

NAME: UGOCHUKWU CHIZITEREM PRECIOUS

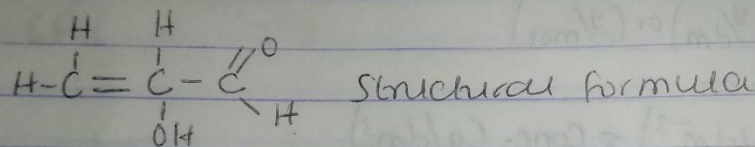
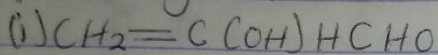
MATRIC NUMBER: 19/MHS01/414

COLLEGE: MEDICINE AND HEALTH SCIENCES

DEPARTMENT: MEDICINE AND SURGERY

COURSE CODE: CHEMISTRY 102.

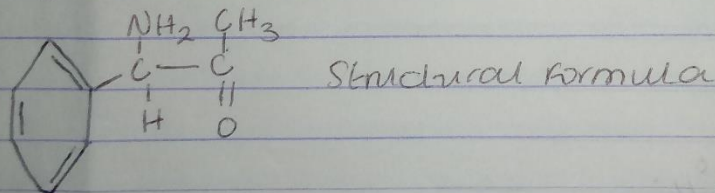
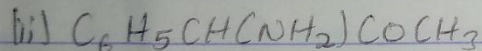
1) Name the functional groups present in each of the following molecules.



Functional groups present: = double bond (Alkene)

-OH (hydroxyl group)

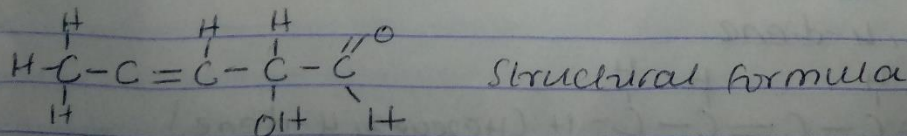
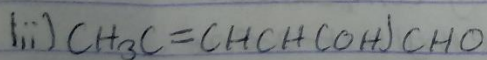
$\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$ (aldehyde)



Functional groups present: Aromatic group (phenyl group)

Amine

Alkanone/ketone



Functional groups present: Alkene (C=C)

Hydroxyl group (OH)

Aldehyde ($\overset{\text{O}}{\parallel}{\text{C}}-\text{H}$)

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~~ ^{tartaric} tartaric acid.

$$[\alpha]_{\lambda}^T = \frac{\alpha}{L \times C} \quad \text{where,}$$

L = length of sample tube

C = mass/volume (g/dm³) or (g/mol)

α = observed rotation

Concentration (mol/dm³) = $\frac{\text{conc. (g/dm}^3\text{)}}{\text{molar mass (g/mol)}}$

Tartaric acid C₄H₆O₆, molar mass = 150 g/mol

$$\alpha = +1.0^\circ, C = 0.856 = 0.0856 \text{ g/cm}^3$$

$$= [\alpha] = \frac{\alpha}{C \cdot L}$$

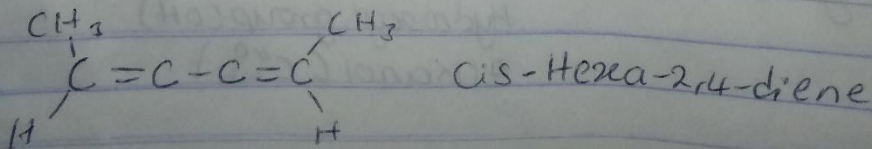
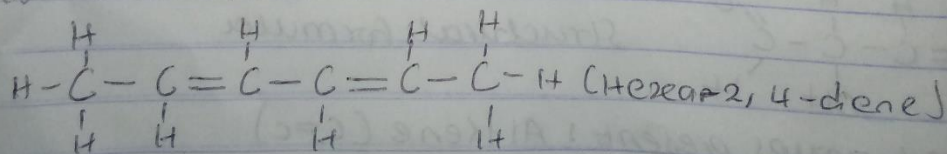
$$= \frac{+1.0}{0.0856}$$

$$= 11.68^\circ$$

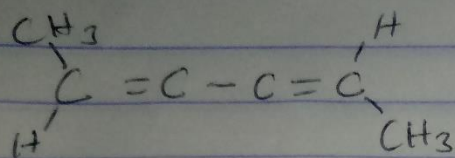
3) Draw the possible geometric isomers (where possible) for each of the following compounds:

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

(i) Hexa-2,4-diene



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trans-Hepta-2,4diene

ii) 2,3-Dimethyl But-2-ene

