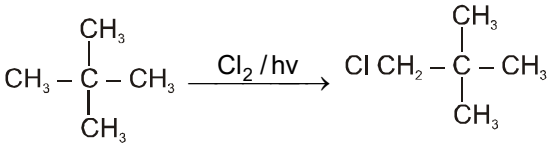
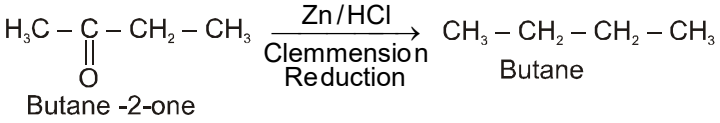
3. $H_3C-H_2C-HC=CH_2 \xrightarrow{Pd/H_2} CH_3-CH_2-CH_2-CH_3$

4. 

Neopentane only one monochloro product

5. 

Butane -2-one Butane

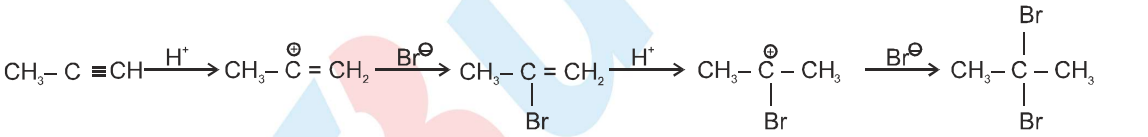
6. Boiling Point $\propto$ surface area $\mu \frac{1}{\text{Branching}}$

Iso butene has smallest vander wall surface area of contact so its boiling point least.

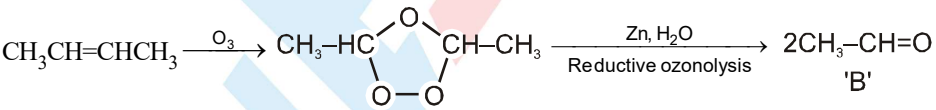
9. $CH_2=CH-CH=CH_2 \xrightarrow[40°C]{HBr} CH_3-CH=CH-CH_2-Br$

(80%) (1,4)

Thermodynamically product

15. 

2,2-dibromopropane

16. 

'B'

17. $CH_3CH_2C\equiv CH \xrightarrow[\Delta]{Na/Liq\ NH_3} CH_3CH_2C\equiv \overset{-}{C}\overset{+}{N}a$

20. $C_nH_{2n}O = 44$

$C_nH_{2n} = 44-16$

$C_nH_{2n} = 28$

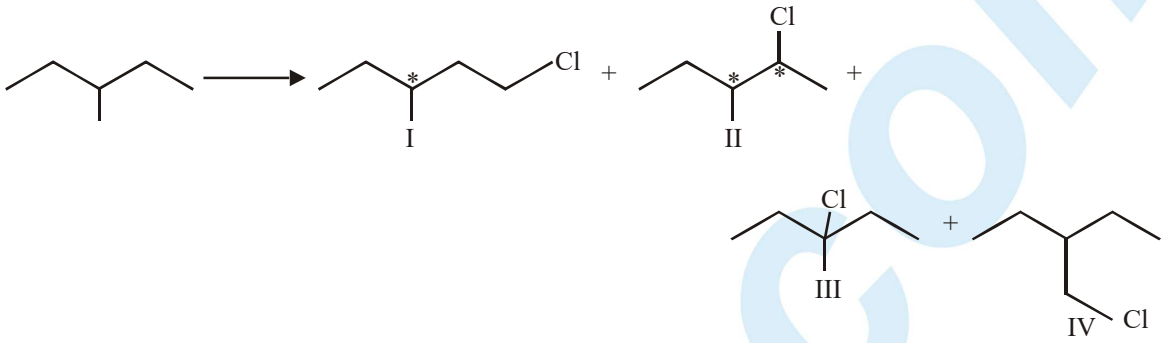
$n = 2$

$CH_3-CH=CH-CH_3 \xrightarrow{O_3/Zn} CH_3-CH=O$

17. Ease of catalytic hydrogenation depends upon the size of groups present at the doubly bonded carbon. Larger the size of groups, difficult the hydrogenation. Therefore, in the given situation, disubstituted reacts at faster rate than tri and tetra substituted alkenes. Among disubstituted, the stability order is :

cis < *geminal* < *trans*.

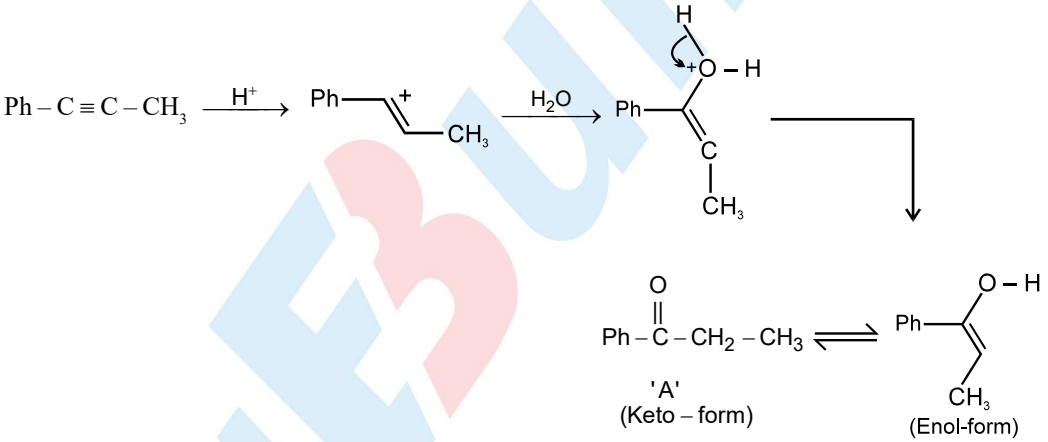
21.



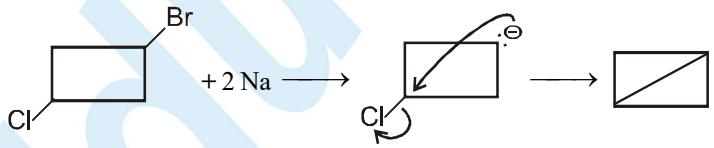
I has one chiral carbon = two isomers
II has two chiral carbons and no sysmmetry = four isomers.
III and IV have no chiral carbon, no stereoisomers.

24. Among alkanes, boiling point increases with molar mass. Among isomeric alkanes, branching decreases boiling point. Therefore, *n*-hexane has highest boiling point among these.

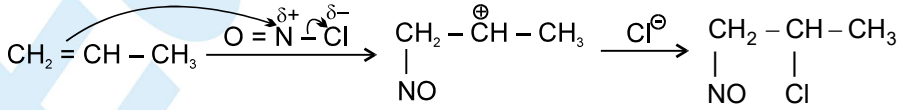
25.



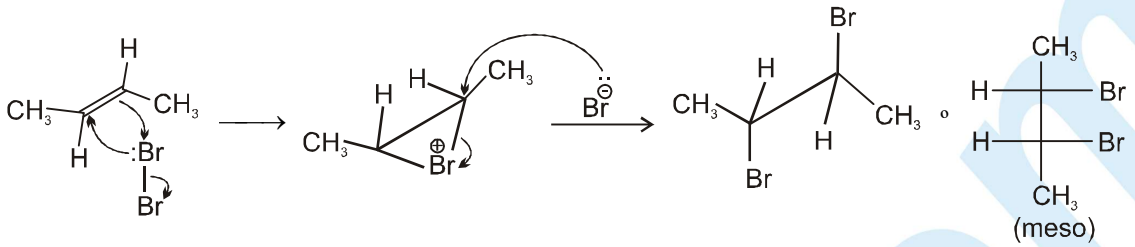
28.



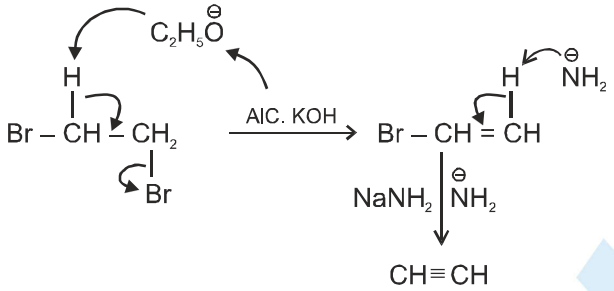
29.



58.



60.



61. Bromination is highly selective, occur at the carbon, where the most stable free radical is formed :

62.