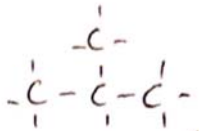
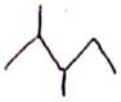
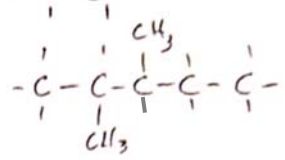
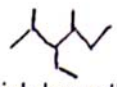
Nomenclature – Hydrocarbons and Haloalkanes (alkyl halides)

1. **Alkanes**

a) Draw the structures for the following compounds:

(i) 2-methylpropane  or 

(ii) 2,3-dimethylpentane  or 

(iii) 3-ethyl-2,4-dimethylhexane 

b) Name the following compounds, all of which have the molecular formula C_6H_{14}:

$CH_3CH_2CH_2CH_2CH_2CH_3$

Hexane

A

$CH_3CHCH_2CH_2CH_3$ (CH₃ branch)

2-methylpentane

$CH_3CHCHCH_3$ (CH₃ branch, CH₃ branch)

2,3-dimethylbutane.

$CH_3CH_2CHCH_2CH_3$ (CH₃ branch)

3-methylpentane

D

$CH_3CCH_2CH_3$ (CH₃ branch, CH₃ branch)

2,2-dimethylbutane

E

2. **Cycloalkanes**

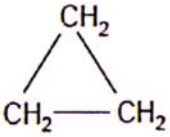
a) Draw the structures for the following compounds:

(i) cyclobutane 

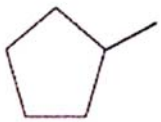
(ii) cyclopentane 

(iii) 1,3-dimethylcyclohexane 

b) Name these compounds:



Cyclopropane

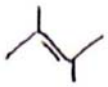


methylcyclopentane

3. Alkenes and Alkynes

a) Draw the structures for the following compounds:

(i) but-2-ene 

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

(iii) 3-ethyl-4-methylpent-1-yne 

b) What is incorrect with the name 2-methylbut-2-yne?

This name indicates a C has 5 bonds (not possible, therefore not correctly named.) (2nd C in butyne)

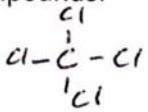
c) Name these compounds:

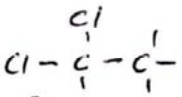
(i) $CH_3C(CH_3)=CH_2$ 2-methylpropene

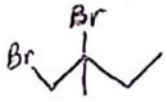
(ii) $CH_3CH(CH_3)CH=C(CH_3)CH_3$ 2,4-dimethyl-2-pentene

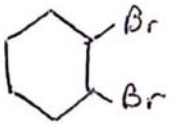
4. Compounds containing halogens

a) Draw the structures for the following compounds:

(i) tetrachloromethane 

(ii) 1,1-dichloroethene 

(iii) 1,2-dibromo-2-methylbutane 

(iv) 1,2-dibromocyclohexane 

b) Name these compounds:

(i) $CH_3CH_2CH_2I$ 1-Iodopropane

(ii) $CH_3CH(Br)CH(Br)CH_3$ 2,3-dibromobutane

(iii) $CH_3CH_2CH=C(CH_3)CH_2F$ 1-fluoro-2-methyl-2-pentene