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Department: Medicine And Surgery

Course code: CH19 102

NO1

Name the functional groups present in each of the molecules.

i) $\text{CH}_2 = \text{C}(\text{COH})\text{HCHO}$ ii) $\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{COCH}_3$ iii) $\text{CH}_3\text{C} = \text{CHCH}(\text{COH})\text{CHO}$

→ Answers

i) $\text{CH}_2 = \text{C}(\text{COH})\text{HCHO}$ → Hydroxyl group, ~~alkenes~~ Hydroxyl group (COH); ^{carbonyl group (CHO)} alkenes (C=)

ii) $\text{C}_6\text{H}_5\text{CH}(\text{NH}_2)\text{COCH}_3$ → Amine (NH₂)

iii) $\text{CH}_3\text{C} = \text{CHCH}(\text{COH})\text{CHO}$ → Alkenes (C=), Hydroxyl group (COH), Carbonyl group (CHO)

NO2

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

→ Answer

Using:
$$\text{Specific Rotation} = \frac{\text{observed rotation (degrees)}}{\text{Concentration (g cm}^{-3}) \times \text{Path length of sample cell (dm)}}$$

Observed rotation = +1.0°

Path length of sample cell = 1.0dm

Since 0.856gm of sample was dissolved in 10cm³ of water, the concentration of the solution is:

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

∴ Specific rotation =
$$\frac{+1.0^\circ}{0.0856 \times 1.0} = +11.68 \text{ g}^{-1} \text{ cm}^3 \text{ dm}^{-1}$$

NO3

N03

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

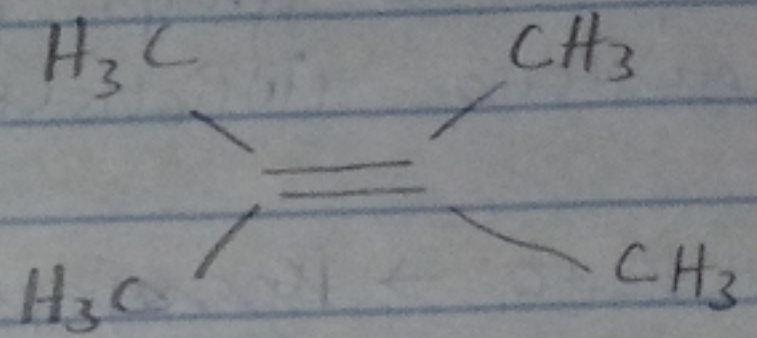
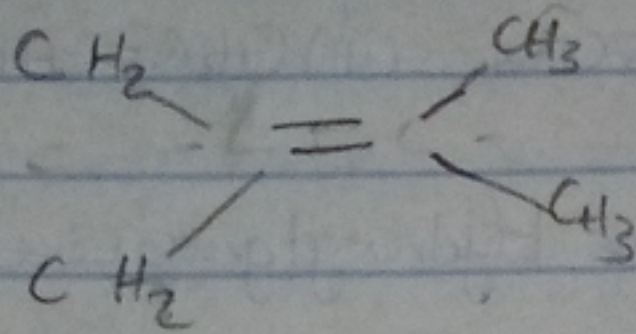
Compounds:

i) Hexa-2,4-diene

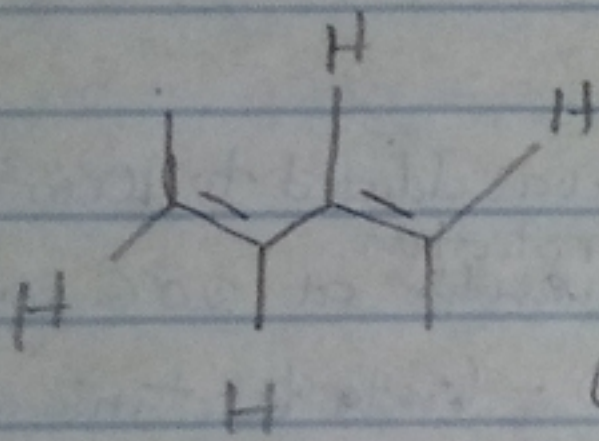
ii) 2,3-Dimethylbut-2-ene

→ Answers

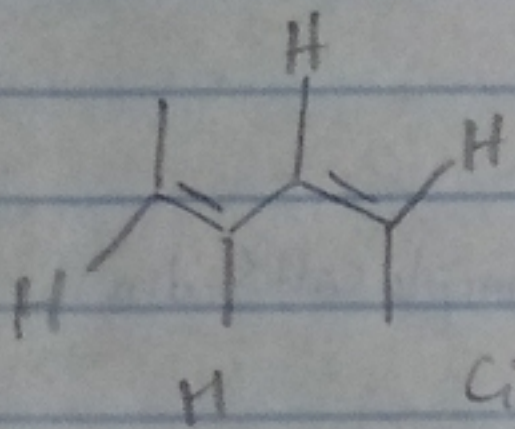
ii)



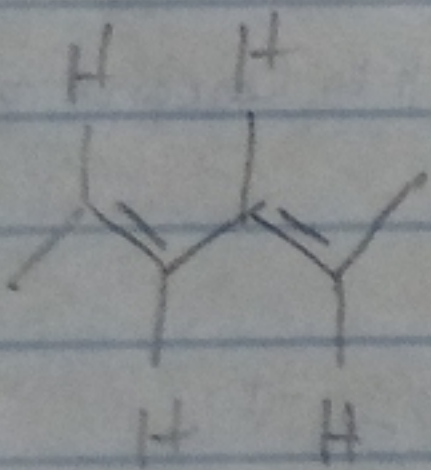
Cis-2,3-Dimethylbut-2-ene.



Cis-cis-



Cis-trans



trans-trans