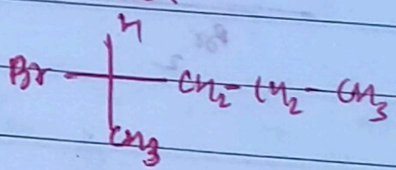
Que: which can be product (P) in the given r^n

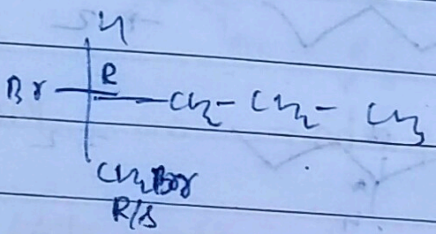
$$C_2H_6 + Cl_2 \xrightarrow{h\nu} P$$

(A) C_2H_5Cl (b) C_4H_{10} (c) C_2H_4 (d) C_2H_6

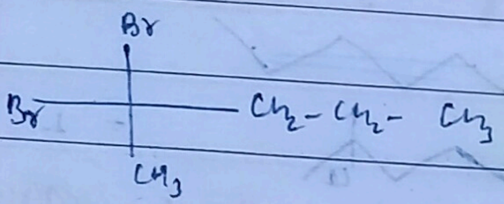
Que 2018 Total no. of optically active isomers on mono.bromination



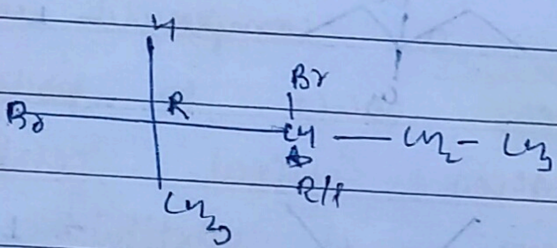
enantiomeric pair



= 2

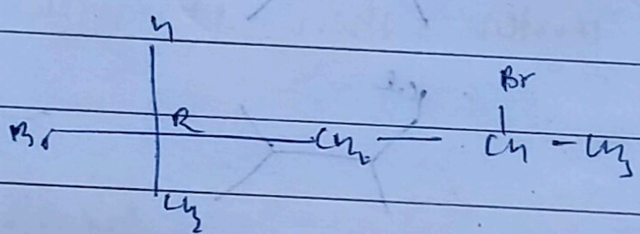


= 0



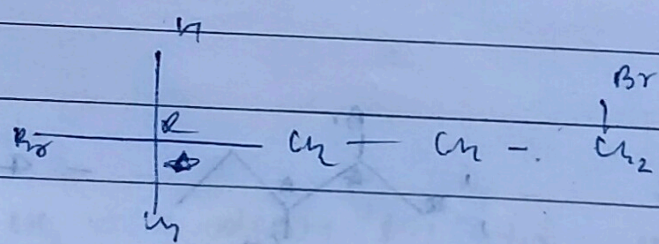
= 2

c mix.



→ R/S → ~~O. Inact~~

R/S optically acti = 1



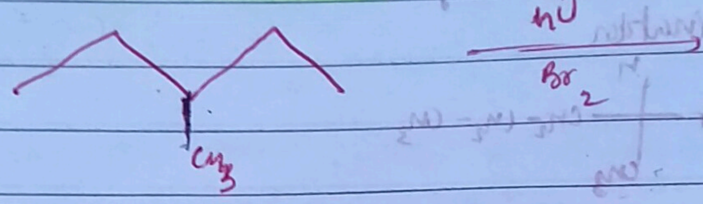
→ = 1

case-3

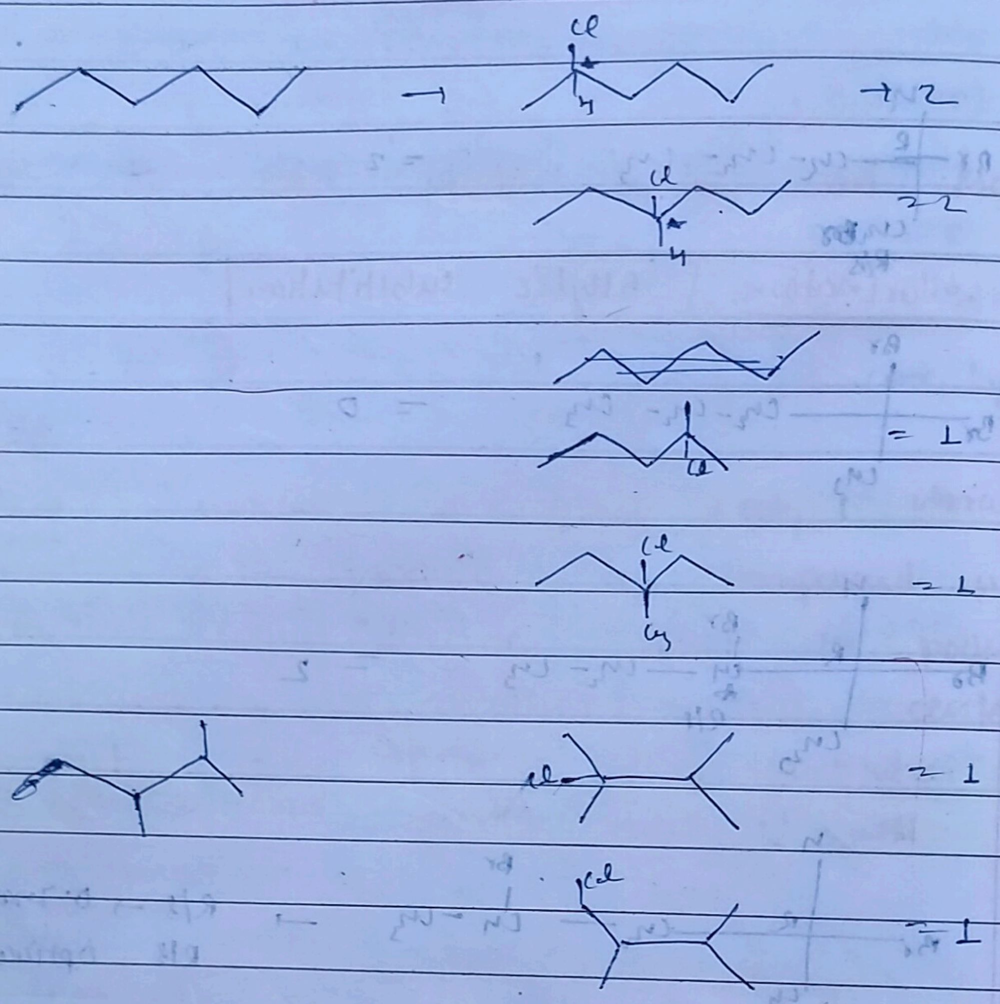
when optically achiral molecule react to other produce multiple chiral center. the product may be diastomer, racemic mix or meso compound

Total no. of isomers [optically stereo isomers]

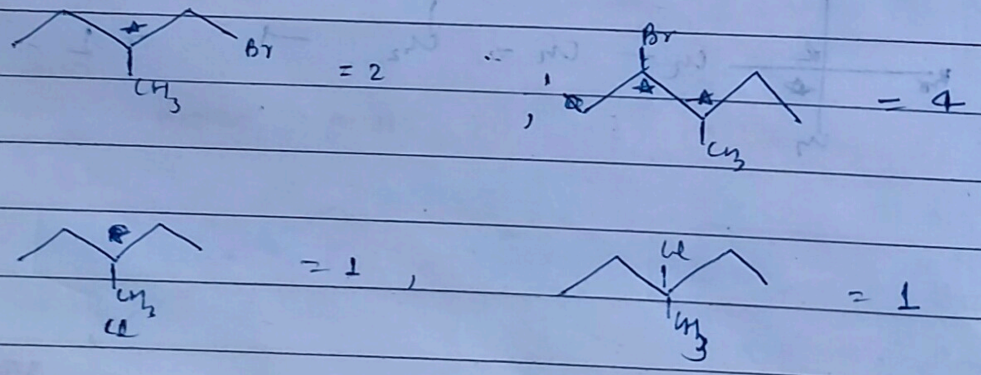
2014 Que:



Wrong



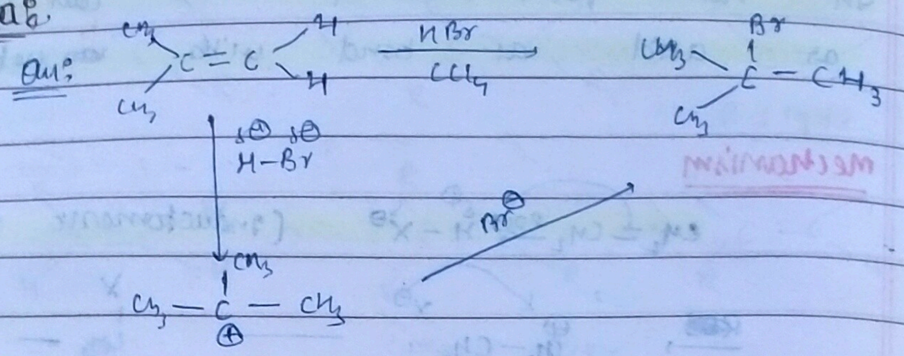
Correct



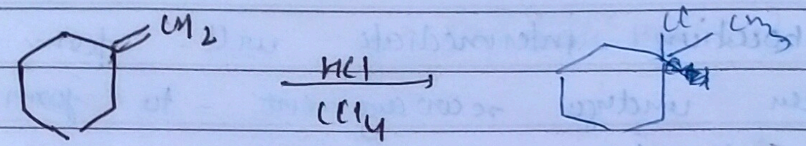
Ans = 8

migratory aptitude: $H^{\ominus} > Ph^{\ominus} > R^{\ominus}$

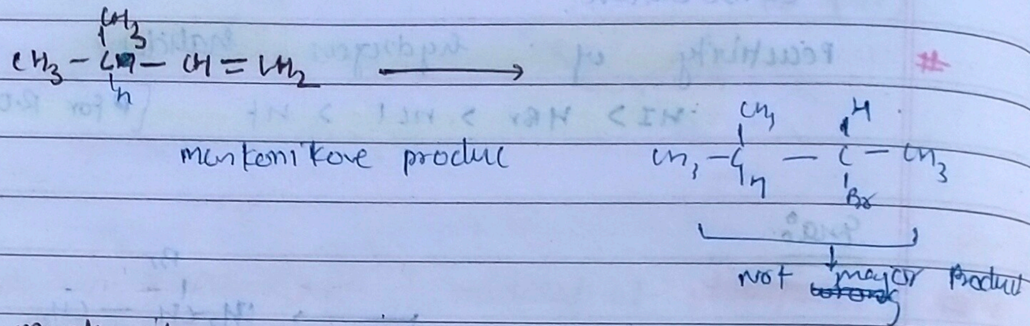
Ex: **Qu:**



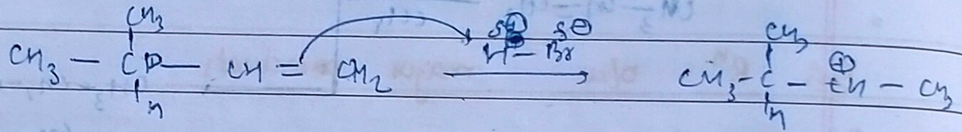
(ii)



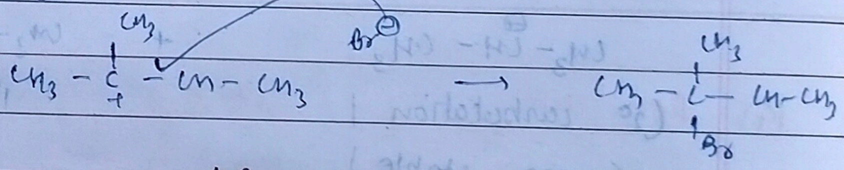
(iii)



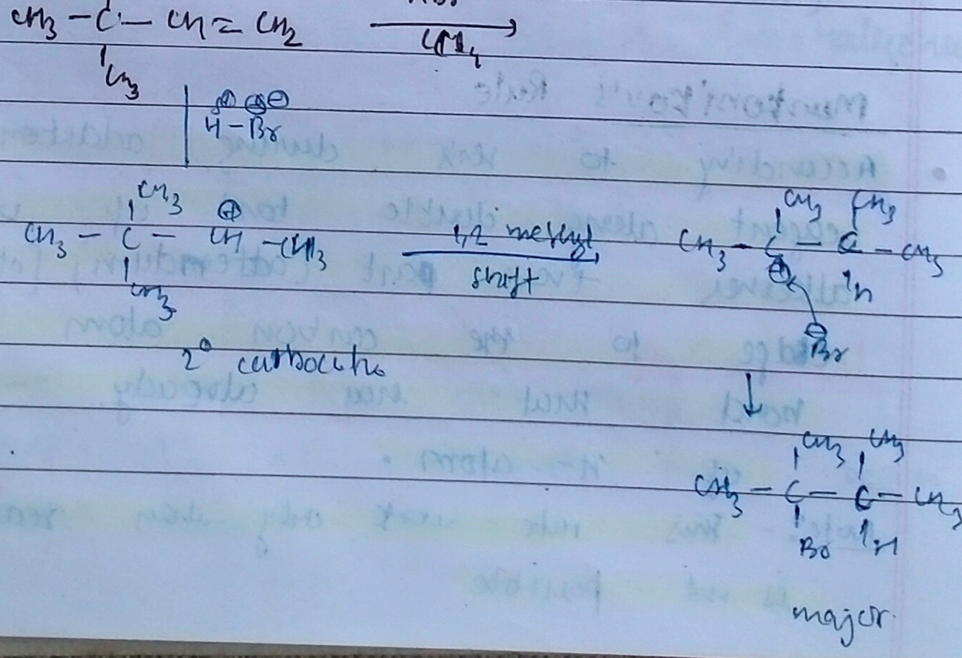
markonikove rule not work here



rearrangement:-

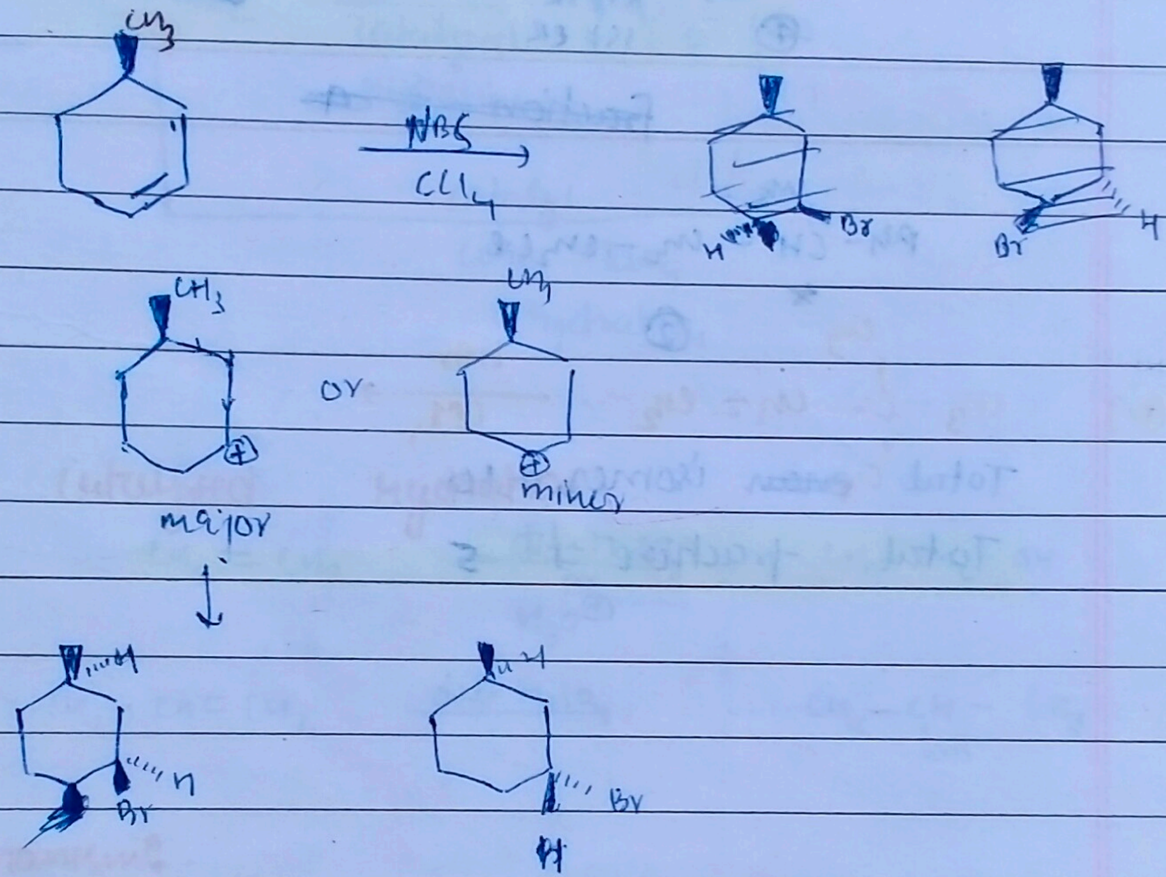


(iv)



Ous: R^n b/w major products

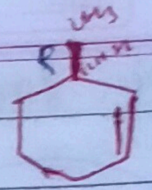
Q.



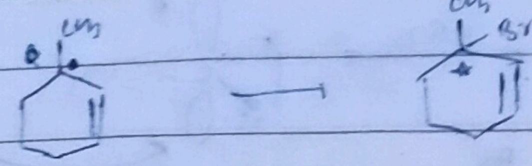
these are diastereomers

Both are optically active

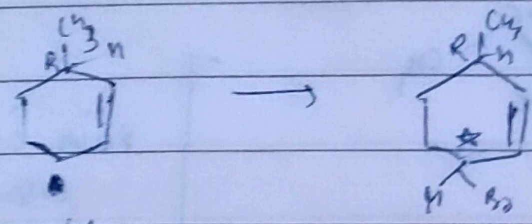
Ques:



$\xrightarrow[h\nu]{NBS,\ CCl_4}$

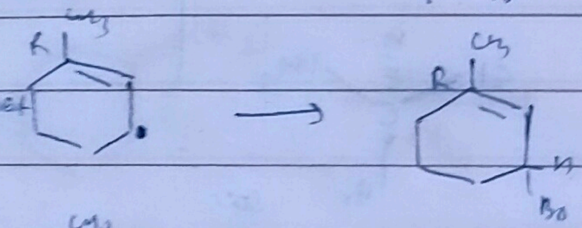


R/S = 2



R/S = 2

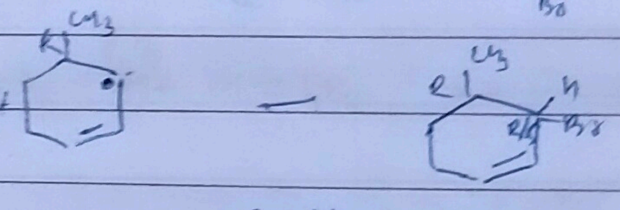
rearrangement



~~RS~~ = 2

~~RR~~
RS] → 2 → diastereo

rearrangement



= 2

fraction = 5

Ques: $Ph-CH(CH_3)-CH_2-CH_3 \xrightarrow[CCl_4 \text{ monochlorinated}]{h\nu}$ $Ph-\overset{*}{C}(CH_3)(Cl)-CH_2-CH_3$ R/S

(2)

$Ph-\overset{*}{C}H(CH_3)-\overset{*}{C}H(Cl)-CH_3$

R/S
RS, SR
SS, RR

(4)

$Ph-\overset{*}{C}H(CH_2Cl)-CH_2-CH_3$

R/S

(2)

~~fraction = 4~~

$Ph-\overset{*}{C}H(CH_3)-CH_2-CH_2Cl$

(2)

Total ~~...~~ isomer = 10

Total fraction = 5

Qu-2

Ph − C(H)(CH$_3$) − CH$_2$ − CH$_3$ $\xrightarrow[\text{Cl}_2]{h\nu}$

chlorination

Ph − C(Cl)(CH$_3$) − CH$_2$ − CH$_3$ = 2   R/S

Ph − C(H)(CH$_3$) − CH(Cl) − CH$_3$ = 2   RR, RS] di…

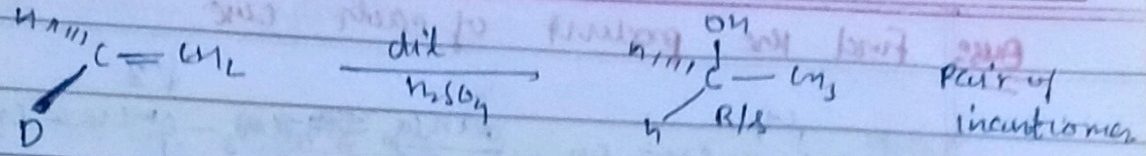
Ph − C(H)(CH$_3$) − CH$_2$ − CH$_2$Cl = 1   R

Ph − C(H)(CH$_2$Cl) − CH$_2$ − CH$_3$ = 1   R

Total no. of fraction = 5

Total no. of isomer = 6

eg.

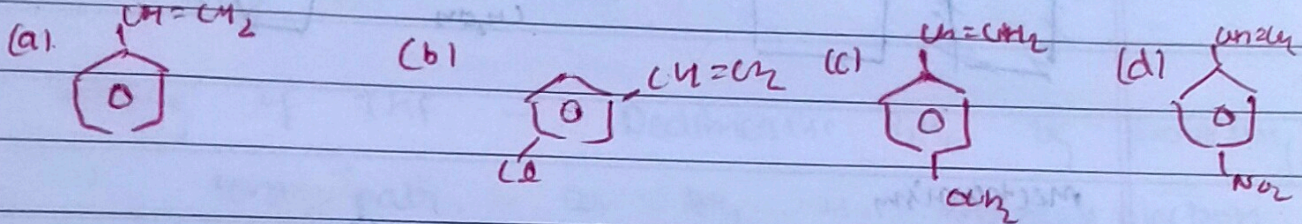


Ques Compare ~~of~~ the reactivity of alkene towards hydration.

(a) $CH_2=CH_2$ (b) $CH_3-CH=CH_2$ (c) $(CH_3)_2C=CH_2$

c > b > a

(ii)



~~d > a > b > c~~ c > a > b > d

depends upon stability of carbocation

(iii) (a) $CH_2=CH-CH_3$ ~~(less stable)~~ (b) $CH_2=CH-CH_2-Cl$ (c) $(CH_3)_2C=CH_2$

(c) $CH_2=CH-CH_2-NO_2$ (d) $CH_2=CH-CH_2-\ddot{O}CH_3$

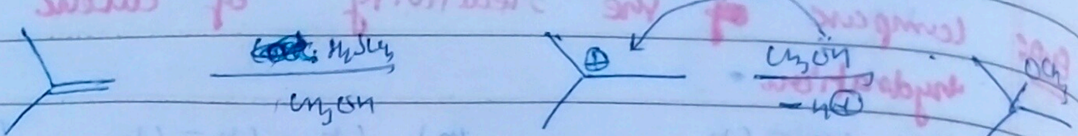
~~a > d > b > c~~
~~d > a > b > c~~ [+I, ~~-I~~, effect] a > b > d > c

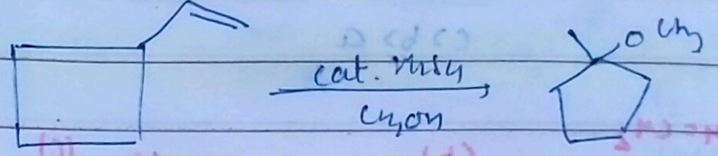
(iv) (a) $CH_3-CH_2-CH=CH_2$ less stable (b) $CH_3-CH=CH-CH_3$ more stable (c) $C=C(CH_3)_2$

c > b > a

Que: Find the product of each case

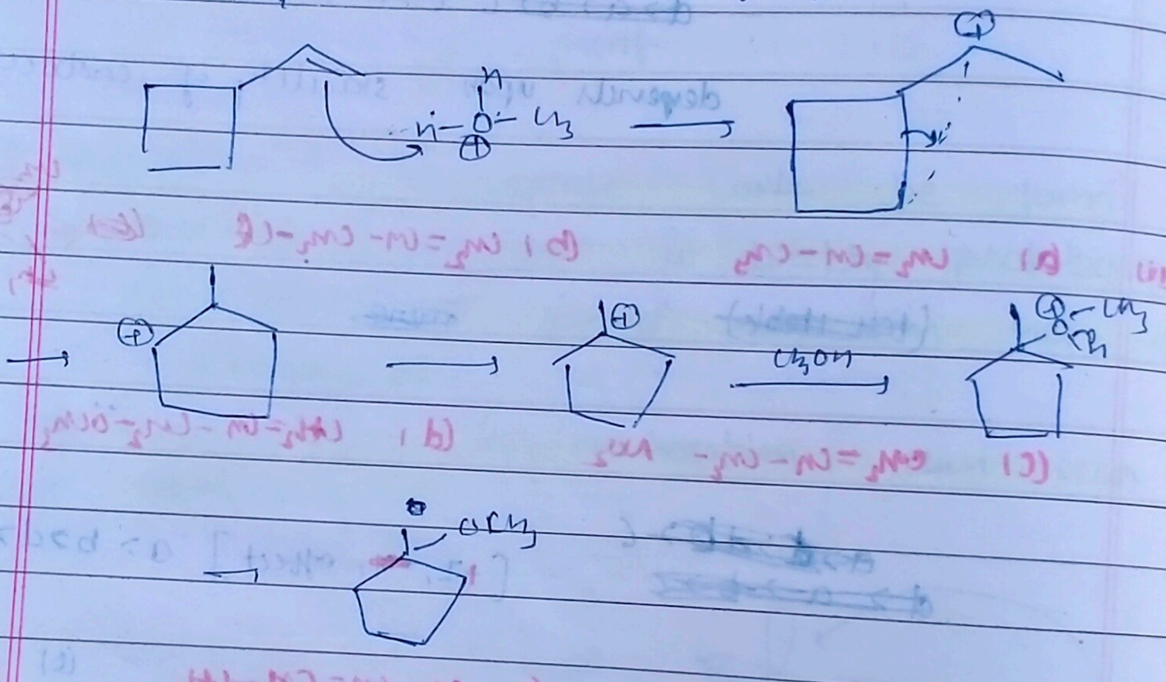
$CH_3-CH(CH_3)-CH=CH_2 \xrightarrow{dil\ H_2SO_4} CH_3-C(CH_3)(OH)-CH_2-CH_3$





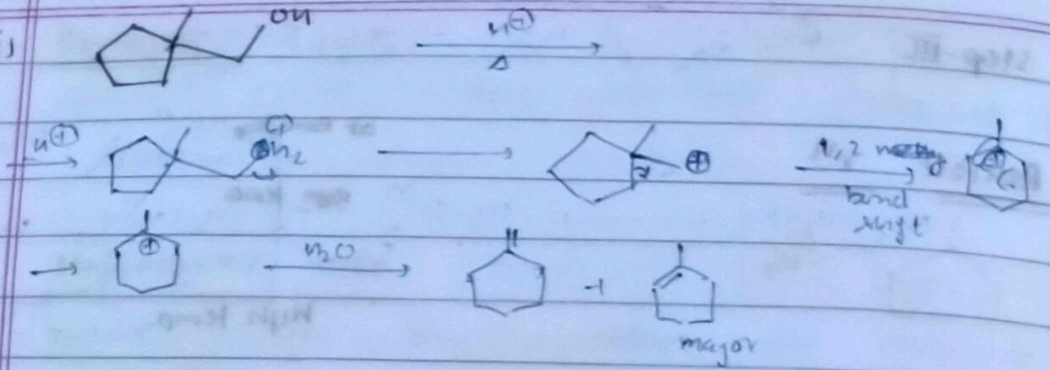
Mechanism

$H_2SO_4 + CH_3OH \longrightarrow CH_3\overset{\oplus}{O}H_2$

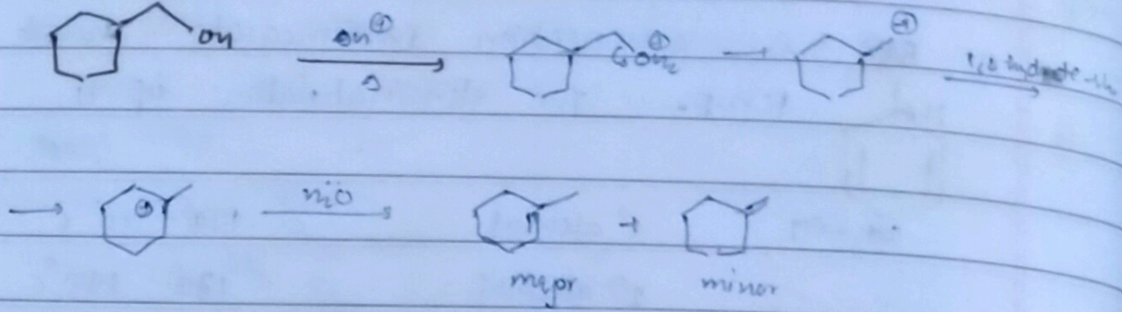


↓ substitution

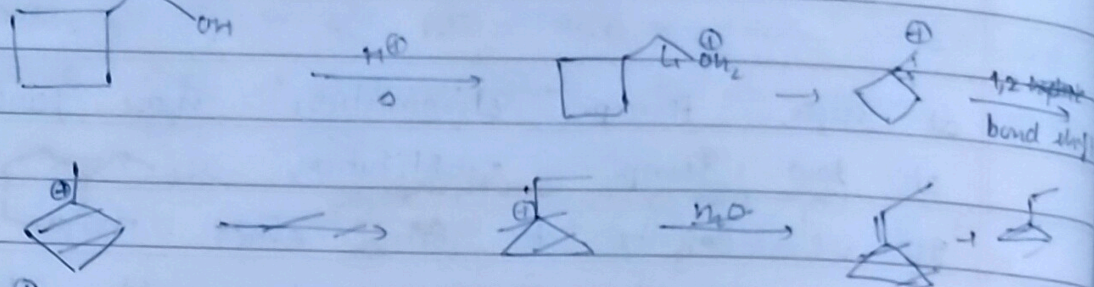
(iii)

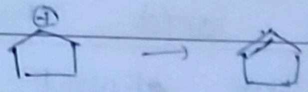


(iv)



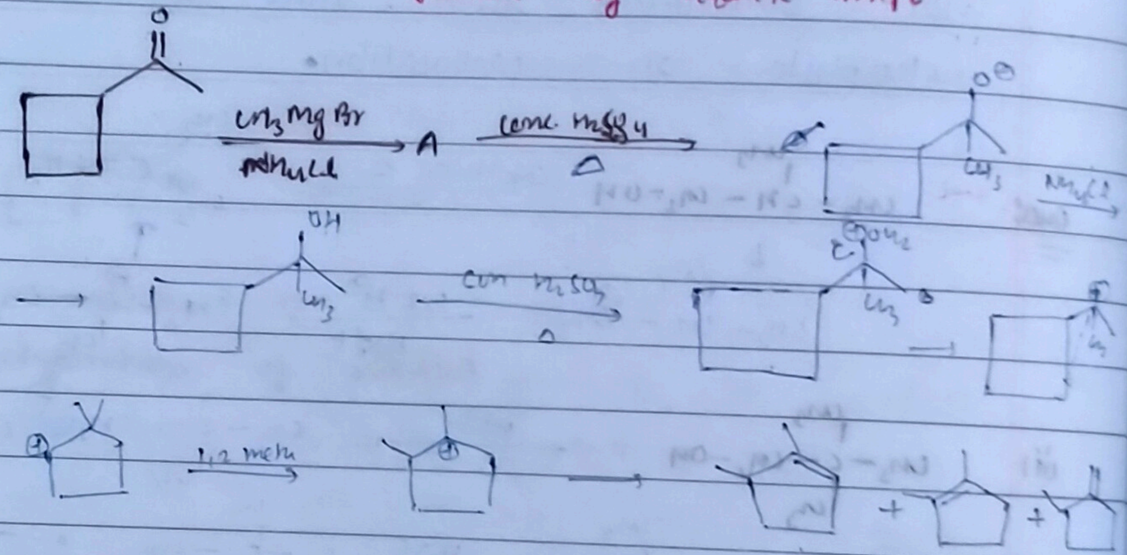
★ (v)



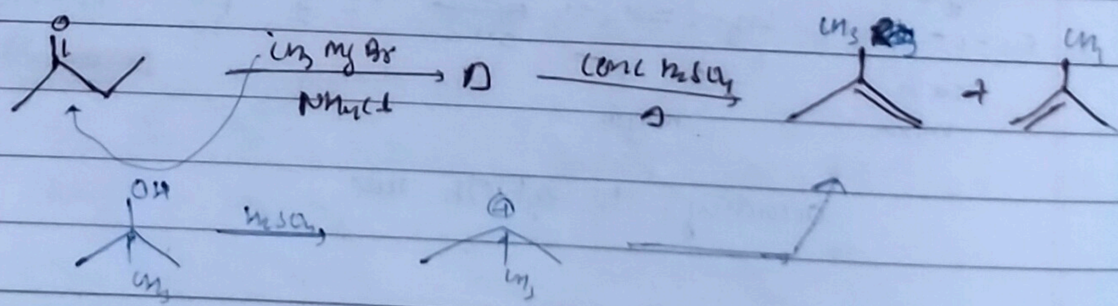


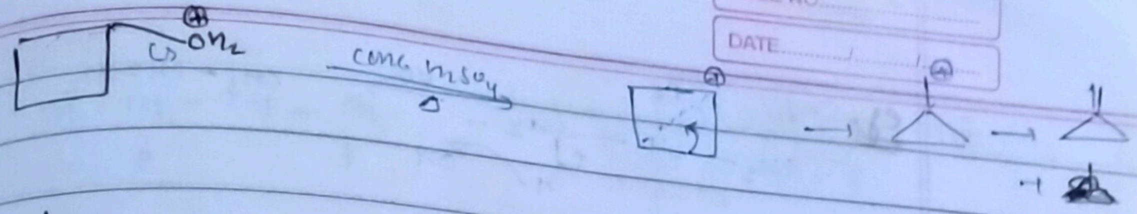
Ring expansion / Ring contraction will followed by Hydride shift.

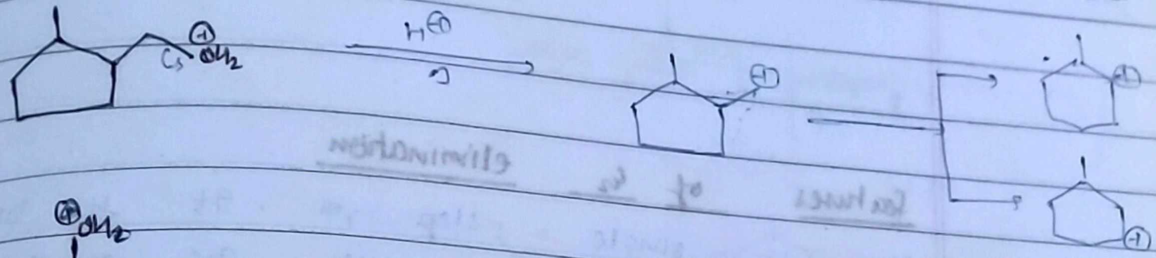
(vi)

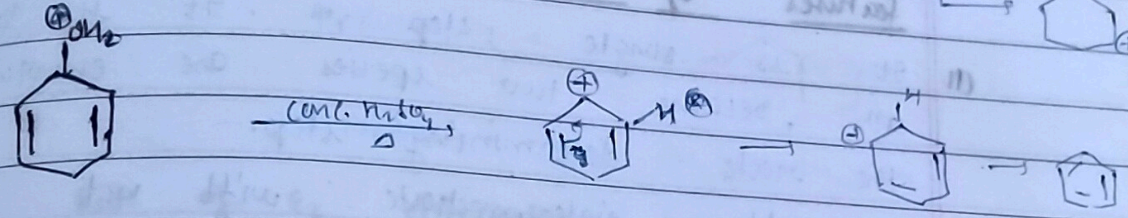


(vii)



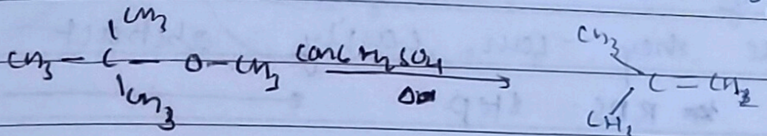




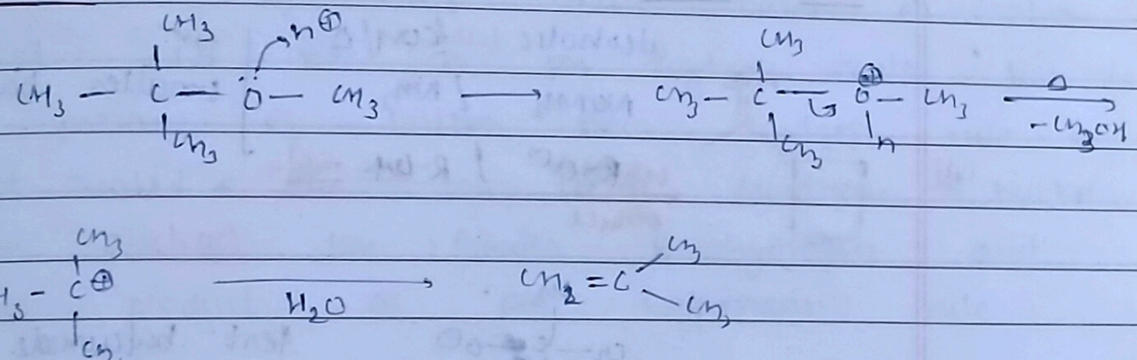


E_1 Elimination R^n for Ether

Elimination is not favourable r^n for ether but few r^n can be observed by E_1



Mechanism:



Bimolecular Elimination for alkyl halide (E_2-elimination)