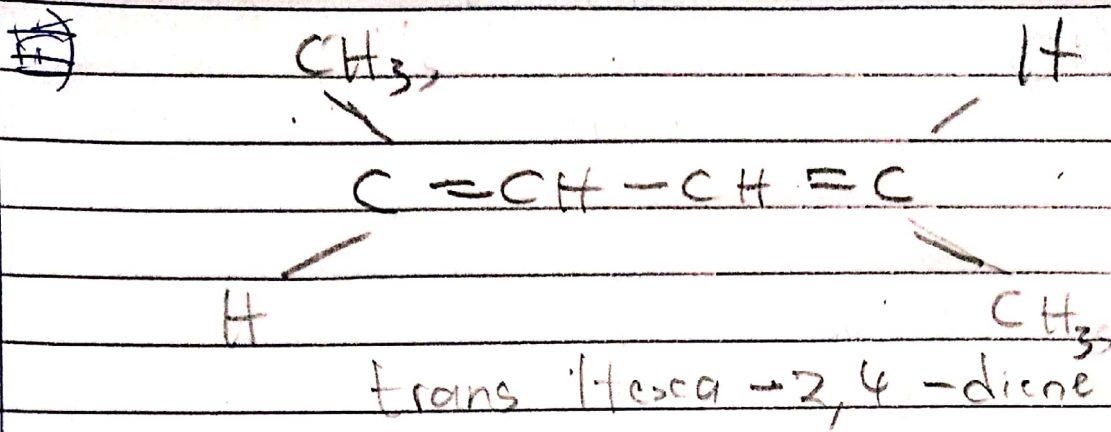
ii) 2,3-Dimethylbut-2-ene

Answers:

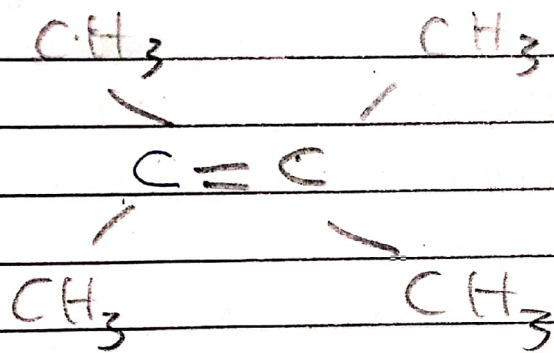
i) Hexa-2,4-diene



Cis Hexa-2,4-diene



(ii) 2,3-Dimethylbut-2-ene



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