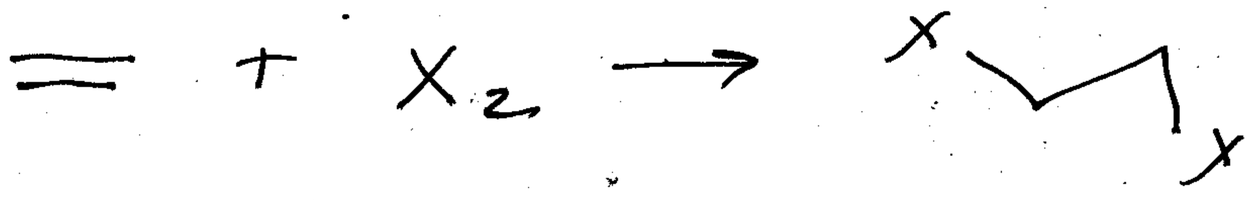
D 1. In the halogenation of ethene, which is the most exothermic RXN. Use the tables of homolytic bond dissociation energies



(a) $CH_2CH_2 + F_2$

b) $CH_2CH_2 + Cl_2$

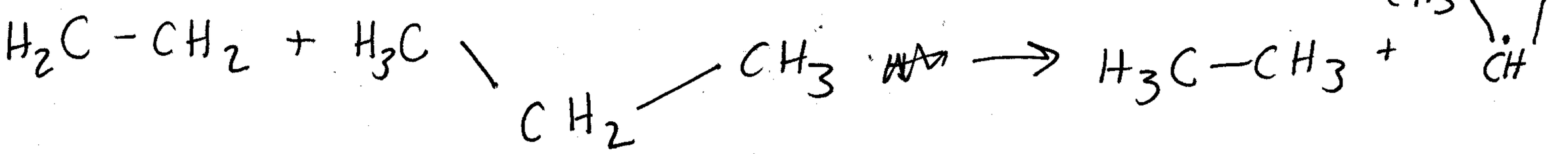
c) $CH_2CH_2 + I_2$

d) $CH_2CH_2 + Br_2$

$F_2 > Cl_2 > Br_2 > I_2$

C-F > C-Cl > C-Br < C-I

2 Consider the following RXN whose energy of activation is 30 KJ/mole.



Using the homolytic bond dissociation energies in the appendix determine energy of Activation for the reverse RXN. (Drawing a qualitative RXN energy diagram may help)

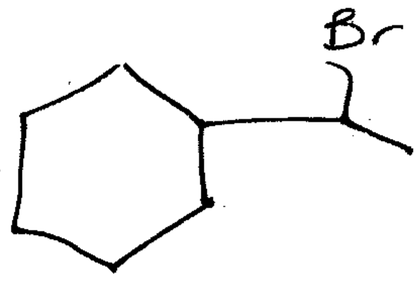
a) 15 kJ/mol b) -45 kJ/mole (c) 45 kJ/mole

d) -30 kJ/mole e) 30 kJ/mole

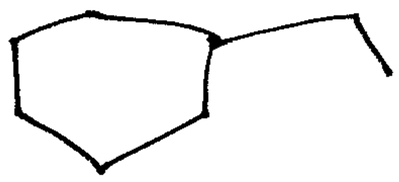
23 Which of the following is the best method to make a racemic mixture of (+) & (−) 2,3-dibromobutane

(c) addition of Br_2 to cis-2-butene

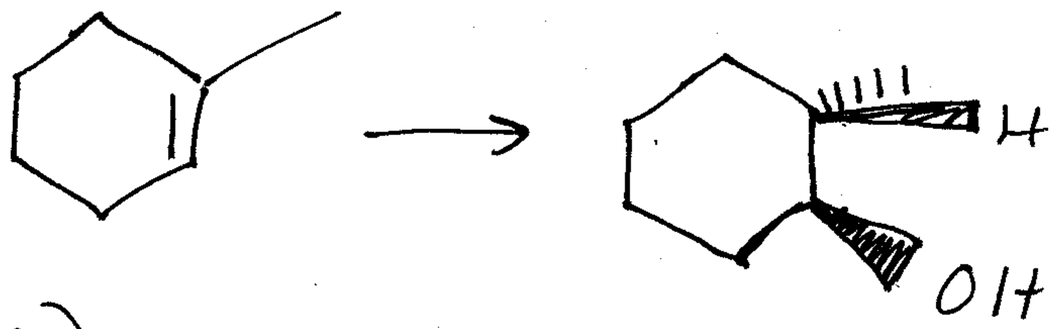
(3) ↓ 2 Predict the structure of the alkene you would use to prepare the following alkyl halides in good yields.

? $\xrightarrow{HBr\ CCl_4}$ 

(only product)

(c) only 

(4) What is the best reagent for carrying out the following transformation?



b) i) BH_3 THF ii) H_2O_2, NaOH, H_2O

(5) ↓ 3 What are the products of the following RXN?

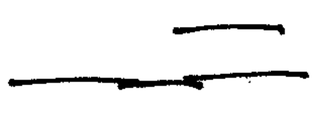
$CH_3OH + CH_3C\equiv C^-\ Na^+ \longrightarrow$?

(c) $CH_3C\equiv CH + CH_3ONa^+$

which sequence of RXNs works best in synthesizing cis-3-nonene?

(b) 1-butyne $NaNH_2$ → 1 bromopentane → H_2 lindlar cat →

(7) which of the following is the enol intermediate in the acid catalyzed addition



H_2O $HgSO_4$ H_2SO_4

(8) What is the product of the following RXN sequence

1) $NaNH_2/NH_3$
2)

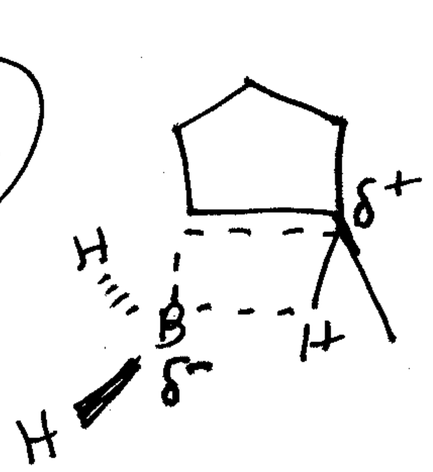
Li/NH_3

1) $Hg(OAc)_2$, H_2O
2) $NaBH_4$

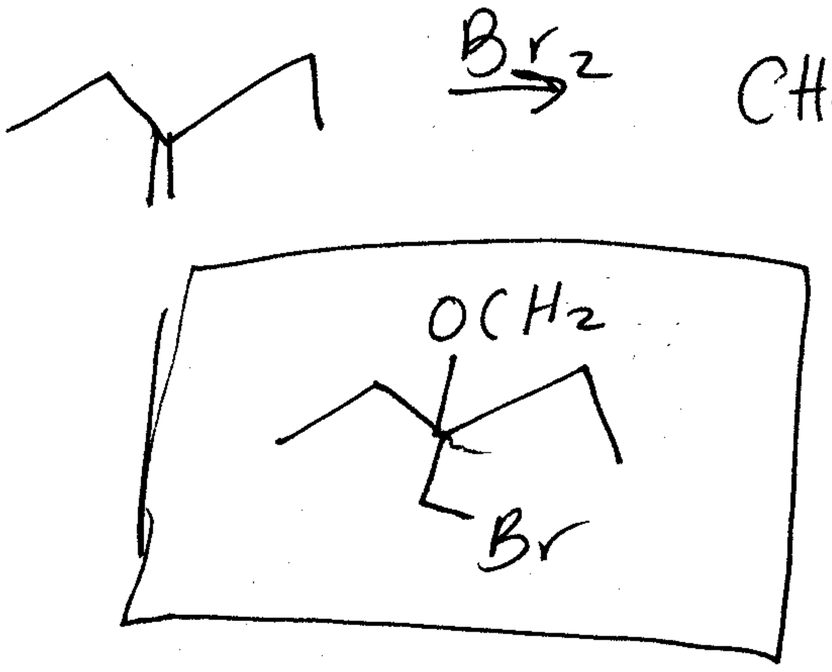
(b) 

c) 

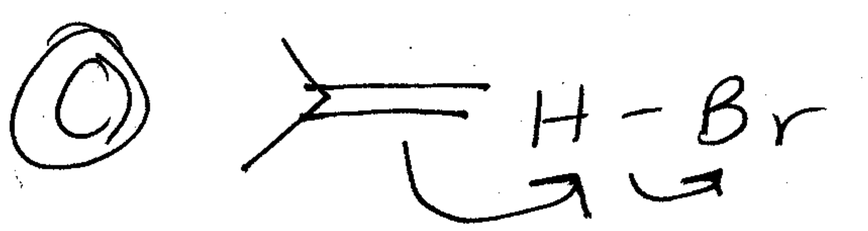
(9) which of the following 4 centers transition states justifies the regiochemistry found in hydration of 1-methylcyclopentene using the hydroboration sequence

(a) 

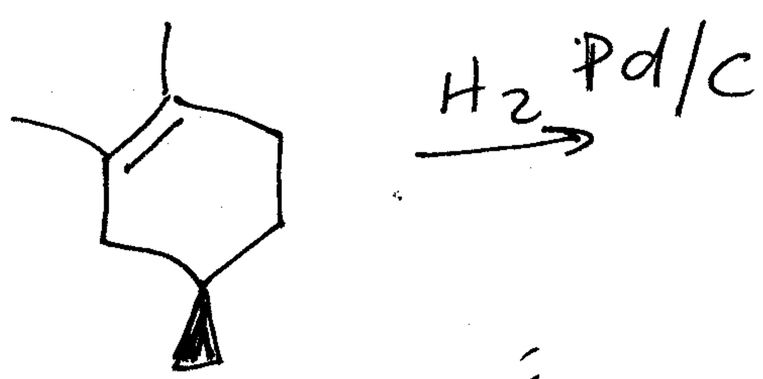
(10) What is the major product of the follo RXN



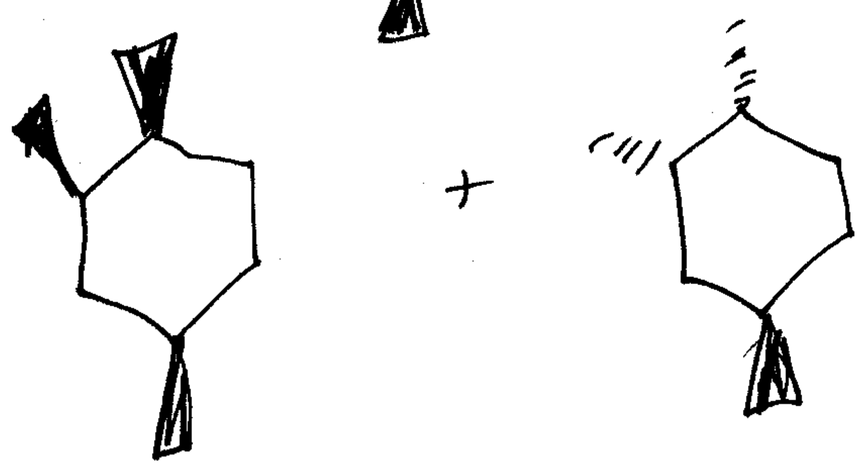
(11) which correctly ~~[illegible]~~ depicts the
↓ mechanistic 1st step in the addition
10 of HBr to 2 methyl propene



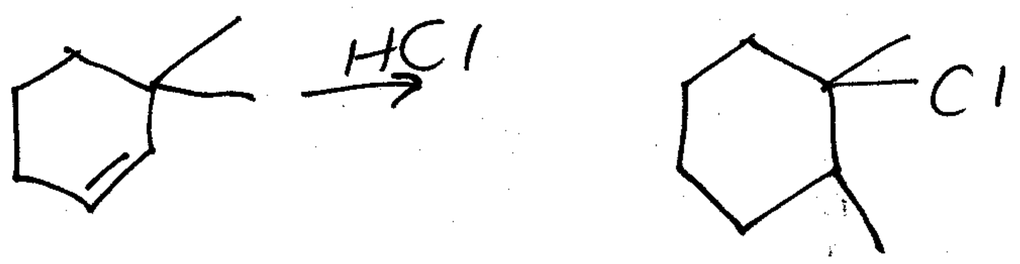
(12) what are the products of the following RXN
↓
1



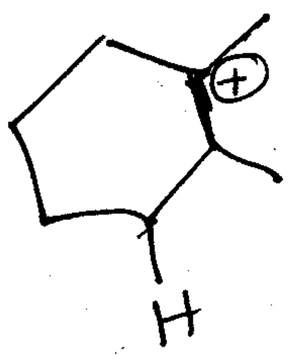
c)



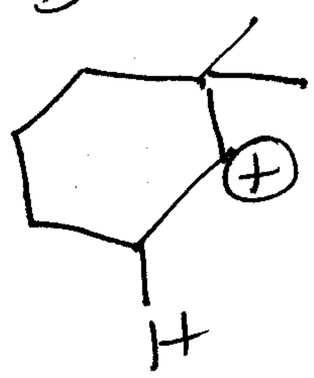
Which of the following is/are not an intermediate in the following RXN?



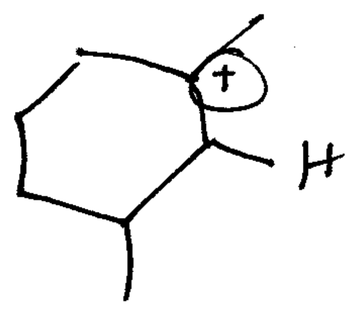
A



B

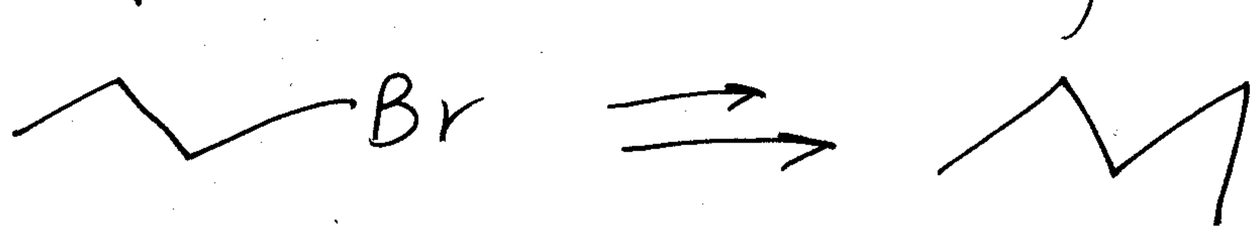


C

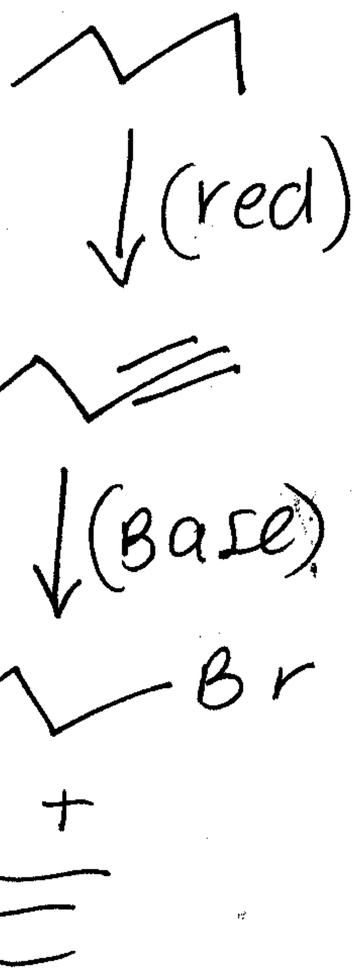


c) only C

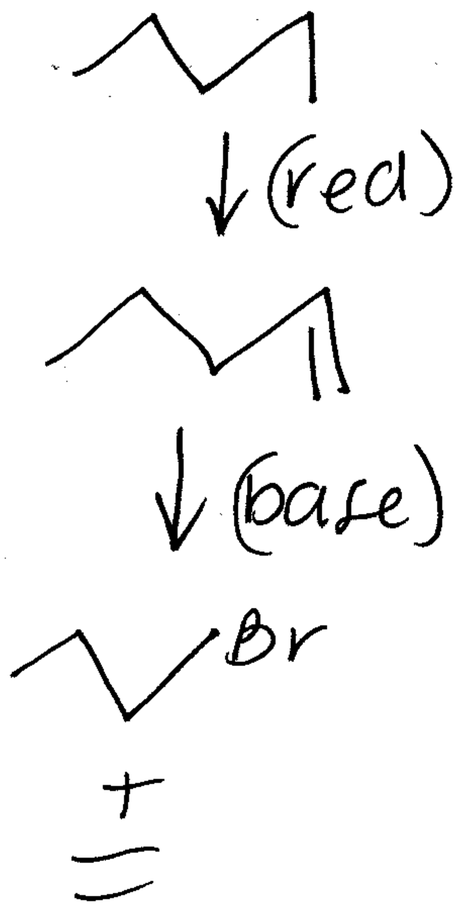
(14) which is a correct retrosynthetic analysis for the following transformation



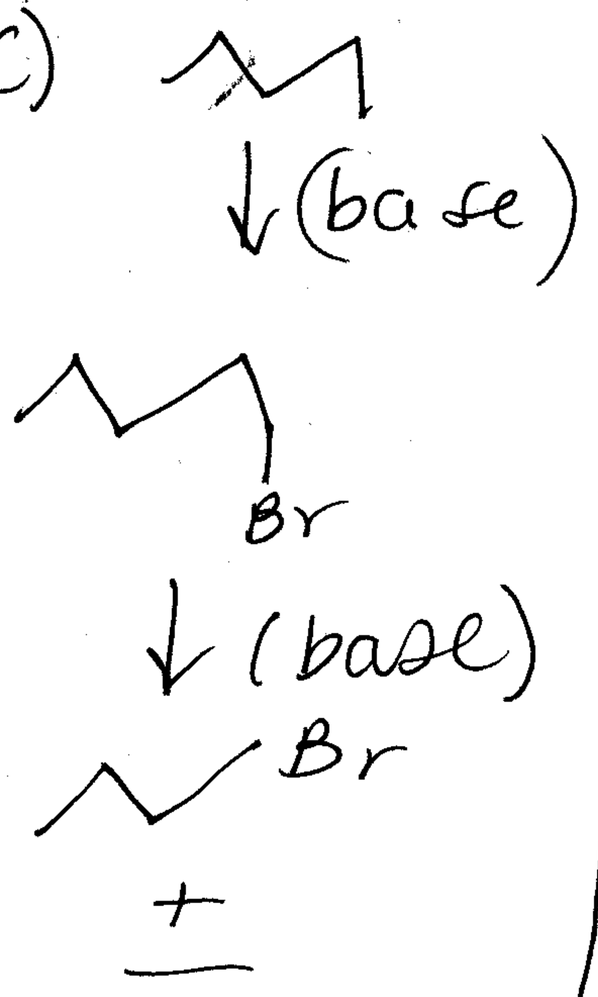
a)



b)

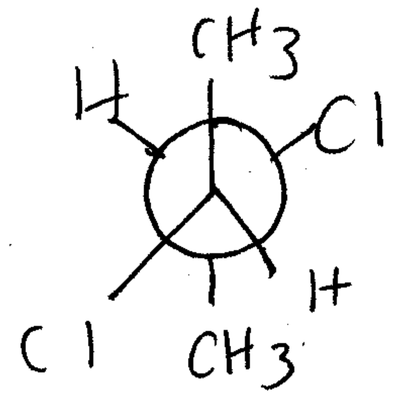


c)

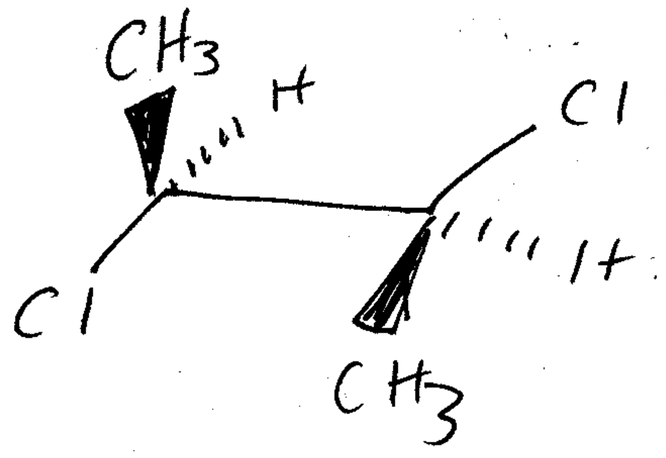


a) all of them

(15) ↓ 16 consider the following 2 structures.. u. is their isomeric relationship to eachother



(meso)



a) identical b) enantiomers (c) diastereomers

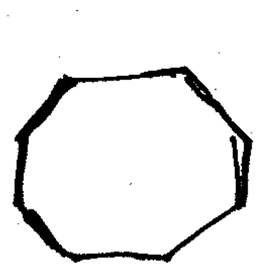
d) constitutional isomers

(16) ↓ 8 What is the product of

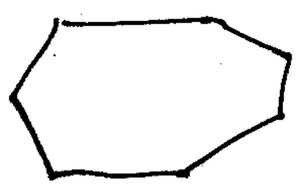
1) $NaNH_2$, Heat
2) Br–Br
3) $NaNH_2$, Heat

3) H_2 Pd/c

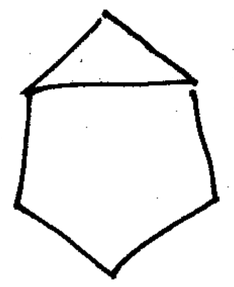
(a)



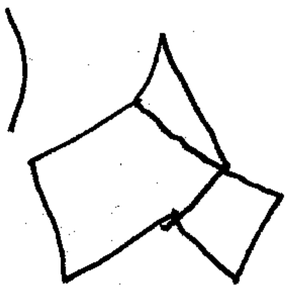
b)



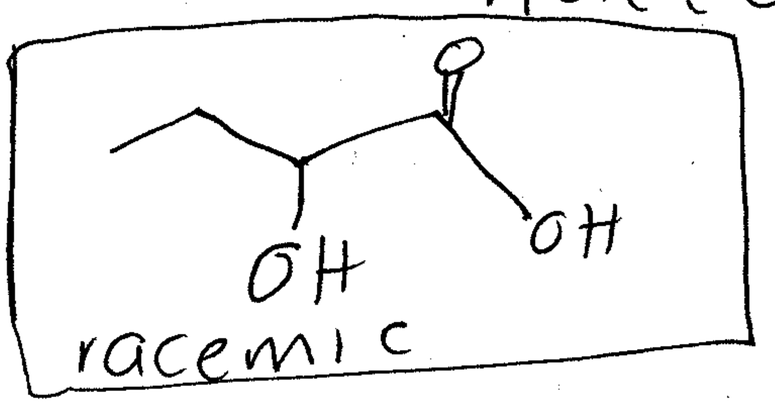
c)



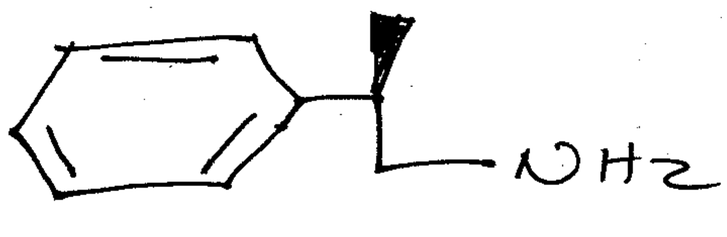
a)



(18) ↓ 29 The best reagent to use to resolve a racemic mixture of the following molecule would be

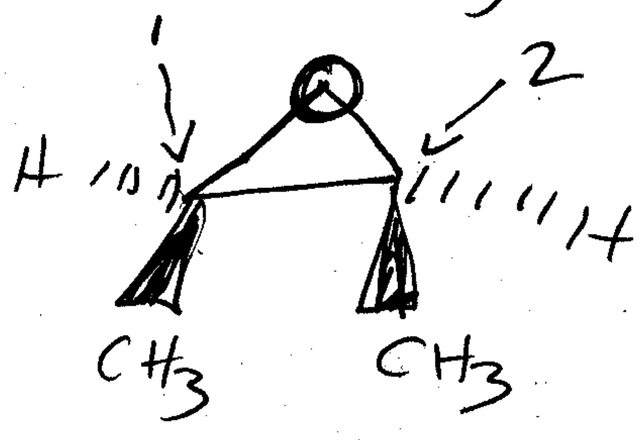


(b)



d)

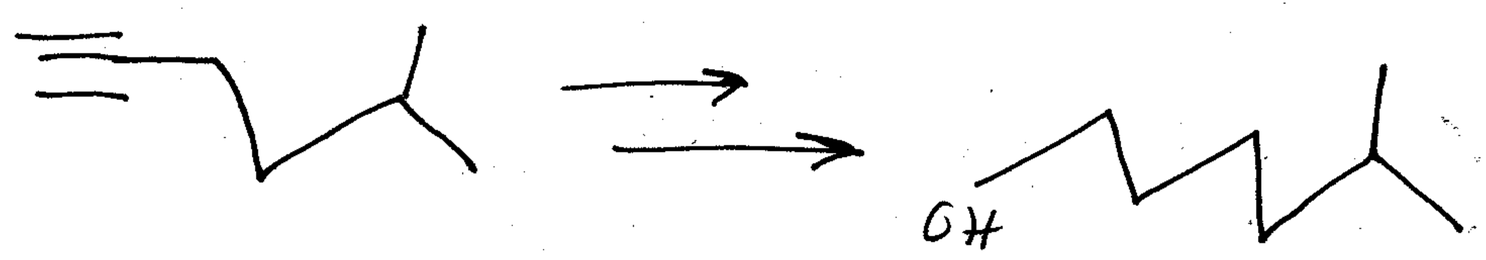
, Give the configuration of carbons 1 & 2
14 respectively in the structure shown below



a) R & R
b) R & S
c) S & S

20 Select best method

20

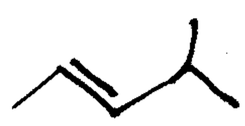
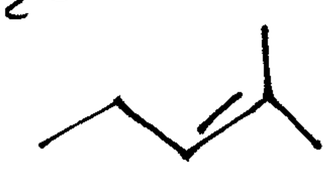
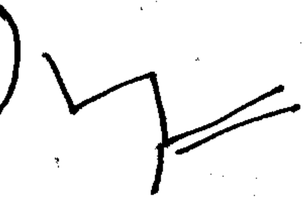


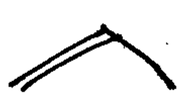
b) $\xrightarrow{HBr}$ $\xrightarrow{H_2\ Pd/c}$ $\xrightarrow{NaOH}$

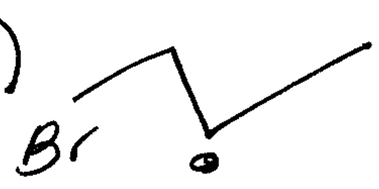
c) $\xrightarrow{H_2\ Lindlar\ cat.}$ $\xrightarrow{BH_3/THF}$ $\xrightarrow{H_2O_2\ NaOH}$

d) $\xrightarrow{HBr,\ peroxide}$ $\xrightarrow{NaOH}$ $\xrightarrow{H_2\ Pd/c}$

21 Which of the following alkenes gives 1-bromo-2-methyl-2-pentanol upon RXN w/ Br_2/H_2O
21

a) 
b) 
c) 
d) 

22 Which of the following is a step in the mechanism of the RXN shown?
↓
17  + HBr $\xrightarrow{Peroxide}$ 

a)  + HBr
b)  + HBr
c)  + HBr
d)  + HBr

(Back) →