

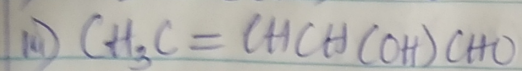
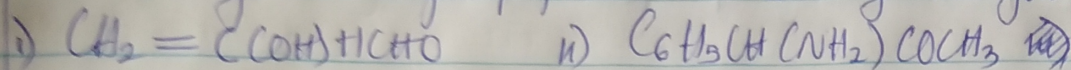
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MEDICINE AND SURGERY

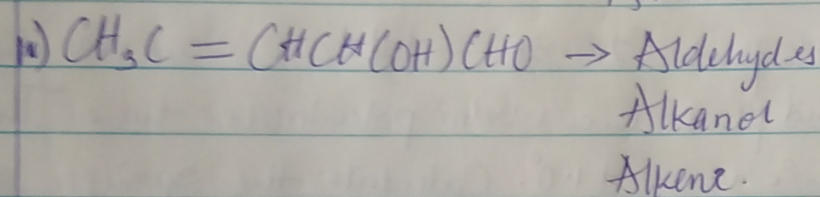
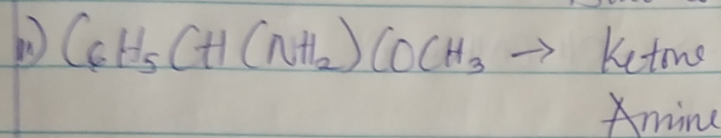
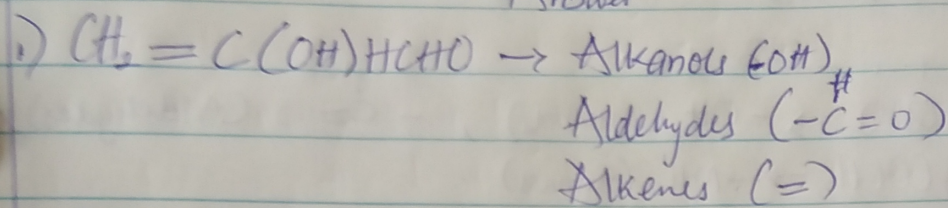
19/MH1501/823

CHM 102 ASSIGNMENT

1) Name the functional group present in each of the following molecules.



Answer



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

Solution.

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

$$\text{Conc (in } \text{g/cm}^3) = \frac{0.856\text{g}}{10\text{cm}^3}$$

$$= 0.0856\text{g/cm}^3$$

$$= \frac{+1.0^\circ}{0.0856\text{g/cm}^3 \times 1\text{dm}}$$

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

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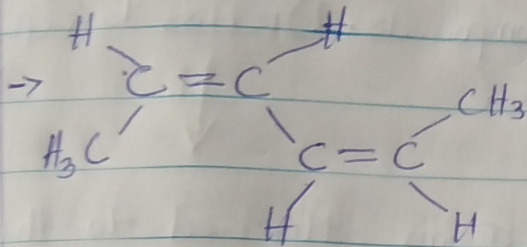
3) Draw the possible geometric isomers (where possible) for each of the following compounds.

i) Hexa-2,4-diene

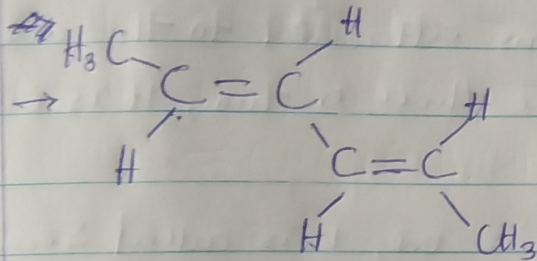
ii) 2,3-Dimethylbut-2-ene.

Solution.

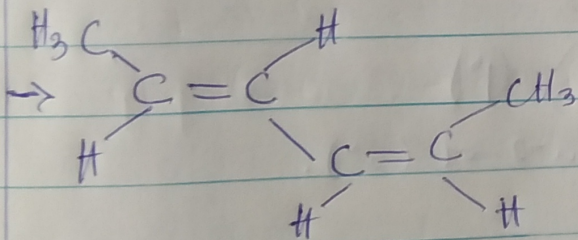
a) Hexa-2,4-diene.



Cis-cis hexa-2,4-diene.



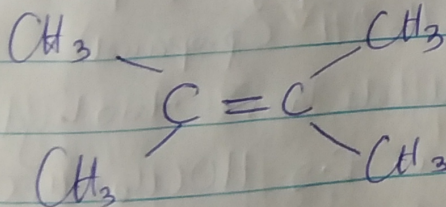
Trans-trans hexa-2,4-diene.



Trans-cis hexa-2,4-diene or

Cis-trans hexa-2,4-diene.

b) 2,3-Dimethylbut-2-ene.



It cannot form geometric isomers because each double bonded carbon has identical groups.