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Chem 102

19/mb002/121

Nursing

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

i)  $\text{CH}_2 = \text{C}(\text{OH})\text{HCH}_3$  - Alkanals

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

iii)  $\text{CH}_3\text{C} = \text{CHCH}(\text{OH})\text{CHO}$  - Alkanals

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

Solution

Observed rotation =  $1.0^\circ$

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

Length of sample cell = 1.0 dm

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

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

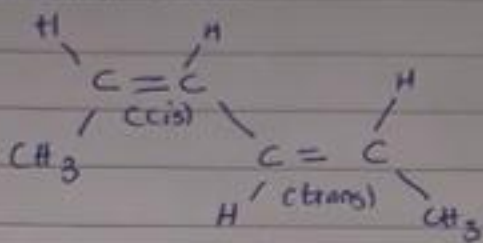
$$= \frac{1}{0.0856 \times 1}$$
$$= 11.68\text{g}^{-1}\text{cm}^3\text{dm}^{-1}$$

3 Draw the possible geometric isomers for each of the following compounds

a Hexa-2,4-diene

b 2,3-Dimethylbut-2-ene

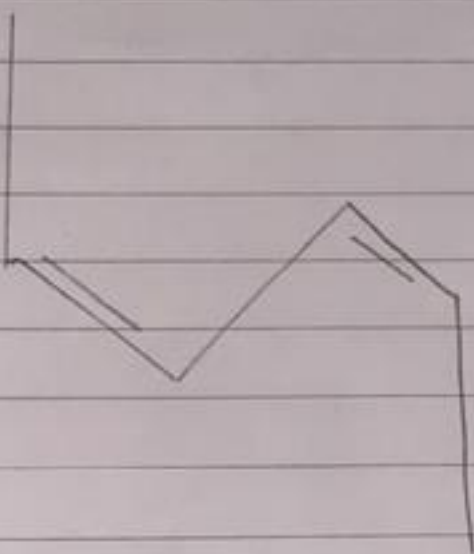
Hexa-2,4-diene



Cis-trans isomer

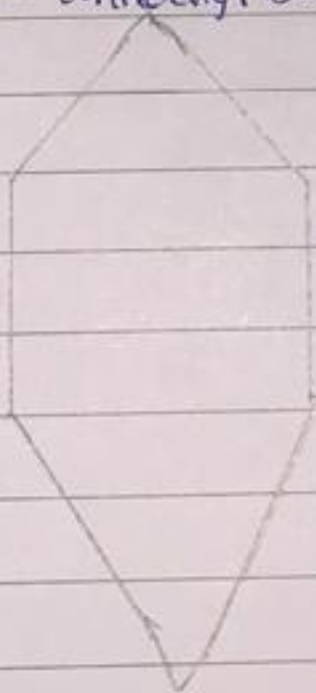


trans,trans-isomer

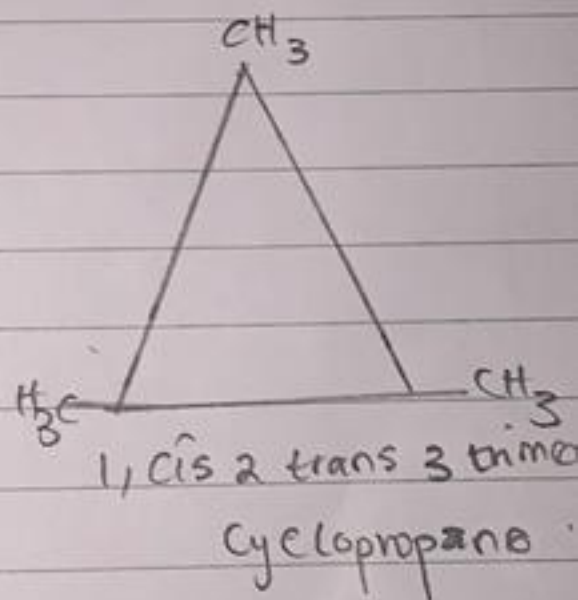


Cis,cis isomer

b 2,3-dimethylbut-2-one

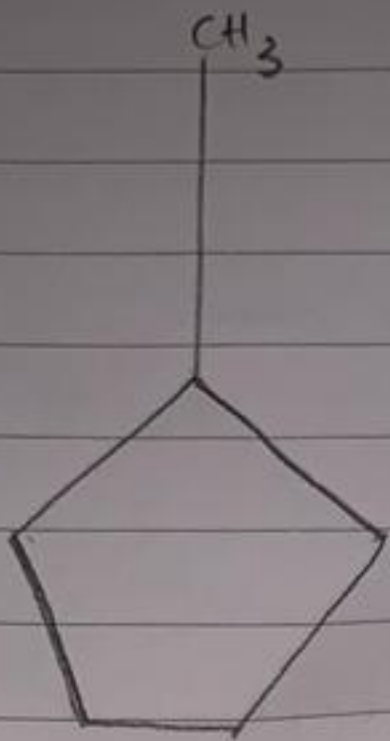


Cyclohexane

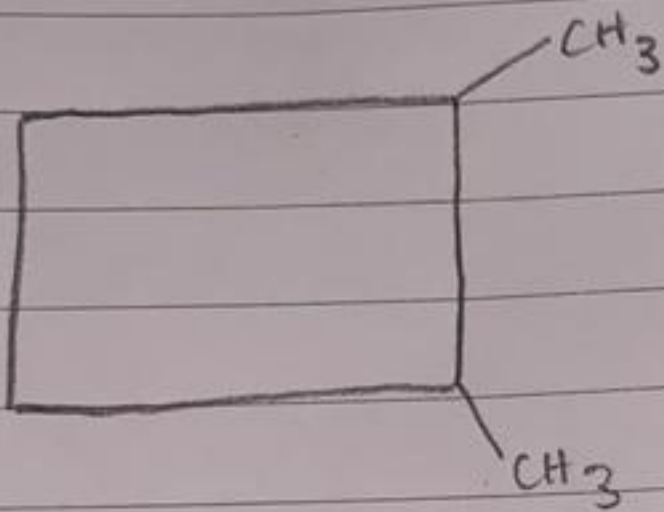


1,1-cis 2 trans 3 trans

Cyclopropane



propyl - 2 - cyclo propane



1,2 dimethylcyclobutane