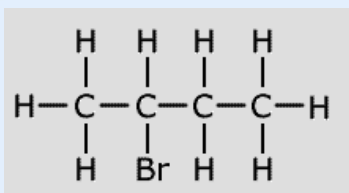
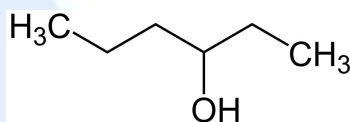


SL & HL Questions on Fundamentals of organic chemistry (1)

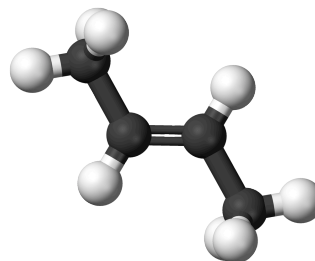
1. Name the following three compounds according to the IUPAC convention:



i.



ii.

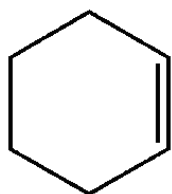


iii.

2. State the general formula for the following homologous series:

- i. alcohols (of which methanol is the first member of the series)
- ii. alkenes
- iii. alkynes
- iv. amines (of which methylamine is the first member of the series)

3. Cyclohexene contains six carbon atoms in a ring with one double bond between two of the carbon atoms. It has the following structure:



- i. State the molecular formula of cyclohexene.
- ii. Explain why the molecular formula of cyclohexene does not fit the general formula for the alkenes homologous series.
- iii. Cyclohexene is unsaturated. Give the equation for the reaction of cyclohexene with hydrogen.
- iv. Cyclohexene contains one C=C double bond. When it is hydrogenated (hydrogen is added) the enthalpy change is approximately -120 kJ mol^{-1} . Benzene also contains six carbon atoms in a ring and has the molecular formula C₆H₆. The enthalpy change for the hydrogenation of benzene to form C₆H₁₂ is approximately -210 kJ mol^{-1} . Explain why this value is not equal to approximately three times the value obtained when cyclohexene is hydrogenated.